Recent Advances in Humanities, Commerce, Management, Engineering, Science & Technology

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FACILITATING TRANSITION FROM SCHOOL TO WORK: EMPOWERS STUDENTS WITH SPECIAL EDUCATIONAL NEEDS TOWARDS INDEPENDENT LIVELIHOOD IN AN INCLUSIVE SOCIETY

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Abstract

The contemporary study discusses facilitating the transition from school to work: empowers students with special educational needs (SwSENs) towards independent livelihood in an inclusive society. Young people in today's competitive workforce are expected to take charge of their careers and demonstrate initiative, adaptability, and originality. Students with SENs can benefit from transition programs between the school and the workplace since they help them prepare for life after graduation. While the school-to-work initiative promotes employment opportunities for students with SENs, it has been accused of missing conceptual support. Last, it draws attention to the potential of several distinct intervention options that are consistent with the ideas presented and likely to aid in effective school-to-work transition and empowers students with SENs towards independent livelihood in an inclusive society. Transitioning from school to work may present unique challenges for Students with SENs. In general, the rest of the developed world is improving at helping Students with SENs transition from school to work. The Personalized Program Transition Plan is one such tool. Temporary infrastructure is underfunded in (school – work). Policies that aid students with SENs in acquiring employability skills should be prioritized. It has been argued that adolescents represent a population with exceptionally high potential for improvement. Protective policies encourage positive lifestyle modifications that increase economic security and benefit everyone. The government benefits greatly as well. There is strong evidence that a hostile first workplace can significantly increase the chance of unemployment and poorer pay throughout one's working life. The costs associated with an aging population that uses an increasing number of public services can be reduced if the proper steps are taken. How to best provide services for students with SENs is one of the most critical transition concerns being addressed right now. The outcomes of this case study can inform service providers' strategies for assisting high school graduates as they move on to further education or the workforce. The goal of livelihood initiatives designed for students with SENs is to help them thrive by creating an enabling environment for full engagement in an inclusive society. Efforts to enhance the economic position of the disabled and other marginalized groups have our full support. All people are treated equally in a genuinely inclusive society.

Keywords: *Transition, School, Work, Empowerment, Students with SENs, Independent, Livelihood, and Inclusive Society.*

Introduction

Every student face effort throughout the transition from school to the workforce, but students with SENs sometimes face far more significant obstacles. Most developed countries are investing more in programs that prepare high school graduates with disabilities for the workforce. Personal Transition Plans are one method used in this outcome were obtained. We all go through several phases as we mature into adulthood. To get students with SENs ready for the workforce, it is necessary to analyse their goals and interests for life beyond high school. The term "transition" can refer to anything from a shift in focus to a physical move. Your post-university decisions about work, residence, social circle, and financial stability may have far-reaching consequences. Transitioning to a new setting can be difficult for students with SENs for several reasons, such as the discrimination

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associated with disability and the complexity of the services intended to ease this transition (Williams Diehm & Lynch, 2007). Students with SENs may have an incredibly challenging time transitioning from high school to the workforce (NAFW, 2007, 2009; WG, 2010, 2013).

In today's fast-changing workplace, students with SENs find themselves under more pressure to prioritize their career growth. The transferable skills taught in programs designed to aid students with SENs in entering the workforce are invaluable. Some have argued that the school-to-work movement's efforts to boost youth employment lack a firm theoretical foundation. Each concept's potential to guide the transition from school to work is then explored, and specific effective treatments compatible with the ideas offered and likely to aid in a smoother transition are analysed in depth. The rapid pace of innovation over the previous two decades suggests that this workplace trend will continue well into the 21st century (Watts, 1996).

The value of an interest in strategies to improve customer service in the workplace has increased in recent years (Bridges, 1994). There has been a shift away from hiring permanent staff to instead relying on temporary labour, such as freelancers, contract employees, and seasonal workers (Handy, 1994). Individuals will need to take more responsibility for their career development and actively endeavour to improve their adaptability and creativity if they succeed in future workplaces (Watts, 1997). Therefore, it is more important than ever to use cutting-edge methods to train young people for the workforce as we enter the twenty-first century (Takanishi & Hamburg, 1997). There are three distinct but linked stages to going from school to working life: the preparatory academic work, the actual transition, and the subsequent effects on the workforce. This study has centred on the pre-stage to ease students' SENs' transition from school to work and to improve the employable skills of those already in the workforce so that they can earn a living on their own and significantly contribute to an inclusive society.

The Concept of the Transition Model

More and more frequently, the term "transition" is used to characterize systemic developments that strive to produce more sustainable socio-technical systems (Smith et al., 2010). Like many others, the word "transition" takes on a new meaning the first time it is used in a particular context. Education and health disciplines have significantly contributed to our current understanding of the transition process as it relates to human life and well-being over the past three decades. The significance of the word "transition" might be inferred from its prevalence in use. Different disciplines define transition differently, but most agree that it has to do with how people adapt to changed situations. It takes time and flexibility to adjust to any change, whether on a developmental, personal, relational, situational, societal, or environmental level. One must reconstruct a solid sense of self to transform their behaviour successfully. Due to the importance of time in transformation, the preceding, during, and after stages need to be investigated independently. When faced with a significant change, individuals undergo a "transition" or an adaptation period. Persons are told to transition when changing and adjusting to new circumstances (Kralik, D., Visentin, K., & Van Loon, A.,2006).

Children's development and education greatly benefit from a smooth passage from preschool to elementary school (Perry, Dockett, & Petriwskyj, 2014). Scholarly attempts to explore different facets of this process have contributed to the current state of knowledge on a global scale. According to some studies, this shift could stunt students' intellectual, emotional, and social development in the classroom (Rosenkoetter et al., 2009; Schulting, Malone, & Dodge, 2005). Studies show that the transition from preschool to school is also essential for children (Berlin, Dunning, & Dodge, 2011). Children with a positive first-grade experience are more likely to succeed in school and life (Dockett & Perry, 2007). Any time there are dramatic changes in the institutional framework of socio-technical systems that enable possible selected socially valuable activities, we can speak of a transition (e.g., mobility, energy, healthcare).

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Numerous factors must be considered throughout changes, including but not limited to: advancements in technology, availability of resources, structure and administration, political climate, economic climate, and cultural norms. As an outcome, transitions typically involve:

1. Numerous people (including persons, corporations, and community actors).
2. Groups (including social and technical means, laws, and standards of good practice).
3. Technological features (e.g., material artifacts and information).

Making the transition from preschool to first grade is an important developmental milestone. Thus, experts worldwide have focused their attention on this topic to ease the adjustment process for kids. Kids' academic and personal development gain from this strategy.

School-to-Work Transition

The transition from school to work indicators are used to classify young adults' professional paths more precisely. The focus is on students with SENs and transitional stages and strategies. Nearly 20% of the world's population is under 30. Their unstable working conditions have garnered international attention in recent years. Three times as many young women and men as adults were not in the labour force, an educational institution, or the armed forces in 2018. Some young individuals may only be able to find low-paying employment with no benefits if they are lucky enough to find work. A person's future employability is strongly correlated with the amount of education they have received. When we talk about a person's "career opportunities," we refer to their potential to find and keep a job, advance within their current firm or other organizations and adjust to the effects of demographic and technological shifts. This idea considers a person's intrinsic capability to learn the skills needed by employers and the accessibility of suitable work environments (OGIP/HQ, 2019). The importance of the period between high school graduation and entering employment has been underestimated in recent years, primarily for economic and political reasons. Recent years have seen a resurgence of interest in the topic of making the transition from school to work as a result of declining educational attainment levels and altering needs in the labour market. The transfer from school to the workforce has been motivated more by necessity than nostalgia. Economic theories have emphasized general employability and industry-specific skills to make teens desirable to future employers.

In contrast, social psychology has concentrated on identifying and developing distinctive talents and attributes that can be turned into human capital. Both approaches seem at odds at first glance, but they are meant to help students with SENs become more employable. Hansen (1999) proposes that schools incorporate guidance counsellors, classroom teachers, parents, communities, and students into career planning. Worthington and Juntunen (1997) argue that counselling should provide a holistic view of the educational-professional transition. In addition, Lent, Hackett, and Brown (1996) argued for collaboration across disciplines and using a common theoretical framework. Transitioning from a student with SENs to a worker is not always seamless. Many young people have to manage many commitments at once, either continuing their education after earning an income or working in temporary positions before securing permanent ones. Instead, students with SENs should see the period between high school and college as a chance to begin building their futures.

The importance of policies and initiatives that aid young people in finding meaningful employment is thus highlighted. Youth nowadays are under more pressure than ever to strike out on their professional and think creatively. Programs designed to help high school children transition from school to work could be beneficial. Although there is consensus that young people should have greater access to rewarding work experiences, the school-to-work movement has been accused of not having a theoretical framework to guide these activities. Students with SENs are at a crossroads where their decisions will have far-reaching effects on their future. Students with SEN's long-term satisfaction is deeply influenced by their transition from the classroom to the

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workplace. It has long been understood that a graduate's employment prospects and lifetime earnings for students with SENs are significantly impacted by how quickly they find a job after college. Compared to their peers, high school grads who rapidly find stable employment are in a favourable position. To better understand the aspects that affect young people's prospects of future success in the workforce, the International Labour Organization and the Mastercard Foundation produced markers of a smooth or tough transition from school to work, empowering students with SENs towards independent livelihood in an inclusive society.

Transition Services for Students with SENs

There is a massive disparity between the employment prospects for pupils with and without disabilities (Dunn, 1996). Students with SENs or who have been performing academically for an extended period have far higher drop-out rates, making it much more challenging to find work after high school graduation. High schools might engage and inspire these students more if they took the time to help them identify and develop their interests and strengths (or a plan for acquiring them). Institutes of higher learning are obligated to revise their curriculum to enable students with SENs and include the recent study into effective teaching and learning methods. Several studies have revealed that teachers' opinions of novel pedagogical approaches, such as those that mainstream kids with SENs, differ significantly. This led us to wonder if teachers' perceptions of what constitutes best practice in transition to employment services might be influenced by the types of schools and training programs, they are most familiar with (Elhoweris and Alsheikh,2006). As an outcome, teachers must understand that many adolescents with SENs are capable of academic success and graduation.

For the sake of their student's academic, professional, and social success, in addition to their financial stability, educational leaders should invest in the professional enhancement of their staff. Students with SENs have the exact needs as their typically developing peers in terms of self-awareness, exposure to careers, assessment, and skill development; however, they often require more intense and specialized help from adults and teachers to achieve this goal. Many resources are available to aid the unemployed in their search. Educators' go-to strategies for preparing their graduates to succeed in the workforce are dissected. Teachers of students with SENs were the primary subjects of the study. Teachers play an invaluable role in easing the way to employment and must be recognized for this. That is why this study is centred on teachers. This study intends to provide a thorough overview of the evidence on the transition to employment programs for students with SENs, emphasizing the United States and other nations. This study will pave the way for future explorations of teachers' evolving ideas about what constitutes good practice in the classroom.

Teachers reported that better outcomes with kids with SENs were given opportunities for work experience and social involvement with usually developing peers, whose families were also involved in the transition planning process (Alnahdi, G.,2016). The method of maturing into an adult is one of the earliest phases of life (Alnahdi, 2013; Gillan & Coghlan, 2010; Knott & Asselin, 1999). The term "transition planning" refers to a continuous sequence of activities aimed at preparing children with SENs to transition from a stage or one setting to another and from the life of the school to the acts of public life to be able to rely on themselves into an independent life in an inclusive society.

Support for the Transition from School to Work

Today's young people are under more pressure than ever to take command of their professional destinies and forge their paths because of the fluid nature of the modern workplace. Several schools and groups have responded to this shift by providing post-secondary students with transition programs to equip them with the knowledge and abilities they will need to succeed in the workforce. Though it aims to increase students with SENs' access to the crew, opponents of the school-to-work movement

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claim it has a solid ideological basis. This study assesses four essential career concepts by reviewing the most up-to-date theoretical research on graduating from college and entering the workplace. Each theory's possible benefits to the school-to-work transition are discussed. The intervention approaches consistent with the ideas presented are examined and shown to increase the likelihood of a smooth transition. Evolution in the workforce that has been occurring over the past two decades is likely to persist into the second decade of this century (Watts, 1996).

This is when firms cannot afford to neglect either service or technology (Bridges, 1994). As an outcome, corporations rely more on temporary workers such as contractors, entrepreneurs, and seasonal staff to satisfy peak demand rather than investing in permanent employees (Handy, 1994). Future workers will need to be proactive in their training and development, adept at picking up new skills quickly, and willing to try anything once (Watts, 1997). As per Watts (1997) and others, career guidance should be a focal point of formal education because it "helps students to clarify and articulate their aims and aspirations; ensures that their decisions are informed about the needs of the labour market; and empowers individuals in their negotiations with employers and other purchasers of their services." All students should have equal access to resources that aid their personal growth and data gathering for future career choices. Growth in the number of happy customers of career counselling services would be a step in the right direction. We must strengthen ties with the business community, mainly by recruiting companies as pedagogical partners. Every graduate should have the skills, confidence, and curiosity to excel in their chosen field of study. To create a workforce that can adjust to a dynamic economic, social, and industrial landscape, we require a strategy that integrates employment, education, and training (Dawkins, 1988). By the end of this study, new theoretical views that explain the school-to-work transition will have been analysed, and interventions that schools could utilize to ease the transition for their students will have been offered.

School-to-work transition planning must begin with a focus on students with SENs' maturity, lack of life experience, and unique educational requirements. For this reason, it is more crucial than ever at the turn of the twenty-first century to employ novel approaches to educating and training the next generation for responsible citizenship and successful careers (Takanishi & Hamburg, 1997). The transition has far-reaching effects on a person's emotional and social development and mental development. This study presents that change is not a one-and-done occurrence but rather an ongoing procedure. Like the transition from elementary to middle school, the one from high school to college or another post-secondary institution can be challenging. At the same time, individuals must forge their paths in life; many flourishes with the guidance of a trusted guide. Many kids want to grow up so they can have all the perks and all the weight of adulthood. Young students with SENs have a minimal turnout rate in the workforce. Indicators of job transition developed by teachers to better categorize young people and obtain insight into their journeys into the force encourage students with SENs to pursue careers that allow them to thrive independently in a rich, diverse, and inclusive society.

Independent Livelihood in Inclusive Society

Education is a method with defined ends, which are the development and enhancement of its members. However, neither progress nor the personal development of learning can be achieved without instruction. Counselling and mentoring provided by the school have to be highlighted. Problems in the classroom can be traced mainly to the inability of children with SENs to fully benefit from their learning potential, parental support, and self-development services within an inclusive society. It comes to reason that students with SEN whose families give less overall consent and who have fewer possibilities for independence and personal growth will also be less successful in school. The academic success of students with SENs was connected with their perception of intellectual freedom,

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parental involvement, and satisfaction with school-provided support. Reinvesting one's personal development can improve the quality of one's education (Dalas, N., & Hadiyanto, M., 2019).

The goal of this study was to understand better how children with SENs perceive their educational experiences at school, from the quality of their classes to the amount of freedom they are given to the support they receive from their families and the learning opportunities they are afforded. To take it further, they opted to look into potential connections between the relevant factors. Independent learners with SENs have a greater chance of academic and professional success.

Many schools try to establish this perspective in their SENs students so they will always be open to learning and developing their minds. There has been a lot of study in this field, but it has not explicitly focused on an inclusive society. Students with SENs have a deep awareness of educational challenges and the value of taking the initiative in the classroom. Although these advances, students' understanding of teachers' duties in inclusive classrooms where children with SENs are the priority remains limited. Self-directed learning, also known as independent learning, is a skill that educational institutions throughout the world emphasize teaching their students so that they can compete effectively in the global labour market of the twenty-first century.

Educational programs should eventually attempt to foster in students with SENs not merely a yearning for information but also the confidence and courage to go out and seek it on their own. Students with SENs have a better chance of succeeding in school if they maintain appropriate behaviour and have a positive outlook. People who are self-motivated and have the cognitive flexibility to learn new things are the ones who are most likely to keep learning and growing throughout their lives. Therefore, it is crucial to consider the understanding and knowledge of students with SENs and their motivation to understand when assessing a school's success.

To provide an additional function, which functions through the supply of human and physical resources and teaching resources, policy and guarantees that use rewards to modify the long-term behaviour patterns and tendencies of teachers, parents, and students, are essential (Muazza et al., 2019). To make educated decisions, you need to be able to think, reflect on your work, make choices, and plan your next steps independently. As they prepare to enter the adult world, today's students with SENs must take charge of their destinies and become flexible in the face of constant change. Self-directed learning can help people readjust their priorities in light of new experiences, both in their personal and professional lives, in an inclusive society.

Conclusion

How long it takes someone to transition from high school to the workforce depends on several elements, such as their situation, the quality of their educational foundation, and the professional environment. The success of students with SENs in school is best measured by their ability to do well on standardized tests, which reflects their innate propensity for learning. We provide a novel information source to predict the transition from school to work in addition to the personal, family, institutional, and regional components of the workforce. However, we take the opposite tack in this essay, arguing that students' success with SENs should not be regarded as an exogenous variable. Our analysis considers the full range of exam performance. In contrast, previous work using the same data set revealed that anticipated test achievement had a higher effect on the transition from school to work. Our research also demonstrates that our prediction of educational quality has a considerably stronger influence, particularly for young women, on their capacity to transition from school to work successfully. Several shifts in policy affecting when a student with SENs may finish high school and enter the workforce have occurred over time and between nations. A detailed overview of teenagers' concerns about seeking work is required to explore these variations. The overarching purpose of this study was to inquire into the factors that facilitate a SENs student's transition from high school to adulthood and, eventually, the workforce. To

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generate employment to tolerable proportions, we must adopt a new educational policy that gives technical and vocational education the same weight as other means of economic development. We discovered that the length of time spent in school, especially in vocational programs, correlates positively with the likelihood of securing a steady career in a diverse and inclusive society.

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THE REFLECTION OF SPIRITUAL ELEGANCE IN RABINDRANATH TAGORE'S GITANJALI

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Abstract

Rabindranath Tagore (1861-1941) popularly known as 'Gurudev' was a Bengali poet, composer, philosopher, painter and social reformer. Tagore opposed imperialism. He reshaped Indian literature and music, as well as Indian art with Contextual Modernism in the late 19th and early 20th centuries. His ideas, philosophy and works have inspired people throughout the world. In 1913, he became the first non-European as well as the first lyricist to win the Nobel Prize in Literature for his masterpiece 'Gitanjali' which is an overwhelmingly sensitive and beautiful verse. Tagore's poetic songs are intensely spiritual, lively and sagacious. His prose is elegant and thought-provoking and his poetry is magically heart- touching. He is sometimes referred to as 'the Bard of Bengal'. Tagore modernized art by disdaining rigid classical forms and resisting linguistic strictures. His novels, poems, short stories, songs, dance-dramas, and essays were based on political and personal topics. The poem-collection 'Gitanjali (Song Offerings)' (1912), the novel 'Gora (Fair-Faced)' (1880) and the novel 'Ghare-Baire (The Home and the World)' (1916) are his best-known works. His short stories, poems and novels were praised for their colloquial language, lyrics and natural touch with deep contemplation. His compositions were chosen as national anthems by two nations: India's 'Jana Gana Mana' and Bangladesh's 'Amar Sonar Bangla'.

As a humanist and Universalist, Tagore denounced the British Raj and advocated independence from Britain. As an exponent of the Bengal Renaissance, he advanced a vast collection of his works that comprised sketches, paintings, and hundreds of texts, and some two thousand songs. His legacy is still there in the institution 'Visva-Bharati University' founded by him. Tagore wrote poems for various moods: love, patriotism, devotion, pleasure, sorrow, sympathy, bliss, grief, joy, even realism. Internationally, Gitanjali is Tagore's best-known collection of poetry, for which he was awarded the Nobel Prize in Literature in 1913. Tagore was the first non-European to receive a Nobel Prize in Literature. We human beings are actually spiritual beings having a human experience and not the other way around. So we are immortal and eternal beings on a never ending journey.

Literature is one of the fundamental media to reflect the spirits of life. When we think about literature, the poetic works which spontaneously come to our mind is Rabindranath Tagore's 'Gitanjali'. All these poems which attained great popularity and success in their times, have the common theme of 'Spirituality' preaching human beings the doctrines of life, religion, humanity, natural world and worship. This fact poses a question: Aren't people mostly interested in learning the philosophy of life to end their worries and attain salvation?

This question inspired me to explore the most applauded poems from 'Gitanjali' of Bengali Modern poet Rabindranath Tagore. He is also known to have contributed prolifically to the spiritual literary treasure. Gitanjali is one of Tagore's most famous works. It was Gitanjali which made Tagore the first Asian to be awarded the Nobel Prize for literature in 1913. Gitanjali embodies the essence of Tagore's poetic spirit. While the Bengali Gitanjali had 183 poems, the English version contained 103 poems.

The meaning of the term 'Gitanjali' explains the nature of the book. The term comes as the merger of two words 'geet' meaning 'song' and 'anjali' meaning 'offering'. Thus, 'Gitanjali' means 'Song Offerings'. Gitanjali is a book to feel and cherish. Tagore had written his Gitanjali (song offerings) in Bengali, and after he learned from William Rothenstein of Western interest in them, he translated them into English. This poem shows the charm of humbleness. It is a prayer to help the poet open his heart to the

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Divine Beloved without superfluous words or gestures.

Gitanjali is an immortal work of art, poetry and philosophy. In it, Indian thought, culture and tradition are so lyrically and beautifully written that it charms and wins the appreciation of anyone who goes through its lines. Though the poems in the collection of 'Gitanjali' are clubbed together as untitled pieces, the poems are strongly emotional and sentimental and captivate the reader's heart and mind.

"We are not human beings having a spiritual experience. We are spiritual beings having a human experience." — Pierre Teilhard de Chardin

Our 'Gitanjali' conveys the message of spirituality, divinity and humanity. What makes them alike is the thread of peace and harmony. Gitanjali talks of peace through the union of human soul with the Supreme Soul 'God', and for this necessitates the liberation of soul from the materialistic point of view. Tagore equates spiritual force with eternal force of the universe and looked at man and nature as the images of God.

Spirituality is the broad concept of belief in something beyond the physical self. It is the quality of being concerned with the human spirit or soul as opposed to materialistic or physical things. It may involve religious traditions centring on the belief in the Supreme Power. It may also entail holistic belief in connection to others and to the world as a whole. To be spiritually enlightened, one needs to be conscientious. To understand the concept of spirituality, let us envision a house-garden with a flowery plant. If the soil, sunlight or stem of the plant are uncared about, the plant won't yield flowers. We have to be meticulous about those things. Similarly, if we nurture our body, mind, emotions and energies scrupulously spirituality blossoms within us. When our rationale is immature, our mind doubts everything. When our rationale matures, our mind sees everything in a completely different light. Spirituality typically involves a search for meaning in life. It is a universal human experience that touches all. A spiritual experience can be elucidated as a deep sacred sense of aliveness and interconnectedness.

Spirituality offers a worldview that suggests there is more to life than just what people experience on a sensory level. Spirituality connects all beings to each other and to the universe itself. It also proposes that there is ongoing existence after death and strives to answer questions about the meaning of life, how people are connected to each other, truths about the universe, and other mysteries of human existence. Spirituality and religious activity have been a source of comfort and relief from stress for multitudes of people. We realise that those who are more religious or spiritual and use their spirituality to cope with challenges in life experience many benefits to their health and well-being. Some may find that their spiritual life is intricately linked to their association with a church, temple and mosque. Others may pray or find comfort in a personal relationship with God or a higher power. Spirituality is about a transpersonal vision of goodness, beauty, perfection, generosity, graciousness, and sacrifice. It centers on respect for self, others and the dignity of life. Love, compassion and empathy are its foundation leading to sympathetic joy and equanimity. Spirituality is about integrity. It helps us to find meaning in life, provides a foundation of our values to guide us in the way we behave with self, others and the world around us. Spiritual consciousness may elicit the relaxation response, along with feelings of hope, gratitude, and compassion—all of which have a positive effect on overall wellbeing

Importance of spirituality:

1. Spirituality helps us to find purpose and meaning of life.
2. Spiritual experience assists human minds to cope with feelings of stress, depression, and anxiety. Having a strong spiritual outlook may help us tackle difficult circumstances in life.
3. Spirituality contributes in restoring hope and optimism
4. Spirituality can induce feelings of calm and clear-headedness and can improve concentration and attention.

Tagore's Gitanjali is a spiritual quest for the divine, for the supreme power or Almighty God who is the supreme guiding force in nature and human life. The poet seeks for the

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infinite and all powerful God in the finite things viz. nature, human beings, days and nights, and seasons of the year, in the temple, in the river, and the mountains and at his door steps. Thus the search becomes romantic and idealistic at the same time. He can realize God through his universal sense of humanity and love for all creatures. To comprehend the divine, he merges his individual self with the universal.

Tagore's supplication to God with a very endearing language and tone produces a deep sense of compassion and understanding between the poet and God. It is the deep reverence of the poet for the ultimate power which instigates him to submit himself entirely to God to acquire peace and bliss. The poet is filled with pleasure for God's presence in his life in his joys and grief, every time and everywhere. The spiritual fervor of Tagore is immense in presenting God in every sphere of his life as if God were caressing him all the time. Tagore presents God sometimes as a father, sometimes as a reconciler and sometimes as an intimate friend. Sometimes, Tagore behaves as if he has mingled with the divine. The poet's search for God is meant for peace, for the fulfillment, for unity and for discovering meanings of life and death. God's presence around the nature and around his existence provides him peace, as if the poet were never alone in the world. So the poet surrenders and prays to the Omnipotent and finds peace through his acquiescence and prayers.

Gitanjali is replete with Tagore's creative spirit of spirituality. Though lacking any formal structure, this collection reflects his inclination towards God in a unified form. Tagore believed that true knowledge perceives the unity of all things in God. Gitanjali reflects this belief through immortal verses. Tagore's approach to spirituality in 'Gitanjali' is pantheistic which emphasizes the presence of the divine or God in every finite thing, Pantheism is the doctrine that says 'everything is God or God is present in everything'. Throughout all poems in 'Gitanjali', Tagore proposes that God is the transcendent reality, of which, the materialistic world and human beings are manifestations. Tagore, while addressing God in poems of Gitanjali, submits to an all powerful, all pervading God with full devotion and prays Him for peace and good of all. Gitanjali reflects clearly a humanistic spirituality. Tagore talks to God in Gitanjali poems as if God were with him all the time, not only in the day and night when he is awake but even in his dream in sleep. Tagore realizes God's presence in his life and the life of other human beings in terms of love and sympathy.

In nature, in the game of light and shade, in the rainy season, in the lighting and the thunderbolt of the sky, in day and night, in the moonlight night, in the road or in the temple, like a stranger, the poet feels the presence of God and talks to Him and questions Him with compassion and love. The poet complaints to God against His being so slippery in His appearance and disappearance like a shadow behind him. He, God, is formless. But Tagore says he feels His presence everywhere. This is slightly Tagore's pantheistic approach in dealing with the spirituality of his poems. Sometimes, Tagore expresses his satisfaction with God's attitude to him; God's game of hide and seek with the poet. The poet has, sometimes, no complaints and he is satisfied with his life and death question.

For Tagore, this world is the manifestation of the Almighty, and hence he derives pleasure from it. He believes that by dwelling in the beauty of the nature with purity of soul one can easily unite with God. Gitanjali celebrates this joy of creation.

In the quest and yearning for union with God, Tagore considers himself to be a beloved waiting for his lover to come and meet him and leave a token of his love.

V. Ramamurthy, in his introduction to Gitanjali states:

"One cannot 'Love' the Infinite but one can love Krishna or Christ as remembered in one's own mind. There are so many approaches to the divine. But the highest and the most intimate is that of a beloved for her lover."

Tagore's spirit of holiness stretches further as he observes the divine Lord in different roles and in finite and infinite forms like:

1. *a lover "who walked with secret steps, silent as night, eluding as watchers" (Gitanjali, Song XXII),*

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2. *a king, "who came down from the throne and stood at the poet's cottage door (Gitanjali, Song XLIX) ,*
3. *a poet "who gets delight in seeing this own creation through poet's eyes and stands at the portal of his ears silently to listen to His own eternal harmony" (Song LXV)*

Another very important moral preaching conveyed by Tagore through his devotion towards God is the lesson of universal brotherhood. Tagore firmly believes and preaches that the divine dwells in the heart of the poor: "He loves those who work hard in the muddy fields and earn bread with the sweat of their forehead."

Towards the end of Gitanjali, Tagore refers to Death as a messenger which would take him to meet the Ultimate, his Lord, the creator and benefactor. Death is his inseparable companion, and for him, embracing death implies consummation like that of a groom and bride, 'Gitanjali' ends with a note of complete surrender at the feet of the God leading to his supreme union with the Almighty:

"Let all my songs gather together their diverse strains into a single current and flow to a sea of silence in one salutation to thee." (Song CIII)

As far as Tagore's 'Gitanjali' is concerned, it is a volume of lyrics devoted to God. The central theme of Gitanjali is devotional. It expresses the yearning of the devotee for re-union with the divine. The verse focuses on the all-pervading presence of God. Tagore proclaims that God is neither an abstraction, nor an incarnation, but an ever-present force and an all- pervasive influence. Tagore appeals us to visualize God in the various forms of nature including humans. He says that God reveals his beauty in all his creation so that man may be forever in love with it and thereby with him.

The present thesis critically analyzes both the above works and compares the authors' approach to spirituality in them.

Tagore was deeply attached and dedicated to the divine power i.e. God, and in the course of his reverence for spirituality, he started envisioning every living being as an incarnation of God i.e. spiritual power.

"We are not human beings having a spiritual experience. We are spiritual beings having a human experience." — Pierre Teilhard de Chardin

Though, both 'The Prelude' and 'Gitanjali' convey the message of spirituality, both the texts are penned in different environments with different motives. What makes them alike is the thread of peace and harmony. The Prelude talks of peace through harmonious relationship among men by self-exploration. Gitanjali talks of peace through the union of human soul with the Supreme Soul 'God', and for this necessitates the liberation of soul from the materialistic world. Wordsworth makes spiritual interpretation of Nature as a living identity, by following whose principles one can get rid of the eternal problems of misery and wretchedness. Tagore equates spiritual force with eternal force of the universe and looked at man and nature as the images of God.

As far as Tagore's poem 'Gitanjali' is concerned, it propounds that God and Nature are not distinct entities; they are one unified whole. When we observe Nature, we see the divine manifestation of unity and purity, a giving and receiving between all beings. Within Nature, trees are perfect role models for unity and purity. While also teaching us selflessness and sacrifice, the poem enlightens us with the knowledge of immortal relationship between the three entities God, Nature and Man. Tagore's approach to spirituality in 'Gitanjali' is pantheistic which emphasizes the presence of the divine or God in every finite thing, Pantheism is the doctrine that says 'everything is God or God is present in everything'.

Throughout all poems in 'Gitanjali', Tagore proposes that God is the transcendent reality, of which, the materialistic world and human beings are manifestations. Tagore in his 'Gitanjali' clearly appeals to the Absolute becomes more personal as well as universal throughout the poem. Tagore is a romantic mystic who losses himself in his contemplation of nature and gets into direct communion with the infinite. He realizes oneness with the Super Power and loses his consciousness of the material forms under which life appears. He merges himself in Nature considering Nature as the adobe of God. Summing up Tagore's views on God,

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Nature, and Man as we get them in his poems, songs sand verses, we can remark that his universe is man- centered and God and Nature form the periphery.

His poetry is influenced by the theme of tripartite Universe which is the harmony of the three entities God, Nature, and Man. Tagore sees Nature and Man as the artistic act of creation of God, and considers Man as the highest creation of God. Man is greater than nature because he is blessed with reason and will. Man has to learn discipline, doing good and harmony from nature. He must enjoy her beauties as things created by God for inner-communication. Tagore's verse is the zenith of his common observational and other common spiritualist encounters, of his natural confidence in the central solidarity of all creation. Tagore through his Gitanjali preaches and urges the necessity of reverence for nature and the spirit world.

In their poems one can unearth a spiritual aspect of nature, divinity, righteousness and their philosophy of life. In his poems his language is spiritual and divine as nature to him appears as a connecting force between man and God. His poems help us understand his devotion and affection towards humanity and nature. Tagore had a strong affinity with the divine power. He considered God the Ultimate Being which can create, heal, nurture or destroy. For Tagore, all the elements of the natural world seemed to be the manifestation of God. Tagore had a strong love and empathy for all plants, animals, human beings, and all the creatures. Tagore's poetry uses heart touching diction reflecting incomparable dedication to Nature and God.

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WOMEN ENTREPRENEURSHIP: AN INDESTRUCTIBLE RETALIATION TO GENDER

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Abstract
The objective of the research is to pivot lens on a majorly significant parameter leading to the social and economic augmentation throughout the globe – the observable fact women entrepreneurship. There is a need to analyze women entrepreneurship with respect to two main parameters 1. The existence of women entrepreneurs helps in creating direct as well as indirect job opportunities which in turn leads to the economic development of the nation. Women as entrepreneurs deliver appropriate solutions for overcoming organizational and management issues 2. Although women entrepreneurs have proved themselves successful in every terrain of life and their success is remarkable, still they have been neglected. The fabrication of the society is that both male and female are delivered equal opportunities in the entrepreneurial sector, whereas the prevailing truth is not the same in short run. The role of a female as an entrepreneur is to be highlighted for better understanding of the society, since their contribution facilitates the economic growth and development of the nation as a whole. The study aims to address the growth transformation in the role of female entrepreneurs in developed and developing countries, explores and analysis the primary motivational factors leading to this transformation, examines the challenges faced by the women while performing entrepreneurial activities. Finally suggestive measures for the government and the policy makers for initiating measures to promote entrepreneurial skills among females are also included in the study.

Keywords : *women entrepreneurship, economic growth, female.*

Introduction

Entrepreneurship is an activity which is symbolized as initiating continuing efforts to undertake risk which is calculative in nature. Entrepreneurial activities are to be carried out in swiftly transforming business environment (internal and external). If required to elaborate the term entrepreneurial activity in an integrative approach, it is the sum total of working under risks imparting innovation and creativity in all functional areas that assist in exploring new ventures. It aids to evaluate the effective decisions during risks and uncertainties in undertaking entrepreneurship process. Entrepreneurial activity is subjected to overflow of professionalism and overflowing knowledge, eventually leading to the creation of new concepts, methods and tools. An entrepreneurial phenomenon is performed at multilevel and is complex is nature, which helps the risk taker to gain competitive advantage at global level. The reforms in working patterns, qualifications of employees, the psychological needs in the terrain of employment have significantly contributed to the economic development. Entrepreneurship has led to the invention of modern ideas and upgradation of existing concepts which were never utilized optimally otherwise. There is a direct relationship between entrepreneurship activity and the growth of the nation.

Female Entrepreneurship

Women still continue to be deprived from literacy in developing nations and lead to survive in poor conditions. Entrepreneurship act has given females an opportunity to participate in the generation of local economies and to emerge as entrepreneurs. Role of women as tiny entrepreneurs is a source which has ensured them a reformed life through the creation of direct employment and thus created in direct job opportunities leading to improvement of standard of living of others too. Women entrepreneurship is symbolized by engraving the development of individuals without differentiation of gender, through active role

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of women in the upliftment of the economic position of the society. Women entrepreneurship endures and creates an environment which is balanced, pleasant, more of humanity and cooperative for working women.

Female entrepreneurship is a modern phenomenon which is at rise over the globe contributing towards the well-being of society as a whole, enduring stability and flourishing employment opportunities (direct and indirect) for disadvantaged human resources like females and workers with wages near to the ground. Women entrepreneurial activities now significantly contribute to wealth formation leading to economic growth and development. Women in large number from developed and well as developing nations are now playing successful as entrepreneurs in various terrains.

The modern business world is inter-linked with quality life, which poses multiple opportunities for women entrepreneurship. Women in large numbers are now attracted to entrepreneurial roles in different terrains as the modern business environment is conducive and offers monetary (profits) and non monetary (personal identity) benefits to them. In developing nations it has been observed that medium and small sized women entrepreneurs are the real players in the market. These entrepreneurs have analyzed the preferences and responded well, reflected proactive solutions and adopted use of modern technology.

Review Literature

1. **Brajaballav and Surabhi (2021)**, the researcher aimed to analyze multiple variables and elements that assisted women from Kolkata to become successful owners of SMEs. The findings also lensed upon the factors which credited to the success of women in entrepreneurial skills and the challenges that came across them attacking their self-esteem.
2. **Thesara Jayawardane (2020)**, argued over the perceptions of families who support women in their entrepreneurial activities which result in success or eventually lead to failures. The researcher made an attempt to explore the ramification of shouldering dual responsibilities by women entrepreneurs who aimed to achieve success at various levels and in multiple sectors.
3. **Yoganandan and Gopalselvam (2018)**, argued on the issues faced by women while commencing their start ups. The study aims to showcase the growth of females as successful entrepreneurs in various streams by contributing significantly towards national growth. This paper was an attempt to pivot lens on the excellent practices and visionaries radiated by women entrepreneurs.
4. **Yuganya Muniandy et al. (2020)**, analyzed some modern fangled strategies used by women business visionaries from Klang Valley. The objective of the study was to highlight the reforms in female status after the emergence of e-business. The findings concluded that there was more scope for the promotion of women visionaries in the internet business which would change the perception of the society as a whole towards female business visionaries.

Objective

1. To highlight the factors influencing women entrepreneurship.
2. To study the problems faced by women entrepreneurs.

Hypothesis

H_0 : There is no relationship between motivational factors and the growth of women entrepreners.

Research Methodology

The paper is based on primary and secondary data. A structured questionnaire is used to collect data from 121 women entrepreneurs through convenient sampling method from Thane district. Secondary sources such as already published research articles, journals, books, etc were also referred.

The women entrepreneurs were ensured that the data collected would be kept confidential.

Data Analysis And Interpretation

1. **Factors significant in motivating women entrepreneurship.**

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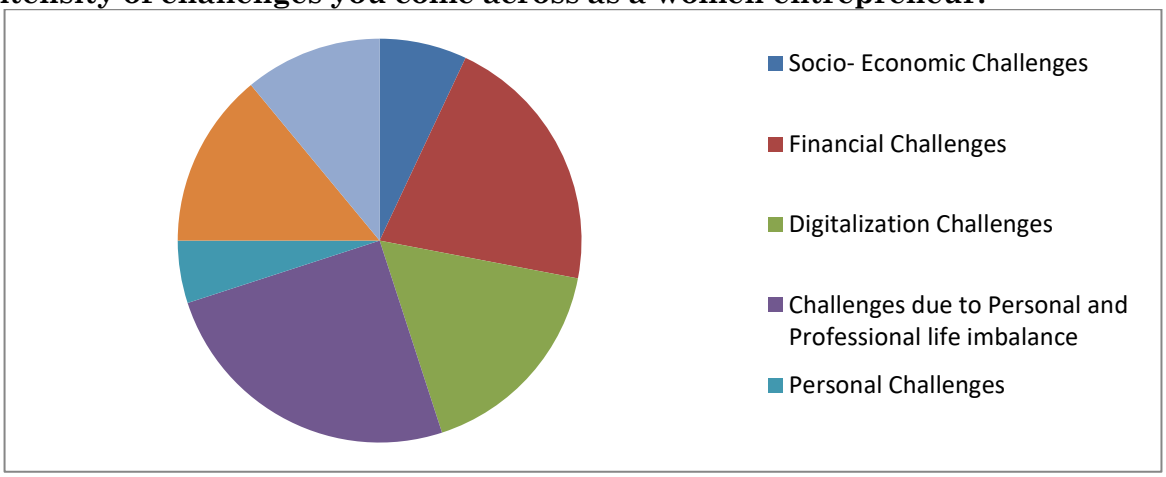
Sr. No	Factors	Percentage
1.	Personal growth	35%
2.	Monetary factors	29%
3.	Desire for achievement	13%
4.	Recommendations (Friends & Family)	9%
5.	Social Status	6%
6.	Creative thinking	5%
7.	Did not answer	3%

Out of 121 women, 42 women pursue entrepreneurship due to personal growth where as 35 due to financial needs, 15 women have the desire for it, 11 women are entrepreneurs due to recommendations from near and dear once, 8 seek for social status, only 6 women due to creativity and innovation where as 4 out of 121 refused to disclose the reason for commencing entrepreneurial activities.

2. Intensity of challenges you come across as a women entrepreneur.



25% of women face problems in balancing their personal and professional life, 21% come across financial challenges, 17% are still not well versed with digital knowledge, 14% complain about lack of support from government, 11% women lack entrepreneurial skills, 7% face socio-economic challenges and 5% face personal challenges.

Conclusion

It is evident that women have publicized marvelous triumph and outstanding performance as entrepreneurs in this contemporary age. The cause of transformation in financially viable and communal fields is due to mounting of women participation as entrepreneurial visionaries. Women have now stepped out of the four cornered walls and making attempts to surmount the socio-economic barriers. Their buoyancy, skills and abilities are being aptly utilized, and have proved to be uniformly victorious as the males in every terrain. Self esteem, family support, education, compassionate work environment, social recognition are the chief elements that have helped women to accomplish their entrepreneurship skills successfully. Women business visionaries face a few snags along the existence pattern of their organizations: the shortfall of benchmarking potential outcomes, the absence of monetary and social capital, of involvement, time, orientation separation, generalization perspectives, and, at last, homegrown issues. Numerous stratagem creators see female business venture as a peculiarity that adds to financial enlargement. This discernment ought to be coupled by exceptional

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consideration, patronage and treatment. As a matter of verity, there is something else to accomplish to invigorate and lend a hand towards ladies who try to depart on innovative exploit.

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WOMEN'S HEALTH

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Abstract:

Women and health discuss the general perspective of women's problems and health. Related issues the status and role of the women determines the awareness of health. Due to modernization the health condition of women is not a healthy condition. With the help of right to women and health facilities provided by government to prevent and control the health problem and get possible solution for it. Women are considered as one of vulnerable population of society who face various problem affairs at all parts of the society women in developing country have many problems and women in developed countries have right and freedom but also fight for equal rights and liberty women had suffering from physical, mental psychological and social conditions. Women role in political, social psychological spiritual and all sector she covers well so her problems have very importance for maintaince of any society. women role in maternal leadership, corporate sector business education and justice etc. she devote in her work and do it very well may be she is house wife or working women she face reproductive problem menstrual problems disease problems (Breast Cancer) Domestic violence specially and depended employment problems all these health related issues of women at rural and urban level solve by women empowerment concept is growing from these issues and women empower through self-earning, entrepreneurship development and government facilities to women Mahila Batchat Gat etc. Women lives have changed from time to time. Historically, life was particularly difficult women drudgery for most women. Besides numerous dangers and diseases women became wives and mothers often when they were just emerging from their own childhood many women had multitude of pregnancies and some had childbirth problem also The immunization and health services are not reach to the women today mediclaim, term plan are the option for medical facility, Jinni Suresh yojna also benefitable to rural women the health programmers need to focus more on women health needs, keeping in mind the role and status of woman.

Keywords: - *women problems, health, health issues and facility, women role and society etc.*

Introduction

Women's Health play an important role in family development and if family developed there will be good chances for national development women naturally helps in national development that's why women health is very important in all concern. Women health is now important concept and need focus on it always Women health in general and adolescent girls reproductive health are both have importance in women socio economic status social and psychological health of women depends on family background and environment Health is every ones right no doubt women life may be she is home worker /house wife or working women she face so many problems and challenge women life is full of challenges from history women life was very difficult now a days women life is very strong and empowered education and laws helps women to become strong and empower to solve her problem

Impact of violence on women's health

Violence against women is a major problem and a violation of human right this may due to lack of access to education and opportunity and low social status in communities are linked to violence against women (Ref. T. Kanakraj. & A. Muthu Raman – women and Health edited by Jenitta Mary pg.no. 105 ISBN-978-81-7132-657-0) Violence against socio- economic status of women, physical, mental and psychological health of women Day today the problem of joint family and family members live together is difficult. Because of lifestyle changes and modernization other things also affect the same I e. economic condition, earning problems, un-employment and all such make the things critical and family security

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destroys. In such cases Domestic violence occurs. And its impact turns in divorce and family breakdown violence directly affects the family environment Domestic violence reflect the impact on women development domestic violence affects women health

Women health play on important role women issues and its concern always need attention because of above reason for women health and welfare govt. start so many programmes and schemes

1) Sukanya Samruddhi Yojana
2) Mata Bal Kalyan
3) Sarva Shiksha Abhiyan
4) Janani Suraksha Yojana

Women health depend on following factors:-

1) Diet and Nutrition
2) Personal Hygiene and economic status
3) Education and awareness, and facilities
4) Socio- economic background

Health complications faced by women in India –

1) Breast cancer/cervical cancer
2) Abortions and delivery problems
3) Menstruation and menopause problems
4) Nutritional anaemia, Sickle cell anaemia
5) Smoking problems, and drink
6) Sexual harassment and addiction problem affected health problem
7) Dental caries and Dental health problems
8) Malnutrition and Deficiency diseases
9) Bones and calcium, vit. D. Deficiency health

Ref. 1) Women and Health – I Jenitta Mary – C. Chidambarnathan (2011) ISBN-978-81-7132-657-0, Pointer Publishers, Jaipur. Pg. no. 105.

National women's Health week celebrated on 9 May to 15 May2021.

Health detections in women---

1. Birth control
2. Breast Implants
3. Caregiving
4. College and adolescence Health
5. Heart Health
6. Menopause
7. Mammograms
8. Pregnancy
9. Women and bone pain medicine
10. Cosmetics and Nutrition

Women Empowerment in India:--

Women Empowerment means the economic development of women. Not only economic development but also social development and gender justice also are the dimensional strategies.

Work Participation:-In rural India women play an important role in agriculture sector and industrial sectors as labour workers. Labour women faced malnutrition and death diseases problems. Their children also suffers.

Women in Politics: - Women participation in politics play an important role in national development. The political women have stress in their work. So many mental stress and tensions and it affects impact on women health. Dr. B. R. Ambedkar gives chance to women to enter into politics and other social sector for development in India. As per the 73th and 74th Indian constitutional Amendment Act $^{1}/_{3}{}^{rd}$ seats are reserved for women in the Parliament and State Assembly. So, the political and Corporate sectors working women face so many mental stress and tensions and suffering from high B.P., Diabetes, Blood cancer and Breast Cancer etc. Women always face the critical issues of the family and suffer from ignore of Health.

Effect of sports and Fitness on women Health:

Health is the basic requirement of all human beings. Yogasans and sports are the cultures of Indian society. Women also do different yoga skilfully and maintain their health. Now a days women are good in sports and winner in different national and international games sports. In the modern days we can witness that many women take part in sports.

And the women who do not get time for sports activities. It is due to the impact of health benefits through physical activities. Now everywhere we can see women take morning and evening walk. She join health club also and go to park with children. This is because of awareness of fitness. Sports gives jobs and security to women. Sports promotes welfare to women. They gate money fame and name through sports.

Health problems of urban and rural women:

Rural women have more health problems than that of urban women. Rural women work in fields, agriculture,

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And also labour workers. Rural women are suffering from lack of education and support to solve her problems.

Now Mahila swayamrojgar scheme, mahila bachat gat scheme enhanced the value of rural women skills

The risk factors for rural women health are family, society etc.

Rural women empowerment is the need of society. Rural community based on strong will power of women and their work.

Menstrual Problems and Menopause in women:

Menstrual problems are a major cause of morbidity among the adolescent girls. More than 90% girl are suffering from menstrual pain. Pain is a common complaint of girls and women. Some women have less menstrual period 2-3 days or not cleared having problems 4-5 days of pain and other symptoms women ignore all these problems and secured to refer the physician.

The tendency to ignore is more among rural women than that of urban women low consultation rate and culture of tolerance among women is also linked to their low status in the family and society. Women lack of decision making is also important factor on women health seeking. When menstrual cycle stops menopause is there. Menopause is condition when ovulation process change and secretion of hormones also change. Women are not easier to this change and depression occurs sometimes. Slowly she accept the body changes and familiar with the condition.

Conclusion: -

Women health play an important role in development of nation .So, women is keyplayer

of society and needs attention on her condition. Women health facility and services provide by government. From history women play so many role in family and complete the needs of not only family also society and nation. Women health problems and issues needs services and alertness taking in action plan. Women empowerment in today life make desirable support to all women.

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ELECTRONIC WASTE AND INDIA'S ENVIRONMENT

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Abstract

Electronic waste, or e-squander, is one of the quickest developing waste streams around the world. Expanding industrialisation, ways of life and discretionary cashflow have provoked a flood in the volumes of electrical and electronic gear (EEE) on the lookout - and a corresponding expansion in e-squander too. Development of Information and Communication Technology area has improved the utilization of the electronic hardware dramatically. Quicker out of date quality and resulting up-degree of gadgets item, are constraining customers to dispose of old items, which thus amass immense e-waste to the strong waste stream. E-squander is filling in India at the pace of 10%. Significant reusing of e-squander is completed in the non-formal area utilizing crude and dangerous strategies. Satisfactory administrative measures and financially savvy, ecological cordial, innovative arrangement would be expected to resolve the issue. This article gives the essential data on electronic waste administration in India.

Keywords: *Electronic Waste, Environment, Recycle, Global*

Introduction

The disposed of and end-of-life hardware items going from PCs, gear utilized in Information and Communication Technology (ICT), home machines, sound and video items and their peripherals are all prevalently known as Electronic waste (E-squander). A huge extent of EEE has a short life expectancy, and is frequently seen as being troublesome or costly to fix. Brands burn through billions provoking purchaser interest for the most recent models, leaving more established innovation old and undesirable in any event, when it stays functional. After its utilization, EEE is discarded and becomes Electronic Waste, frequently abbreviated to e-squander. E-Waste contains a combination of significant materials that can be reused (yet which typically aren't), and harmful materials, for example, lead, mercury and cadmium which can be dangerous to our wellbeing and to the climate.

The evil impacts of e-waste could be on soil through draining of dangerous items from landfills; in water because of reusing process, on the off chance that not completed as expected, can make harm person through inward breath of gases during reusing, contact of the skin of the specialists with risky substances and contact during corrosive treatment utilized in recuperation process.

The unsafe and poisonous substances found in e-squander incorporate lead (Pb) and cadmium (Cd) in printed circuit sheets (PCBs). Lead is basically tracked down in every electronic item/get together, cathode beam tubes (CRT) and so forth. Cadmium is tracked down in screen/CRTs while there might be mercury in switches and level screen screens. Mercury is additionally found in CFL, transfers and a few other explicit items. Other than the cadmium in PC batteries, cadmium is likewise utilized for plating metal nooks/metal parts in sub gatherings. Polychlorinated biphenyls are tracked down in capacitors and transformers and as brominated fire resistant on printed circuit sheets, plastic housings, link and polyvinyl chloride (PVC) link sheathing for protection and PBD/PBDE in plastic pieces of hardware.

Waste management and the environment

Since 2011, India has been the only nation in South Asia with a dedicated e-waste regulation in effect. The expanded producer responsibility concept was also introduced by the e-waste rules, formerly known as the E-waste (Management and Handling) Rules.

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They give requirements for the transportation, storage, and recycling of trash (EPR).

Electronic product responsibility (EPR) is a well-known policy tool that mandates electronics manufacturers to assume financial and/or physical responsibility for handling the disposal of their devices after their useful lives. A "Producer Responsibility Organization" (PRO) was introduced in 2016 to assist with the collection and recycling of e-waste, and buy-back, deposit refund, and exchange programmes were added to the EPR.

The producer or a designated third party, the PRO, must collect the waste under the EPR procedure in order to recycle or refurbish it. Year-over-year collection targets for producers under the EPR were added as a result of a 2018 change to the regulations. For instance, producers/PROs must begin collecting at least 70% of the trash associated with their products by 2023.

Despite the fact that this policy instrument has been successfully used in various regions of the world, it has also prompted a discussion about aspirational collecting targets. That is, because the reverse supply chain and processes are still being established and tested, ambitious waste-collection targets in the initial phase of policy implementation are challenging to meet. In these situations, PROs either overreport the amount of collected e-waste to appear successful or fail to report it at all. Additionally, the formal sector has a number of linked problems, including excessive handling and waste procurement costs, underutilised capacity, and others. According to a 2020 report, formal-sector producers were also responsible for covering additional costs related to the environment, health and safety, and compliance (such as the treatment of collected waste and the disposal of hazardous components). The costs that the formal sector bears are not experienced by the informal sector. On the other hand, its contribution to the recycling process goes largely unacknowledged, and its employees are forced to labour in dangerous conditions. Setting arbitrary but aggressive collection goals in this situation can put them in even more danger.

Inventory of Electronics Waste

There is currently no real information on the generation or import of e-waste in India. Several studies have been carried out by different entities to determine the amount of e-waste in the nation. The majority of these research rely on a model of electrical product obsolescence that needs to be verified using actual field data. The Central Pollution Control Board (CPCB) conducted a survey in 2005. In 2005, the nation produced an estimated 1.347 lakh MT of electronic waste, and by 2012, that number is predicted to rise to over 8.0 lakh MT.

However, an inventory of e-waste from three products—computers, mobile phones, and televisions—was conducted in 2007 by the Manufacturers' Association for Information Technology (MAIT) of India and the GTZ of India. 3, 32, 979 Metric Tonnes (MT) of electronic garbage were produced in India overall in 2007. (Computer: 56324MT, Mobile Phones: 1655MT, and Televisions: 275000MT) (Sources: MAIT-GTZ Study, 2007, Report on "E-waste Inventorisation in India"). The study's findings are listed as follows:

Sr. No.	Items	Weight (MT)
1	Domestic Generation	332979
2	Imports	50000
3	**Total**	**382979**
4	WEEE available for recycling	144143
5	WEEE actual recycled	19000
6	Projected quantity of WEEE by 2011 (without including the imports)	467098

Source: MAIT,GTZ, 2007

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By 2015, the amount of e-waste will be close to 0.7 million metric tonnes, and by 2025, it will be 2 million MT.

State and City wise Electronics Waste generation in India

Mumbai is the leading city in India for producing e-waste among the top ten cities, followed by Delhi, Bangalore, Chennai, Kolkata, Ahmadabad, Hyderabad, Pune, Surat, and Nagpur. More than 60% of the total created e-waste is produced by 65 cities, while 70% is produced by 10 states.

Initiatives on building awareness in e-waste management

In 2015, the Ministry of Electronics and Information Technology (MeitY) and industry associations launched the Digital India e-waste awareness programme to inform the public about the risks associated with e-waste recycling by the unorganised sector and to inform them about alternative e-waste disposal options.

The initiative emphasises the importance of implementing eco-friendly e-waste recycling procedures. The initiative has incorporated the greatest e-waste recycling techniques now in use worldwide so that this industry can create jobs and healthy economic opportunities for locals.

Development of waste recycling technologies

The MeitY has created accessible technologies to recycle precious materials and polymers in an eco-friendly manner, including two unique PCB recycling processes with capacities of 100 kg per batch (3.5 MT e-waste) and 1000 kg per day (35 MT e-waste).

The construction of an eco-park in the nation would be appropriate for the 1000 kg PCB/day continuous process plant, but the 100 kg PCB/batch process plant would be appropriate for the unorganised sector. This could be accomplished by improving and changing how the informal sectors are now operating.

Plastic makes up roughly 25% of the weight of electronic garbage. Innovative methods for recovering and turning polymers from e-waste into goods with added value have also been developed successfully. 76% of the waste plastics can be converted using the established technology into materials that can be used to make virgin plastic items. Already transferred for commercialization is the technology. An specialist from Australia named Professor Veena Sahajwalla advises establishing micro-factories in India that may turn e-waste into recyclable materials that can be used to make ceramics and plastic filaments for 3D printing.

High-grade metals in e-waste, such as gold, silver, copper, and palladium, can be separated for resale under completely safe circumstances. According to her, micro-factories may produce filament from plastic by compressing the trash in a temperature-controlled space, negating the need to burn plastic. Anywhere there is a stack of rubbish can be the site of a modular micro-factory, which would need a 50 sq mt space. According to her, if funds are made available to operators for initial capital expenditure, it will help to empower those who deal with trash.

Expanding the nation's e-waste recycling has enormous potential. There have been some steps in this regard, but more ground still has to be covered through awareness raising, skill training, human capital development, technology introduction, and the adoption of proper safety measures in the nation's informal sector. There is a need for a well-designed, strong, and controlled e-waste recovery regime that would create jobs and wealth because India is severely lacking in precious mineral resources (while untreated e-waste goes to landfills).

Global Scenario

In February 2003, the EU laws encouraging the collecting and recycling of electrical and electronic equipment (Directive 2002/96/EC) and prohibiting the use of hazardous materials in such equipment (Directive 2002/95/EC) came into effect. The Act allows for the development of free collecting programmes for used e-waste from customers. Various programmes aim to increase the recycling and/or reusing of these products. They also call for the safer replacement of flame retardants like polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) as well as heavy metals like lead, mercury, cadmium, and hexavalent chromium.

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In order to address the growing amount of waste stream and because it was believed that improperly treated e-waste posed environmental and health risks, the European Commission proposed revising the directives on electrical and electronic equipment in December 2008 (source: http://ec.europa.eu/environment/waste/weee/index en.htm). Similar efforts have been started by the EU all across the world. RoHS-related significant projects have been launched in California, Norway, China, South Korea, and Japan. Australia, New Zealand, Thailand, Malaysia, Taiwan, Canada, Brazil, and Australia are just a few of the nations that are giving the issue considerable thought.

Conclusion

In India, the majority of e-waste is recycled in unorganised facilities with a sizable labour force. By using crude methods, recovering metals from PCBs is an extremely dangerous deed. To give those who depend on this for their livelihood better means, proper education, awareness, and most crucially alternative cost-effective technology, must be made available. To solve India's e-waste management problems, a comprehensive strategy is required. It is necessary to develop an appropriate system to integrate large organised sector units and small unorganised sector units into a single value chain. One strategy would be for unorganised sector units to focus on collecting, dismantling, and segregation while metal extraction, recycling, and disposal would be handled by organised sector units.

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RADIOACTIVE POLLUTION

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Introduction:-

Human and nature have mutual relationship.Environment has direct effect on human life.Human development is based on environment.Man has progressed by using various elements of environment.But by overusing the elements of environment,the work of disturbing the balance of elements of environment is done by human. Pollution has started and the speed of pollution is increasing day by day due to different pollution it has harmful effects on human health, business and overall human life. Pollution occurs in all factors around us. Air pollution, Water pollution, Noise pollution, Agricultural or land pollution, Radioactive pollution etc. Pollution is seen in the environment around us. Pollutants may be solid ,liquid or gases substances. They pose injury to the environment when their presence in the environment exceeds a limit. Thus pollutants may be physical substances like heat,biotic components and chemical or geochemical substances such as dust sediment grit etc.

Objectives:-

1)To know the meaning of pollution.
2) to know the nature of pollution.
3) To know the radioactive pollution. 4)To know the impact of radioactive pollution.
5) To know the control of radioactive pollution.

1)Meaning of pollution:-

Environmental pollution has been defined as the ways by which our surroundings are polluted by anthropogenic activities. The dictionary of ecology and the environment by P.H. collin defines pollution as "The presence of abnormally high concentrations of harmful substances in the environment, of put their by people".

The environmental pollution panel of the U.S . President's Science Advisory Committee in its report 1965 Restoring the quality of our Environment has defined environment pollution thus:"Environmental pollution is the unfavourable alteration of our surroundings wholly or largely as a by - product of man's actions through direct or indirect effect of changes in energy patterns ,radiation levels ,chemical and physical constitution and abundance of organisms.

This changes may affect man directly or through his supplies of water and of agriculture and other biological products, his physical objects are possessions ,or his opportunities for recreation and appreciation of nature".

The National Academy of Sciences Committee U.S.A. defence pollution as a typical case of " a resource out of place".ie., there is an abundance of resources in system whereas the other system suffers from a lack of resources. According to this definition the problem of pollution arises from the presence of resource in a system that is ill adapted to it. So ,a situation of stress builds up in that system leading to the termination of some and the English initiation of other biological processes. Hence the composition and structure of spcies are affected causing a change in the dynamics and development of an ecosystem.

2)To know the nature of pollution:-

The various pollutants commonly found in the environment are listed below.

1. Deposited matter like smoke, tar, dust grit.
2. Harmful gases like carbon, monoxide, oxides, of nitrogen monoxide ,nitrogen dioxide, Sulphur dioxide ,halogens like chlorine, bromine and iodine.
3. Acids such as sulphuric acid and nitric acid.
4. Fluorides.

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5. Metals such as Mercury,lead, iron, nickel, zinc, tin, cadmium and chromium.
6. Photochemical oxidants like ozone, photochemical smog, peroxyacetyl nitrate ,aldehydes ,nitrogen oxides, ethylene etc.
7. Agrochemicals like fertilizers -potash ,phosphate and biocides like pesticides ,hungicides ,herbicides ,weedicides, bacterisides and nematicides.
8. Complex organic substances such as benzene ,ether, Benzpyrenes and acetic acid.
9. solid wastes.
10. radioactive wastes.
11. Noise.

Best on the types of pollutants involved pollution maybe classified as caused by non degradable pollutants and caused by biodegradable pollutants.

Pollution caused by nondegradable pollutants is through substances like DDT, long chain phenolics aluminium cans, mercuric salts, etc. are nondegradable or slowly degradable so they accumulate and are often biologically magnified as they pass through different troffic levels of the ecosystem.Biodegradable pollutants include domestic wastage that are decomposed at the rapid rate under natural conditions.if the rate of their accommodation exceeds the rate of decomposition, pollution occurs. Professor savinder Singh has divided pollution into two major categories on the basis of nature of pollution.

Physical pollution causes detroiration of the quality of the ecosystem mainly due to human activities. physical pollution may be air pollution, water pollution or land pollution.

The second type of pollution is non physical in nature it has been called social pollution by professor Singh ,social pollution may be defined as a kind of pollution by which the quality of social environment deteriorates subtypes of social pollution include population explosion which cause a general deterioration of the quality of life. e. g., Lack of availability of goods, lack of basic amenities, like roads ,hospitals, electricity, water supply and so on; Sociological pollution, the result of general deterioration of the social relations in a particular society as concepts of crime ,ethnic ,riots ,educational and social backwardness among a particular section of the society.

Economic polution, resulting from critical economic backwardness are deterioration of economics standards among a section of the society this type of pollution is aggravated by increasing concentration of wealth in a small pocket of the country , world living the rest of the country pauperised and manifested by an influx of migrants from the poorer to the developed regions.

On the basis of area and source pollution may be categorised into

1)urban pollution in pollution problem is limited to urban areas and urban areas act as the source of pollution. 2)rural pollution when pollution is confirmed to the rural areas.

3) industrial pollution if population is limited to the industrial regions with industries acting as the major sources of pollution.

4) agriculture pollution limited to agriculture lands for example the rice belts of the tropical countries of the world release methane into the atmosphere ,while the agriculture lands of the developed countries produce harmful toxic chemical due to their heavy dependence on chemical fertilizers.

Pollution may be categorised on the basis of point source and nonpoint source pollution, point source pollution occurs from an easily identifiable particular point such as outfall of drains carrying industrial waste products .So the source of pollution is identifiable because of its specific location. In non point source pollution there is no specified location, for example pollution occurring from poisonous, chemical fertilizers, cannot be identified in terms of specific locations.

3), To know the Radioactive pollution:-

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Radioactive substances are considered to the most toxic among all substances. This type of pollution a occurs as a result of nuclear explosions, besides the use of radioisotopes in medicine industry and Research. It may be defined as a type of pollution caused by radioactivity emitted by radioactive substances.

Radioactive pollution maybe due to electromagnetic radiation, nuclear radiation or cosmic radiation.

Electro -magnetic radiation occurs through X-rays, Gamma rays, UV rays, visible light, infrared rays and radio waves. However Gamma rays are considered to be the most powerful of these in terms of their impact.

Nuclear radiation pollution occurs when radioactive atoms like uranium ,thorium etc. Release radiation in the form of alpha and beta particles nuclear radiation also occurs when radioactive elements are produced artificially in nuclear reactors and particle accelerators.

Cosmic radiation takes place due to high energy particles invading the earth and its atmosphere from outer space and the sun. Cosmic rays consist of electrons, protons, helium nuclei hydrogen nuclei and the nuclei belonging to heavier elements like carbon and oxygen.

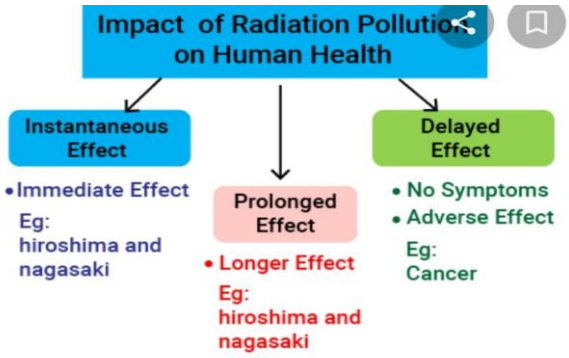
The most common and visible form of the effect of radiation is the sunburn ,which occurs in humans due to over exposure to the UV rays of the sun radiation ,causes formation of ions in living cells which seriously damage the normal functioning of cells ; as a result cells die causing sunburn, or grow abnormally leading to the cancer.

Persons exposed to 300 to 800 rems of radiation experience a serious form of radiation sickness while radiation exceeding 800 rems may prove fatal. A prolonged exposure to low levels of radiation or a brief exposure to very high doses of radiation may lead to genetic mutation causing serious hereditary diseases. Workers employed in high radiation areas like nuclear plants must be given adequate protection Shields of lead can absorb fatal radiation. Further in some hazards areas remote control devices like robots are used for handling radioactive substances. workers use dosimeter, which measures the level of radiation regular monitoring of the level of radiation is thus possible.

4) To know the impact of radioactive pollution:-

Development of Diseases due to Radioactive Pollution Exposure

The most common disease that arises in people that have been exposed to radioactive pollution is cancer. Other dangerous diseases that might be brought on by exposure to radioactive waste include anaemia, leukaemia, haemorrhages, and cardiovascular diseases.



Soil Infertility due to the Improper Disposal of Radioactive Waste

Improper disposal of radioactive waste can severely contaminate the soil and result in soil pollution. The radioactive matter present in this type of waste may mix with the components of the soil, rendering it highly toxic and infertile.

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Furthermore, any plants grown in such soils may absorb the radiation present in the soil and accumulate it within the bodies. This radiation may make its way up the food chain when herbivores consume these plants and carnivores consume those herbivores.

Radioactive Pollution and Cell Damage

Radioactive contamination has numerous consequences when it comes to cell modification. The bodies of living organisms are unique in the sense that there are millions of cells in each body, and each cell has a specific function to serve.

Radioactive pollution is known to distort these present cells, resulting in irreversible destruction to the various tissues and organs.

Permanent diseases and death are not uncommon in cases where exposure to radiation is very high. Thus, radioactive pollution poses a very serious threat to human life and also towards the ecosystem as a whole. This is the reason why radioactive waste must be disposed of properly. Exposure to large amounts of radioactivity can cause nausea, vomiting, hair loss, diarrhea, hemorrhage, destruction of the intestinal lining, central nervous system damage, and death. It also causes DNA damage and raises the risk of cancer, particularly in young children and fetuses. Even the small amount of radionuclides may lead to an increase in mutation rate in animals. Lethal doses of fall out radiations reach catties through grazing on polluted lands. The radionuclides enter the metabolic cycle and thereby incorporate into DNA molecules in animal cells causing genetic damage.

According to the Health Physics Society radiations have a positive effect on plant growth at lower radiation levels and harmful effects at high levels. Plants need some types of non-ionizing radiation like sun-light for photosynthesis. Though these solar radiations are vital for the survival of plants but some other forms of non-ionizing and ionizing radiations are deleterious for plants. Ultraviolet radiation affects plant growth and sprouting and the amount of damage is proportional to the radiation received. Due to radiation exposure soil can become compact and lose the nutrients needed for plants to grow. The experiments conducted in laboratories by supplying ultraviolet radiation through filtered lamps proved that higher doses of radiation administered to the plants were highly damaging.

5) To know the control of radioactive pollution:-

Radioactive waste is a type of hazardous waste that contains radioactive material. Radioactive waste is a result of many activities, including nuclear medicine, nuclear research, nuclear power generation, rare-earth mining, and nuclear weapons reprocessing.The storage and disposal of radioactive waste is regulated by government agencies in order to protect human health and the environment.

Thailand Institute of Nuclear Technology (TINT) low-level radioactive waste barrels.

Radioactive waste is broadly classified into low-level waste (LLW), such as paper, rags, tools, clothing, which contain small amounts of mostly short-lived radioactivity, intermediate-level waste (ILW), which contains higher amounts of radioactivity and requires some shielding, and high-level waste (HLW), which is highly radioactive and hot due to decay heat, so requires cooling and shielding.

In nuclear reprocessing plants about 96% of spent nuclear fuel is recycled back into uranium-based and mixed-oxide (MOX) fuels. The residual 4% is minor actinides and fission products the latter of which are a mixture of stable and quickly decaying (most likely already having decayed in the spent fuel pool) elements, medium lived fission products such as Strontium-90 and Caesium-137 and finally seven long-lived fission products with half lives in the hundreds of thousands to millions of years. The minor actinides meanwhile are heavy elements other than uranium and plutonium which are created by neutron capture. Their half lives range from years

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to millions of years and as alpha emitters they are particularly radiotoxic. While there are proposed - and to a much lesser extent current - uses of all those elements, commercial scale reprocessing using the PUREX-process disposes of them as waste together with the fission products. The waste is subsequently converted into a glass-like ceramic for storage in a deep geological repository.

The time radioactive waste must be stored for depends on the type of waste and radioactive isotopes it contains. Short-term approaches to radioactive waste storage have been segregation and storage on the surface or near-surface. Burial in a deep geological repository is a favored solution for long-term storage of high-level waste, while re-use and transmutation are favored solutions for reducing the HLW inventory. Boundaries to recycling of spent nuclear fuel are regulatory and economic as well as the issue of radioactive contamination if chemical separation processes cannot achieve a very high purity. Furthermore, elements may be present in both useful and troublesome isotopes, which would require costly and energy intensive isotope separation for their use - a currently uneconomic prospect. A summary of the amounts of radioactive waste and management approaches for most developed countries are presented and reviewed periodically as part of the International Atomic Energy Agency (IAEA)'s Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. future way to reduce waste accumulation is to phase out current reactors in favor of Generation IV reactors, which output less waste per power generated. Fast reactors such as BN-800 in Russia are also able to consume MOX fuel that is manufactured from recycled spent fuel from traditional reactors.

Main article: BN-800 reactor

The UK's Nuclear Decommissioning Authority published a position paper in 2014 on the progress on approaches to the management of separated plutonium, which summarises the conclusions of the work that NDA shared with UK government.

In the second half of the 20th century, several methods of disposal of radioactive waste were investigated by nuclear nations, which are :

"Long-term above-ground storage", not implemented.

"Disposal in outer space" (for instance, inside the Sun), not implemented—as it would be currently too expensive.

"Deep borehole disposal", not implemented.

"Rock melting", not implemented.

"Disposal at subduction zones", not implemented.

Ocean disposal, by the USSR, the United Kingdom, Switzerland, the United States, Belgium, France, the Netherlands, Japan, Sweden, Russia, Germany, Italy and South Korea (1954–93). This is no longer permitted by international agreements.

"Sub-seabed disposal", not implemented, not permitted by international agreements.

"Disposal in ice sheets", rejected in Antarctic Treaty

"Deep well injection", by USSR and USA.

Nuclear transmutation, using lasers to cause beta decay to convert the unstable atoms to those with shorter half-lives.

In the United States, waste management policy completely broke down with the ending of work on the incomplete Yucca Mountain Repository. At present there are 70 nuclear power plant sites where spent fuel is stored. A Blue Ribbon Commission was appointed by President Obama to look into future options for this and future waste. A deep geological repository seems to be favored. 2018 Nobel Prize for Physics-winner Gérard Mourou has proposed using Chirped pulse amplification to generate high-energy and low-duration laser pulses to transmute highly radioactive material (contained in a target) to significantly reduce its half-life, from thousands of years to only a few minutes.

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ROLE OF HEALTH CLUBS IN PROMOTION OF HEALTH WITH REFRENCE TO URBAN WOMEN'S POPULATION

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Abstract:

Regular physical activity is important for urban women's population, our health can be shaped by where we grow up, live and work, this study sought to examine the role of health clubs for promoting urban women's health status, data was collected through interview using structured questionnaire for 60 women aged 25 to 45 years from Belgaum city. The responses of the questionnaires were analysed in percentages and were also subjected to chi-square (X) test with 0.05 level of significance. Using SPSS software analysis was made. Results shows that Health club participants believed that they were more efficient at work. After joining the fitness club, most of them experienced a positive change in their physical condition.

Introduction

Sitting at the centre of modern life, cities are engines of progress and innovation. But not all city residents experience or access these benefits equally, women in urban city are tied up with their busy working schedule due to this it observes that urban women are less healthy than rural women, urban infrastructure creates land into concrete. Infrastructure such as housing water and sanitation, green space, crime and security, transport and work culture, food style social welfare scheme and health education services have direct and indirect impact on health globalization and rapid growth over the years has dramatically changed the life style of urban population, including eating pattern ,physical activity ,marketing social structure and environment factors with expansion of cities and rural urban migration, urban cities are in trend of adopting urbanized life style which has a high saturated fatty diet and low levels of physical activity.

A significant proportion of women with gradual decline in their metabolic rate after the age of 35 years become a Victim to the sedentary lifestyle, physical inactive is not only a risk factor but its also invites some chronic diseases and obesity in women, women compared to men generally engage in lower level of physical activity. Women are getting less time to look after their health, recreation and leisure time. women play a central role in their families and communities; studies show that healthier women and their children contributes to more productive and better -educated communities. The health becomes prime concern for those who live In the city. The increasing number of disease lead the citizen towards fitness and this is the reason for growth of more fitness clubs in the past.

Methodology

To know the role of health clubs in promotion of health with reference to urban women's population, researcher formed a questionnaire with the help of expert, the questionnaire contained 25 questions with yes or no response. The questionnaires were covering all the possible aspects to derive the best possible information which were as follows- Contribution towards health promotion, Improvement in efficiency of subjects, Regular medical check-ups of subjects, Appreciation of the concept of health clubs by the subjects, Role of instructors in the health clubs, activities conducted in health clubs, Clinics organized on latest trends for the subjects.

To collect data researcher had taken interview of the subjects, Before the actual beginning of the interview, the research scholar handed over a questionnaire to the subjects signed by the research scholar ascertaining that the responses of the subjects will be kept confidential and only be used for research purpose. No personal comments were quoted in the study. After the above briefing and formalities, the interview actually began. The interview was conducted

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as per planned and formulated statements and questions prepared by the research scholar. The responses of the interviews were recorded in the recording sheets prepared by the research scholar. The 60-interview ended by expression of thank from the research scholar in recognition of the subject's generosity in sparing time and action.

The responses of the questionnaires were analysed in percentages and were also subjected to chi-square (X) test with 0.05 level of significance. Using SPSS software analysis was made.

Result

1. Health club participants believed that they were more efficient at work. After joining the fitness club, most of them experienced a positive change in their physical condition.
2. Many subjects not underwent a medical screening before entering the gym,
3. Health club instructors maintain appropriate and personalized schedules for subjects.
4. The health club did not organize any health promotion clinics that may have existed.
5. Only few health clubs were conduct different activities like yoga, aquatic activities and massage
6. A high percentage of health club participants report feeling happy After joining the fitness club, it has become a necessity for health promotion.

Recommendations

1. Prioritize health check-up over admission
2. Therefore, it is necessary to undergo regular medical examinations on a regular basis. Subjects may benefit and medical emergencies may be treated an expert in the field.
3. Every health club should have various other activities such as aquatic activity and yoga.

   4. Another study could be conducted by taking a larger sample

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ATTITUDE OF STUDENTS TOWARDS YOGA IN THE DISTRICT OF UTTAR DINAJPUR IN WEST BENGAL

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Abstract:

The word "YOGA" comes from the SANSKRIT yuj which means union.In spiritual sence, yoga means union of mind with the divine intelligence of universe.Yoga aims through its practices to liberate a human being from the conflicts of duality (body-mind),which existed in every living and from the influences of gunas, the qualities of universal energy that is present in every physical thing.Universal energy has three qualities, known as Gunas (that exist together in every equilibruim) sattva(Purity), Rajas (activity,passion, the processes of change); and Tamas (Darkness, inertial) put simply the flower of Yoga learners to work with the forces and processes of life as partner- couple rather than the conflict unease with their own nature.

Keywords: *self development,spirituality through yoga*

Introduction:

Despite.our own true nature which is blissful, people usually become far too distracted with their own mind and body and material objective.They lose sight of this fundamental truth.This false identification makes us feel imperfect,limited , sorrowful and at a loss.Yoga seeks to people with a way to cast off this ignorance and become aware of thier true divine self .The Goal is to free person from those imperfections and to unite heim or her with their supreme universal self.Yoga not only provides techniques fot the groth of human beings from their level to heights of perfection it carves our a way of human life for them.Yoga way of life in characterized by peace and tranquility,harmony and health, love and happiness,precision and efficiency.The drive for such a way of happylife is not an undiscriminate. The drive is featured discrimination, right tuned standing of happiness and harmony and a calculated adoption of a suitable value system cogenial to accomplishment of increasing appiness

Needof the study:

Yoga attitude refers to arrange of mental sets people can have towards the bebefits of yoga refers to harmonious well-being of body,mind and spirit of people.As yoga typically has the method for making in dynamic body,enriching the mind and elevating the spirit.Extrinsically attitude is one of the psychological factors that determine one's endeavor and pursuits in life.also make and female differs potentially in most of the psychological traits.

Importance of the Study:

Many schools and educational institutes have already opted to convert their schooling process into smart and innovative learning practices in metro cities. At the same time, some of the Tier II cities are implementing these methods. As smart classrooms are becoming a boon to the education sector, many companies, including tech, have started to develop products and solutions that are technology-driven and have positive implications in improvising India's smart education system. Therefore, it is essential to create an innovative, user–friendly and high–end features product that will blend with the concept of smart class and cater offerings that work with our end users.

Statement of the Problem:

Based on the data, it is feasible to conclude that gender has a major influence on attitudes regarding yoga. Female students' teachers were shown to have a greater level of yogic attitude than female responses. The findings might be related to the fact that female adolescents' behaviour is impacted by a lower level of selfefficacy than male adolescents' behaviour.

Rationale of the study:

The scope of Yoga as portayed in Bhagwat Gita and Upanisad far more comprehensive as Swami Vivekananda puts it "It is a means

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of compressing one evolution into a single life or a few months or even few hours of one's bodily existence in general , there is a growth process due to interaction with nature in all creation. But it may take thousands and millions of years for this natural growth, that is yhe long thinking faculty, the intellect and self-development voluntry control system.

Scope of the study:

The phrase "attitude toward yoga" refers to a variety of mental setups that people may have when learning about yoga. It refers to people's physical, mental, and spiritual well-being. Yoga, according to research, is a very beneficial practise for athletes, children, and the elderly. Yoga can be modified to achieve various levels of physical and mental health depending on the needs of the students (age sex and purpose). In general, regular yoga practise has been shown to lower blood pressure while increasing strength and flexibility. It benefits our physiological energy system and also regulates our neurological system. Yoga entails:

Objectives of the Study:

1. To study the diferences in Yoga of boys and girls as\t higher secondary livel.
2. To study the difeences in Yoga of private anf govt. Higher secondary school level.
3. To study the diffences in Yoga attitude of rural and urbans higher secondary school students.
4. To study the diffrences in Yoga attitude of Science and Arts students Higher secondary school level.

Hypothesis:

Ho1. There will be no significance mean differences in Yoga attitude of boys and girls at higher secondary level.

Ho2. There will be no significance mean differences in Yoga attitude of private and govt. higher secondary school students..

Ho3. There will be no significance mean differences in Yoga attitude of rural and urban. higher secondary school students.

Ho4. There will be no significance mean differences in Yoga attitude of science and arts students at. higher secondary level.

Ho5. There will be no significance mean differences in Yoga attitude of at. higher secondary students of CBSE and WBBSE

Review of Related Literature:

ML Sophia Verzosa,(1988), "Influence of yoga on hormonal changes, quality of life, and musculoskeletal fitness in menopausalwomen", she observed that symptoms associated with menopause are known to negatively affect the quality of lifefor many women.

Pallav Senguptha

conducted a study on "Health impacts of yoga and pranayama ," reviewed that thousands of years ago yoga is originated in India, and in present day and age an alarming awareness was observed in health and natural remedies among people by yoga and pranayama.

Catherine Wood yard

conducted a study on "Exploring the therapeutic effects of yoga and its ability to increase quality
of life," dept. of health, exercise science and recreation management, reported that as participation rates in mind-body
fitness programmers such as yoga continue to increase, it is important for health care professionals to be informed about

M. Janbakht, (2009),

conducted a study on "Effects of yoga on depression and anxiety of women ".

Research Design and methodology:

Both primary and secondary data are used for the study. Primary data are collected through schedule from 30 school in the Uttar dinajpur district who are practicing yoga. And secondary data are collected from the published source of information like books, magazines, journals, and websites. Purposive sampling technique is used for the study.

Conclusion:

Yoga is a form of mind-body fitness that involves a combination of muscular activity and an internally directed mindful focus on awareness of the self, the breath and energy. The result of the study reveals that, there is a positive influence of practicing yoga among female students. By practicing yoga it is capable to achieve the personal abilities such as stress management, attention in their works and maintenance of physical and mental health. In modern era

Suggetions:

Yoga cure what need not be endured and endure what cannot be cured. Yoga, an ancient but perfect science, deals with the evolution of humanity. is evolution includes

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all aspects of one's being, from bodily health to self realization. Yoga means union – the union of body with consciousness and consciousness with the soul. Yoga cultivates the ways of maintaining a balanced attitude in day to day life and endows skill in the performance of one's actions. Everyschool must give more emphasize towards yoga classes.

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A REVIEW ON SOLAR IRRADIANCE FORECASTING MODELS FOR OPTIMAL PHOTOVOLTAICPOWERGENERATION USING ARTIFICIAL INTELLIGENCE

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Abstract

Increased energy demands and power consumption can be attributed to a number of factors, including global population inflation and changing consumer preferences. Other important causes for employing clean and renewable energy sources for generating power and increasing energy efficiency are the rapid depletion of fossil fuels, the alarming rise in air pollution, and global warming contributing to frequent natural disasters. Solar energy power generation is a consequential origin of renewable energy. Irradiance is defined as the amount of power received from the Sun in the form of electromagnetic radiation per unit area, as measured in the wavelength range of the measuring apparatus. The watts per sq meter (W/m2) metric is used to measure solar irradiance in SI units. and it performs a leading job in determining photovoltaic system's power generation potential. Solar irradiance is monitored and assessed for a wide range of purposes, including predicting energy output from photovoltaic panels, climatology, and weather forecasting. This paper presents a general outlook of several tools and approaches for forecasting solar irradiance utilizing data-driven methods constructed on algorithms like machine learning and deep learning. Depending on the input information used to 'train' the algorithm, it may be used to a wide variety of forecast horizons. Although these algorithms have been proved to be capable of estimating solar radiation, variances in their performance make comparing and choosing the optimal technique an interesting task. Artificial neural network, SupportVector Machines, and their comparison with Deep Learning approaches are among the most often used ML methods in this work.

Keywords :*Solar power, Solar Irradiance, SVM,ANN, and Machine Learning , Deep Learning models*

1.Introduction

Increased energy demands and power consumption can be attributed to a number of factors, including global population inflation and changing consumer preferences. Other important causes in employing clean and renewable energy sources for generating electricity and increasing energy efficiency are the rapid depletion of fossil fuels, the alarming rise in air pollution, and global warming contributing to frequent natural disasters. [1].

1.1 Renewable energy

Renewable energy is clean energy mined from Earth's abiotic resources that are illimitable or infinite, such as wind and sunshine. Turbines are used in wind plantations to gather wind energy and convert it to electricity. Photovoltaic and wind systems are accessible in an extensive collection of configurations, each with their respectivepair of benefits and drawbacks. A wind-powered mass production system may power a wide range of businesses, while standard turbines could help existing energy companies. Wind energy is indeed a valuable form of energy since it is less polluted and much safer to the environment than other energy production sources.[2] Photovoltaic energy is formed by conversion of the sun's radiant energy into heat and light. Solar cells turn natural sunlight into energy and are utilized in rechargeable (PV) technologies. Sun modules made up of several solar cells are used in a photovoltaic system to produce electricity PV installations can be floating,

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wall-mounted, rooftop-mounted, or ground-mounted. In order to track the sun throughout the sky, the mount can either be permanent or employ a solar tracker.

It is impossible to supply the world's energy needs with solely conventional sources because of the rapid expansion in population density. The enormous energy demand is causing a rapid deployment of conventional sources.People then began to consider other energy sources and discovered that they were not the only effective way to close the supply-demand imbalance. Green and clean energy comes from renewable sources. Among renewable energy sources, photovoltaic and wind power are becoming more popular.

Due to the vast potential for solar energy in Asian nations like India, the government has undertaken a number of initiatives to encourage the building of both grid-connected and off-grid solar power plants .photovoltaic technology will be able to generate enough affordable, sustainable energy to reduce the impact of CO2 on global warming. Solar photovoltaic energy (PV) has distinct benefits as an energy source: once installed, it produces no pollution or greenhouse gas emissions; it is easily scalable in terms of power requirements. By 2030, the Indian government wants to generate 80 percent of its energy emissions-free using renewable sources [1].Since a decade ago, the integration of PV power into the grid has grown quite dramatically. Due to the intermittent nature of solar energy, maintaining the stability and functioning of the power system grid is very difficult due of the extensive integration of PV power into the grid. In order to maintain grid stability and operation, PV power forecasting is important.

1.2 Energy Generation by Renewable Sources

In 2008, both the European Union and the United States built more renewable energy capacity than conventional electricity capacity for the first time, signaling "fundamental transformation" of the world's energy markets toward renewable. Renewable energy accounted for nearly a third of newly constructed power production capacity in 2010 [2]. Global renewable power capacity had topped 1,360 GW by the end of 2011, an increase of 8%. Renewable energy sources accounted for over half of the 208 GW of new capacity installed globally in 2011. About 40% and 30% of the energy came from wind and solar photovoltaic (PV), respectively [3]. Traditional biomass contributes for 9% of total energy consumption, with non-biomass heat accounting for 4.2 percent, hydroelectricity accounting for 3.8 percent, and electricity from wind, solar, geothermal, and biomass accounting for 2%. [4].When compared to 2019, renewable energy capacity additions grew by more than 45 percent in 2020, with 90 percent more new wind power (green) and a 23% increase in new solar photovoltaic installations (yellow)[1].

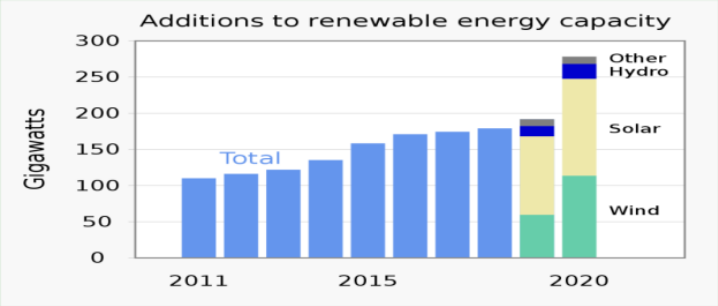

Fig 1:Renewable Energy Capacity

1.3 Solar Energy

Solar energy is pollution-free and has no resource limitations, making it a perfect power source for any household or

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industrial business. Renewable energy outputs, in particular, fluctuate dramatically depending on the conditions and characteristics of the environments in which they are employed, making it hard to estimate how much energy will be produced. Solar energy has a more consistent pattern than wind energy and receives a significant quantity of solar energy.Photovoltaic solar energy converts solar radiation into electrical energy, which is transported for applications other than heating. Thermal solar energy converts solar radiation into thermal energy, which is used in manufacturing processes, desalination plants, houses, or water treatment plants; and photovoltaic solar energy converts solar radiation into electrical energy, which is used in manufacturing processes, desalination plants, houses, or water treatment plants. Despite its ubiquitous use, solar power generates a wide range of results [5].

2.2 Solar Irradiance

Solar Irradiance is the volume of an electromagnetic radiation absorbed by a given area per unit from the Sun, as measured using equipment.It is often integrated over time to explain the radiant radiation emitted into the natural atmosphere through time. Irradiance can be detected in space and on Earth's surface after environmental absorption. These parameters, when combined with the tilt of the recording land, the angle of the light just over the skyline, and weather systems, affect illumination on the ground atmosphere. [3] Solar Infrared research and measurements could be beneficial...Listed below seem to be the three forms of solar radiation.

Diagonal Global Luminous intensity Dispersed Lateral Illumination Average Solar Illumination Diagonal Worldwide Illumination

Universal horizontally light is the total of diffuse vertical radiation and direct normal radiation dropping at any direction squarely on the Planet's surface. Refracted Diagonal Illumination + Cross - correlation Average Solar Insolation = Global Diagonal Illumination Total Globally Lateral Insolation (GHI) seems to be the whole irradiance on Atmosphere's horizontal. It is the total all direct light (adjusted for such sun's azimuth angle elevation z) combined dispersed longitudinal energy [4].

2.1.1 Diffused Horizontal Irradiance (DHI)

Distributed Diagonal Illumination is defined as the radioactivity at the planet's surface caused by light dispersed due to environment, which is calculated at the surface using energy among all locations in the sky except electromagnetic heat (direct light coming from the sun). Within elimination of oxygen, there would've been essentially no DHI. [4]

2.1.2 Direct Normal Irradiance(DNI)

DNI or beam energy is determined at the Ground atmosphere at a specific position with a large horizontal toward the Sun. It does not include dispersed sun energy. The alien illumination above troposphere is identical to straightforward radiation minus meteorological losses absorptive and scattered. Damages are based on the events daytime, cloudiness, humidity levels, and other factors [4]. Total Solar isolation (TSI) is a measurement of renewable photovoltaic every time unit impacting on the Form of particles at all frequencies. It is measured opposite to the direction of the sun's energy. The photovoltaic common factor is a traditional way of measuring representing mean PV around one astrological distance.

Solar irradiance can be high or low depending on location, time, and the panel's position in reference to the Sun and the sky [4]. As a result, solar power is inherently irregular and unpredictable. Despite the practical limitations, solar energy modeling and forecasting are critical. The amount of energy delivered per square meter, for example, is known as solar irradiance. Solar radiation forecasting aids power grid tacos in maintaining consistent energy output. Isolation predictions could be significant in determining power dispatch arrangements or serve as a useful reference for refining

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battery charge regulator algorithms. Finally, in the near future, enhancing the accuracy of systems for predicting solar irradiance will be critical to the growth of this source of energy.

2.2 Machine Learning (ML)and Deep Learning Algorithms

Machine Learning has been adopted to solve complex technological challenges in a range of fields like healthcare, automation, social media platforms, weather prediction, and data analysis. ML is the subclass of artificial intelligence which allows programmers to increase their ability to predict events without coding. To predict the new correct result, the algorithm uses the previous data as input. To anticipate and forecast solar irradiation, generic algorithms (GAs)[13], Neural Network (NNs)[6],Support Vector Machine [4],[7] are some of the machine learning methods that are used in forecasting.

Yang et al. [26]Given the rapid emergence of AI-driven IoT technology in recent years, we introduced a dynamic deep learning technique for PV power output forecasting with a time step of 1hr based on weather types. Categorization, training, and prediction are the three processes in the proposed technique. A self-organizing map (SOM) [26] is considered in the categorization phase and Vector Quantization Learning (LVQ) [27].The fuzzy training approach is used in the training and prediction process to select the best candidate and to produce the most optimum deep learning model for the prediction [28] developed a method for predicting PV power intervals in many modes that takes into account the feature of PV power as well as absolute energy deviation. VanDeventer et al. [29] suggested a SVM model constructed on a genetic approach (GAVSM).The GAVSM model categorizes historic weather facts with an SVM classifier before using an ensemble technique to improve the genetic algorithm. The goal of this research is to see if it is possible to use solar activity forecasting to generate accurate future forecasts for solar power production for mobile phones [3]. Increase the amount of electricity generated by recycled or clean energy sources. In this paper, we present our summary of solar prediction algorithms.

Author .etl.	Model/Technique used	Accuracy
R. Mejdoul et.al[1]	A framework for projecting daily average solar sun's energy (DGSR). using ANN was constructed in this paper	This Model educated that use the 4/41 Based scheduling approach has a reliability of 0.98, an averageaccuracy of 1%, and just a sum of square error of 1.2
T. Vaisakh1et.al[2]	Multilayer perceptron (MLP), Convolution Neural Network (CNN) and Recurrent Neural Network (RNN) are three machine learning algorithms (RNN). hidden neurons are increased in numbers are optimized througha hybrid technique called Grey Updated DHOA, whichintegrates the Deer Hunting Optimization Algorithm (DHOA) and Grey Wolf Optimization (GWO) (GU-DHOA).	GU-DHOARNN out performs the mentioned techniques MLP, CNN, RNN, GU-DHOA-MLP, and GU-DHOA-RNN in terms of RMSE by 20.8, 18.8, 81.8, 1.1, and 33 percent, respectively.
Usman Munawar et.al[3]	ML approaches like random forest, ANN , and extreme gradient boosting (XGBoost) as well as identifying approaches like feature significance and principal component analysis, are used to find the optimal combination for short term power forecasting (PCA).	combination of XGBoost model and the PCA technique performed much better, with the lowest rmse (2.49082 w/m2) and the highest score (0.9994).
Mohammad Sina Jahangir et.al[4]	This study investigates the ability of various IVS methods, suchas the Gamma test (GT), Procrustes analysis (PA) to refine Rs prediction accuracy via linking them with such as the multilayerperceptron (MLP), support vector machine (SVM) and others, to improve. The Rs prediction models were built using weather data from 8 different locations in north Iran.	When the EA approach was used for input variables, the results revealed that MGGP produced the lowest accurate estimation, with the nRMSEincreasing by up to 40% when collate to MLP.
Sabrina Belaid et.al[5]	It comprises of integrating the SVM supervised machine learning method with the time series principle.A HGSR datasetwas used, which has been collected in Ghardaa, Algeria's south.	Traditional approaches are outperformed by the SVM modelformed as projected methodology R2.

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	ANN, Firefly Fourier Algorithm (FFA), Random Forest (RF), Auto Regressive Moving Average (ARMA), and SVM are the methods that have been compared using the time series principle (developed in this work).To test if models and observations might be evaluated , researchers used an hybrid of feed-forward NN to construct a unique, data-driven solar- irradiance model, the main components of this model design isa non-linear connection between solar-activity proxy and irradiance with a large degree of freedom that comes from the integration of a solar work.	R=0.99 percent, NRMSE=13.08 percent, NMBE=0.79, and MAPE=19.72 percent are the predictions of the chosen SVM model based on yearly data.
Steffen Mauceri et.al[6]	A majority of solar-activity indicators are also included in the model than in previous proxy models, resulting in a non-linear connection with a high degree of variation between solar- activity proxy and irradiance.	NN for SI Modeling (NN-SIM) approach has been used to reconstruct total s and SI from 205 nm to 2300 nm and from 1979 to Till date
Md. Burhan Uddin Shahin et.al [7]	This research employs an ANN. it is a time series-based projection, so scholars have used daily data from NASA's database's renewable energy community over the past 15 years (2000-2015).They chose a seaside location such as Saint martin in Teknaf for this study as it plays a pivotal role in Bangladesh.	We changed the tapped delay lines from 2 to 4 toward the the conclusionof training this model with 21 hidden layer neurons to examine how it influenced the output MSE.As the number of delays increases, so does the value of the output.MSE rises in a fairly linear fashion.
A. Costa Rocha1 et.al[8]	Using a 14-yr of data set of meteorological variable , three convolution neural networks ANN'S are created for daily, weekwise and month wise averaged global sun radiation forecast in Brazil's North east area. Maximum and lowest temps, radiance, rainfall, cloudiness, planetary radiation, relative humidity, evaporation, and wind direction were all considered as predictors.	6 ANN architectures were tested withdifferent parameters in the daily case study. The quantity of inputs, as well as RMSE values varying between 0.044121 and. There were 0.167655 discovered.
Hamza Ali-Ou-Salah, et.al[9]	This research provides a modern hybrid approach for forecasting 1hr ahead global solar irradiation based on ANN and clustering algo seasonally. 3 years of monthly average experimental data were divided into separate seasons that use the fuzzy c-means method based on weather characteristics in Evora..	A value of 0.14 was calculated to usethe model presented in [36].
HaticeCitakoglu [10]	The multi-gene programming (MGGP) method offered as novelmethod, and it has been shown to produce better accurate sun radiation estimates in Turkey.	The MGGP multi-data models and validated equations have been shown to be more accurate than only one models in predicting solar radiation..

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Dongha Shin1 [11]	In the prediction algorithm, an adaptive neuro-fuzzy inference system and ANN methodologies such as dynamic neural network, rnn, and long short-term memory are applied (LSTM).	ANN technique outperforms the neuro-fuzzy approach. The results showed that Model 4's forecasting outcome was the most accurate, with an RMSE of 1.85 times more accurate then Model 1's.
OlusolaBamisile[12]	The application of ANN to predict solar irradiance andphotovoltaic characteristics in Nigeria.	SI are predicted using models created. For solar irradiance prediction, R values range from 0.9046–0.9777, while for solar PV multi-parameters prediction, R values range from 0.7768–08739.
Weipeng Xinga.et al[13]	Using Himawari-8 satellite pictures, a deep belief network(DBM) was developed to evaluate global horizontal irradiance under all-sky circumstances with high rate of accuracy and efficiency.	Hourly comparison with ground data yielded a strong Pearson correlation coefficient (r) of over 0.95, with a RMSE of 30 to 80 w m2.
Kumari P et al[14]	A new evolutionary algorithm for hourly gradient boosting forest (XGBF-DNN) and convolution neural networks (XGBF- DNN) are being used to generate GHI forecasting.	The RMSE variances for the XGBF- DNN,XGBoost, and DNN were1.081, 12.547, and 14.953 correspondingly. proposed 452 ensemble model has the minimum deviation of the XGBF-DNN model, indicating, not only achieves excellent prediction accuracy but also has great resilience.
Xiaoqiao Huang[15]	In a cross modular system with multi-variable inputs, the novel WPDeCNNeLSTM-MLP model combines WPD, LSTM, and CNN networks.	In comparison to the generic persistence model, the suggested WPDeCNNeLSTM-MLP model more accurately predicts with a min RMSE of 32.1 W/m2, a min nRMSE of 15.4795%, a max s of 0.4438, and a max FS of 0.6624.
Diego J.et.al[16]	This technology is simple to develop and incorporate into existing business computer systems. We compare our strategy to a number of well-known alternatives, including deep recurrent neural networks and autoregressive integrated moving average models.	Our technology generates forecasts that are 20% more accurate than those generated by recurrent neural networks.

Table 1: Machine Learning Models For Solar Irradiance Forecasting

3. Neural Network and Irradiance of the sun Forecasting

In[25], global solar irradiance on a monthly basis prediction by converting a NN to a multiple linear regression(MLR) issue in the inclusion of a hard-edge consequence, This was accomplished by using bio-inspired optimization approaches such as differential evolution algorithms and the cuckoo search and to significantly reduce the number of nodes in the hidden layer which are both successful and novel approaches. In [26] the properties of solar radiation were predicted using an ANN model. The impact of increasing the number of input factors on solar radiation was explored, and it was discovered that by expanding the number of input factors, future solar radiation data might be accurately estimated. The nonlinear

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Autoregressive Network with Exogenous inputs (NARX) technique is used to predict hourly irradiance using a variety of raw inputs of weather data [27].The linear regression model was outperformed by the NARX neural network.

The two ANN models with four distinct techniques were judged to be the best for estimating using the least mean error percentage (MAE), root mean square error (RMSE), and greatest linear correlation coefficient to design or analyze solar PV systems [28]. ANN and RF are the forecasting approaches that have been adopted to forecast the three diverse essentials of solar irradiation (horizontal global, beam, and diffuse), As the inconsistencies in meteorological data, fall is less reliable than winter and summer [29].On a horizontal surface, using SVM for predicting daily and monthly global solar radiation was labeled [30].

To achieve excellent accuracy, SVM-centered models require only a few basic parameters. Techniques for Hybrid Solar Forecasting: The use of NN and fuzzy models to forecast solar irradiation was demonstrated. The prediction was shown to be effective after categorizing the temperature data and cloud as separate fuzzy logic sets and rules and combining them with Ann [31]. In [32] the incapacity to capture long-term scalable data, ANN, autoregressive moving average (ARMA), and SVM were used and proven to be inaccurate. Solar radiation was estimated using deep recurrent neural networks (DRNNs). DRNNs enhance the model's complexity by allowing high-level feature extractions without mention in the type of deviation should be included.

A hybrid approach combining clustering algorithm and multilevel perception is described for hourly solar radiation [33].When compared to the performance of other well-known forecasting models, the suggested hybrid technique outperforms them all. To anticipate the Global Horizontal Solar Irradiance, presented a standard of superintend approaches of, machine learning algorithms performed quite well for predicting horizons longer than one hour [34].

4.Methodology

4.1 Data

The area of investigation is in Kuala Terengganu, Malaysia. This study will be using historical solar data only to predict solar radiation at any desired time possible. Raw solar data were obtained from the Department of Meteorology Malaysia
(MMD). The data used in this study is a one-year data 2020-2021 which is measured everyday hourly from 7 a.m. to 6 p.m.

4.2 Data preprocessing

Clean missing data, normalization, and a filter-based feature selection module were all used during the pre-processing stage of the data. Huge volume of data was missing so at first, we used imputation to develop reasonable guess of missing data We also used Probabilistic PCA was used which is a dimensionality reduction technique. Each feature's cleaned missing data has a unique range of values, hence normalizing is necessary to change the values of the numeric columns within the dataset to a standard scale without eliminating contrast within the intervals The filter-based feature selection module is the last stage pre-processing. This stage is crucial for constructing a machine learning algorithm model because it determines the input dataset columns with the best solar radiation prediction characteristics. The Pearson's correlation filter selection metric is being used in this investigation. Using independent and dependent variables, Pearson's correlation analysis was performed.

In the forthcoming events, we are preparing to conduct a full-fledged experiment to determine an efficient solar irradiance forecasting model for optimal power generation. The proposed Algorithm RFPCA will be an Ensemble Algorithm which will be combination of Random Forest Regressor and PCA algorithm for the prediction of global solar irradiance where factors like temperature, sun hours,

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wind speed, voltage of PV panel, power generated by PV panel, latitude, longitude, precipitation, month, year, of different location across India will be taken into account and model will be trained to predict the solar irradiance model. An algorithm for reinforcement methods called Random Forest Regression utilizes the ensemble learning method for regression. In order to create predictions which are more accurate than from a single model, the ensemble learning model incorporates predictions from various machine learning algorithms.

A full range of issues will be studied including selecting the best indicators for optimal power generation using solar energy and then perform the presented model based on dataset and comparing the results with existing learning models. Following steps have been followed for the study ad analysis of the data

Step 1: Identify your Target Variable (y) and feature variables (***X)***

Step 2: Split the dataset into the Training set and Test set

Step 3: Scaling the data using Standard Scaler

Step 4: Create the Pipeline containing PCA and Random Forest Regressor

Step 5: Fit the data in the created pipeline

Step 6:Predict the Testing data

In this study, 6 models have been tested and compared utilizing historical sun radiation with different months of the years as the input parameters: 'Random Forest Regressor & PCA','XGB Regressor & PCA','Decision Tree Regressor & PCA','Gradient Boosting & PCA','XGB Random Forest Regressor & PCA','Linear Regression & PCA' with three alternative normalizers, and different climatic parameters Based on the study correlation coefficient (R), coefficient of determination (R2), mean absolute error (MAE), and Mean squared error, the prediction accuracy of the models was assessed and tables out (RSE).In "Methodology," a brief list of the study region and climatic information with the suggested models is provided. Simulation results models are shown, along with comparisons, in Results and **Discussion.**

We selected out the best model out of the above 6 mentioned models by comparing their accuracies and errors.

As the result the best model comes out to be Random Forest Regressor with PCA which was implemented in a pipeline.

4.3 Proposed Algorithm Pseudo code

1.Input: D1 = f[x1; x2; ::::; x1n]; [x21; x22; ::::; x2n]; :::::[xm1; xm2; ::::; xmn]; [y1; y2; :::::; yn]g : xij 2 <P

yk=[y1; y2:::::yn]: GHI

Output = the ensemble forecasting error and accuracy

1: Split dataset D1 into T (training dataset), V (validation dataset)

X_train: Training input

X_test Validation input y_train: training target

y_test Validation target

2: Initiate a PCA and Random Forest Regressor Combination as RFPCA Model

3. Train the training data T on the pipeline

`4. Predict the target for validation input

5. Compute the prediction and find the error and accuracy

4.4 Graph Summary

As a first check it is important to visualize the data, in order to ensure that the data has been loaded as expected and to detect major issues. For this purpose, the different measurements have been plotted as a function of time, as well as a histogram.

Generally, this first qualitative analysis allows detecting major issues in the data set. Nevertheless, it is not possible to judge their plausibility at this stage of the data analysis.

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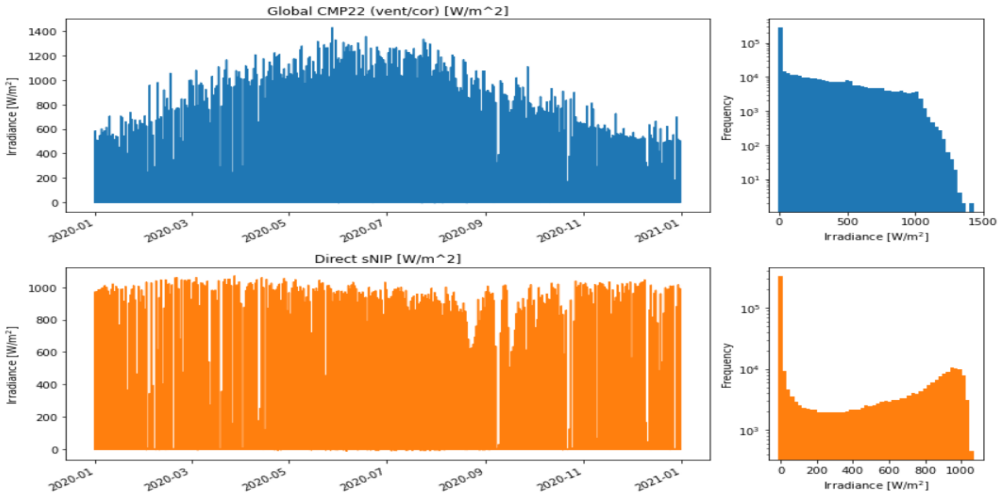

CMP22 has individually optimised temperature compensation and a standard thermistor sensor is fitted to monitor the housing temperature.

CMP22 has all the features of CMP21 but uses very high quality quartz domes for a wider spectral range, improved directional response, and reduced thermal offsets. Because of the high optical quality of these domes the directional error is reduced below 5 W/m². Kipp & Zonen is confident that CMP22 is the best pyranometer currently available.

We have plotted a histogram of Irradiance calculated by CMP22 pyranometer Vs Time in 2 month interval And another Histogram of Irradiance Vs Frequency. The conclusion of CMP22 Vs Time graph is Symmetric unimodal graph which represents the peak irradiance at the median of the graph.

Frequency Vs Irradiance graph which represent skew right graph where the frequency is highest when the irradiance is lowest.

Direct sunlight or beam irradiance **(Direct sNIP [W/m ^2]** is the key resource for any concentrating solar system. Beam irradiance has a significantly higher variability in space and time in comparison to global irradiance, and its measurement requires higher accuracy and attention. Therefore, the uncertainty of beam irradiance is higher and solar resources must be measured with great care. In order to get realistic long-term values, satellite-derived values are taken into account in addition to ground measurements to mitigate the high interannual variability. The short-term variability of beam irradiance in terms of fluctuations should be properly represented as CSP systems are sensitive to transient conditions.

we have plotted a histogram of direct sunlight Vs time in 2 months interval and another histogram of sunlight Vs Frequency.

The conclusion of direct sunlight Vs time is a uniform graph which represents that direct sunlight is unformly distributed across all time period.

Frequency Vs Direct sunlight graph represents a bimodal distribution which represents the peak frequency during the lowest and the highest sunlight.

Extremely Rare Limits

The limits of the "Extremely Rare Limits"(ERL) procedure are more strict than those of the "Physically Possible" test. ERL differs from the PPL test in that the measurements rarely reach these limits, and even if the case is only for short periods of a few seconds to one or two minutes, and also in those measurements violating these limits are not necessarily incorrect but their plausibility should be checked more specifically.

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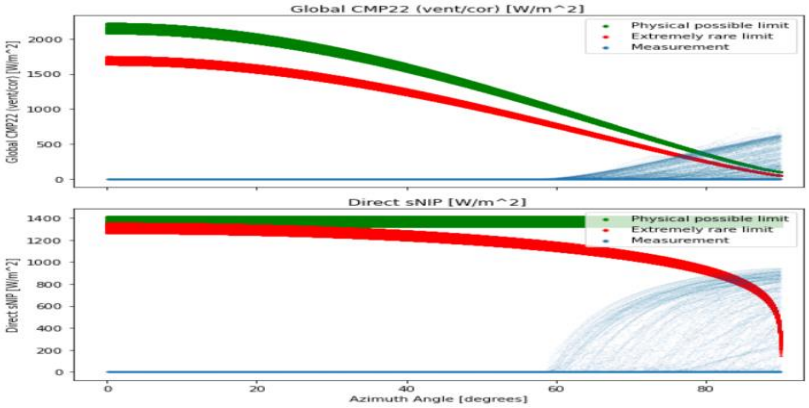
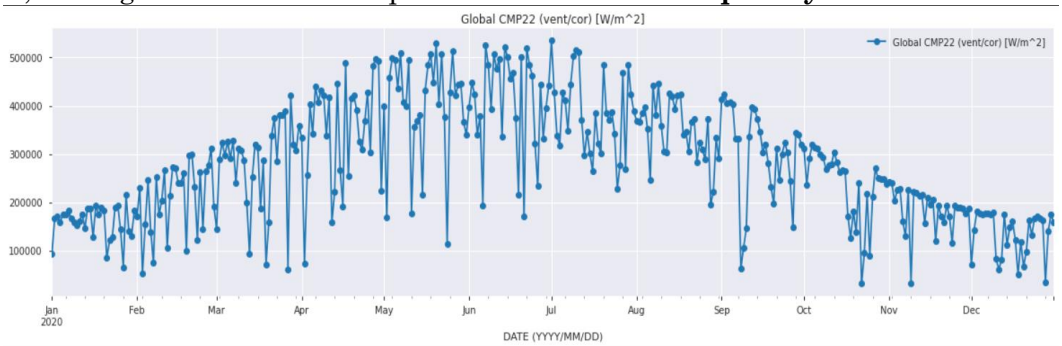


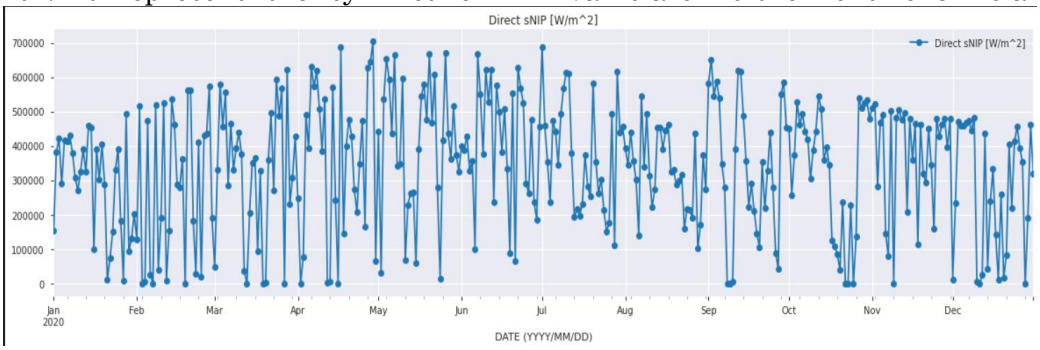
A graphical representation of these two tests is possible by representing the 10-minute averages of Global CMP22 and Direct Sunlight as a function of the irradiance received at the top of the atmosphere (TOA).

This representation is shown in graphs where the one-component PPL and ERL tests are represented by green and red lines respectively. In view of the QC equations, it might have been simpler to use the cosine of the azimuth solar angle for the graphical representation of the QC. However, we opted for the irradiance at the top of the atmosphere because we judged this quantity to be more intuitive. Finally, another quantity would have been more suitable to represent the quality control of the direct sunlight but we chose to keep the same quantity between the different representations for consistency reasons.

Line Frequency



we have plotted a line graph between Global CMP22 and time with the interval of 1 month. It represent the symmetric unimodal distribution of CMP22 over a period of 1 year. Also it represents the peak value around the month of June and July.



we have plotted a line graph between Direct Sunlight and time with the interval of 1 month. It represent the symmetric unimodal distribution of sunlight over a period of 1 year. Also it represents the peak value around the month of June and July.

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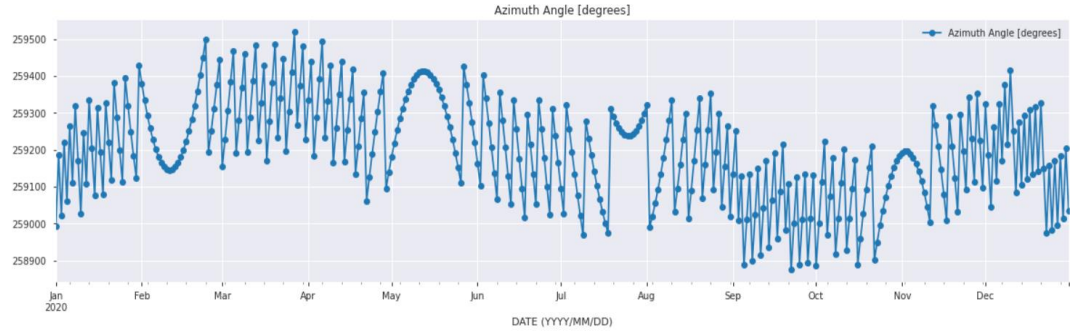
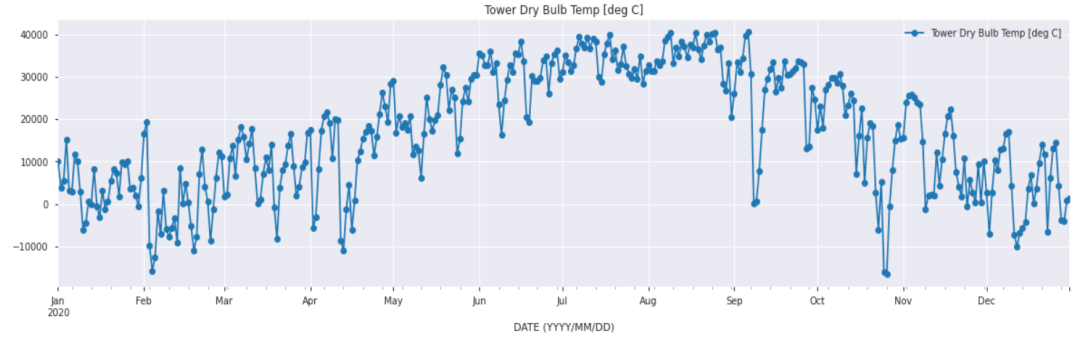
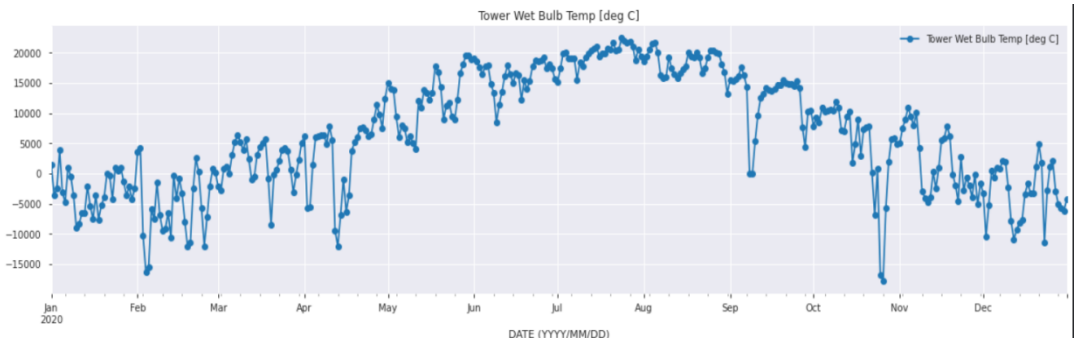


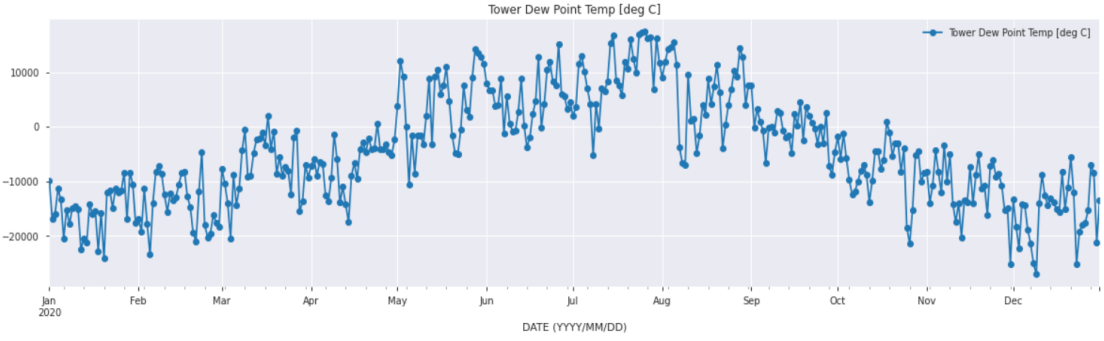
we have plotted a line graph between Azimuth and time with the interval of 1 month. It represent the symmetric unimodal distribution of Azimuth angle over a period of 1 year. Also it represents the peak value around the month of march and april.



we have plotted a line graph between Tower Dry Bulb Temp and time with the interval of 1 month. It represent the symmetric unimodal distribution of bulb temp over a period of 1 year. Also it represents the peak value around the month of July and August.



we have plotted a line graph between Tower Wet Bulb Temp and time with the interval of 1 month. It represent the symmetric unimodal distribution of bulb temp over a period of 1 year. Also it represents the peak value around the month of July and August.



The dew point is the temperature the air needs to be cooled to (at constant pressure)

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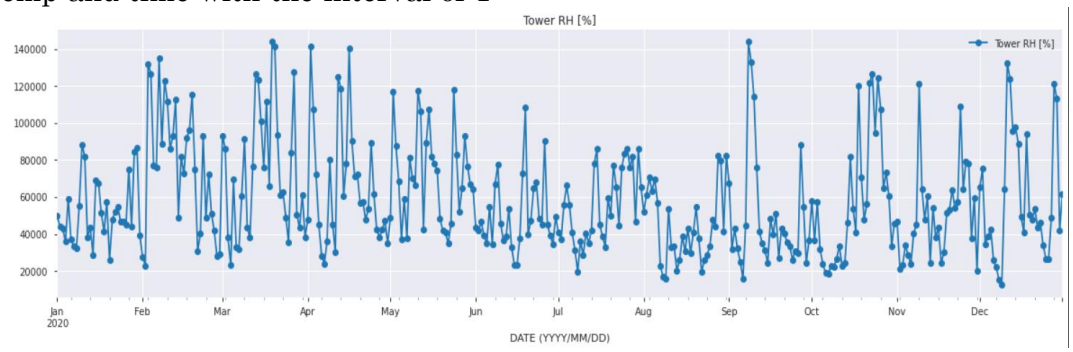
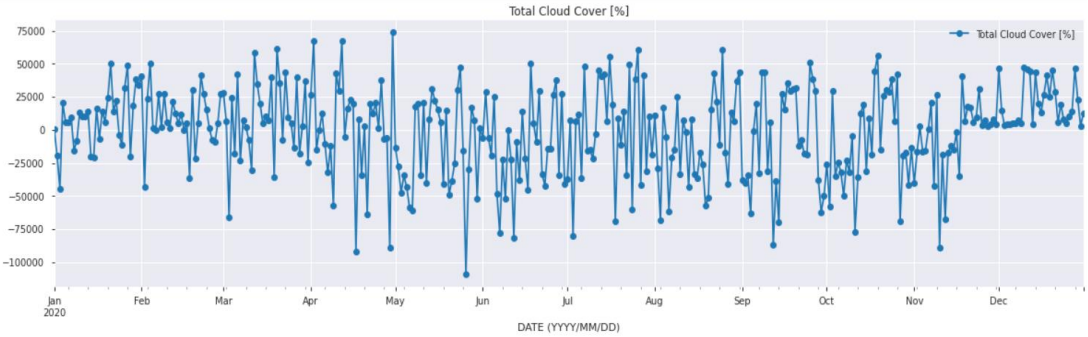
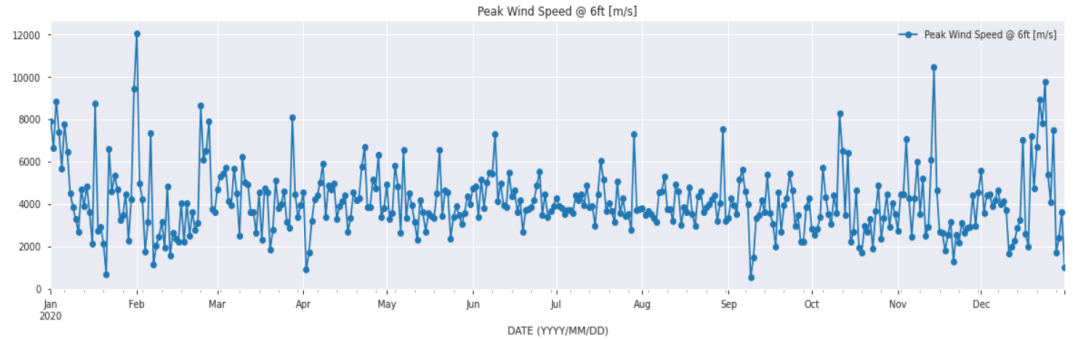
in order to achieve a relative humidity (RH) of 100%. At this point the air cannot hold more water in the gas form.
we have plotted a line graph between Dew Point Temp and time with the interval of 1 month. It represent the uniform distribution of dew point over a period of 1 year. Also it represents the peak value around the month of July and August.



we have plotted a line graph between Relative Humidity and time with the interval of 1 month. It represent the symmetric unimodal distribution of humidity over a period of 1 year. Also it represents the peak value around the month of March and September.



we have plotted a line graph between Total cloud cover and time with the interval of 1 month. It represent the uniform distribution of cloud cover over a period of 1 year. Also it represents the peak value around the end of April.



we have plotted a line graph between Peak Wind speed and time with the interval of 1 month. It represent the symmetric unimodal distribution of wind speedover a period of 1 year. Also it represents the peak value around the end of January and the start of Feburary.

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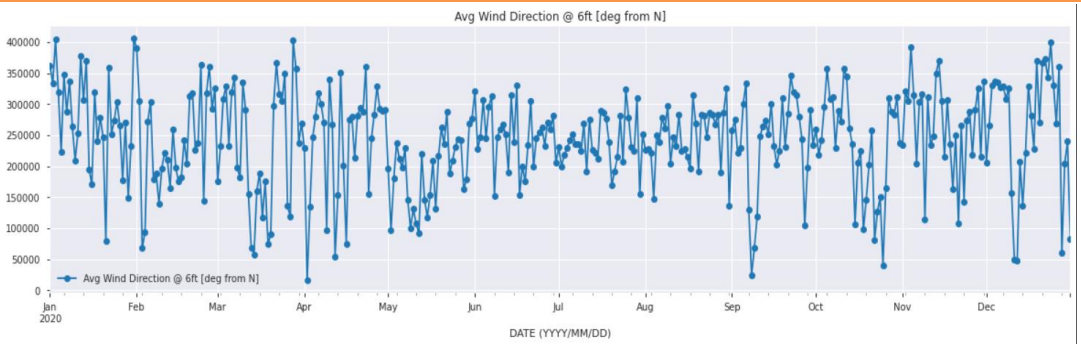
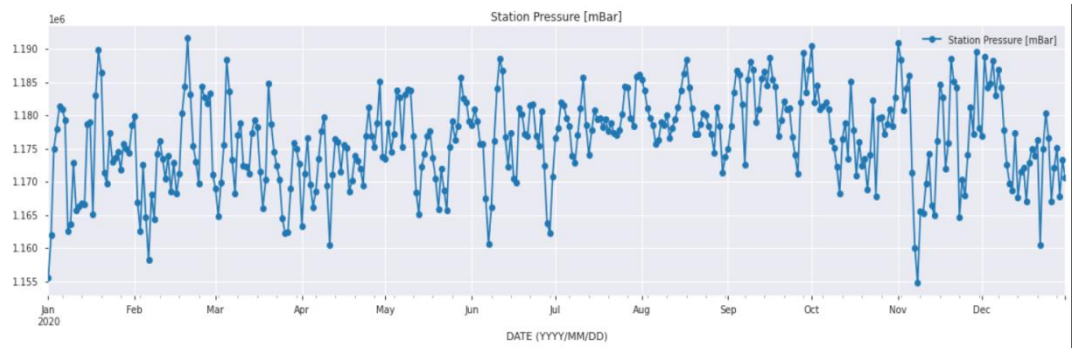
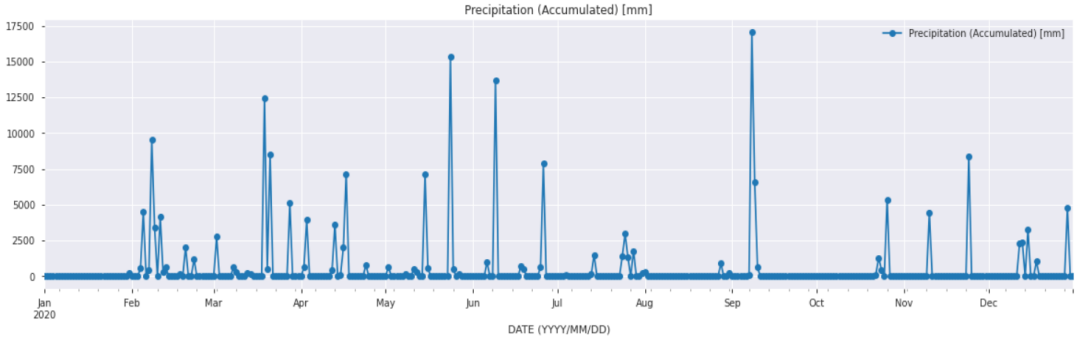


we have plotted a line graph between Wind Direction and time with the interval of 1 month. It represent the uniform distribution of Wind Direction over a period of 1 year. Also it represents Degree of direction of wind.



Station Pressure: This is the pressure that is observed at a specific elevation and is the true barometric pressure of a location. It is the pressure exerted by the atmosphere at a point as a result of gravity acting upon the "column" of air that lies directly above the point.

we have plotted a line graph between Station Pressure and time with the interval of 1 month. It represent the uniform distribution of Wind Direction over a period of 1 year. Also it represents Degree of direction of wind.



we have plotted a line graph between precipitation and time with the interval of 1 month. It represent the precipitation occured over a period of 1 year. The peak precipitation is in the month of September.

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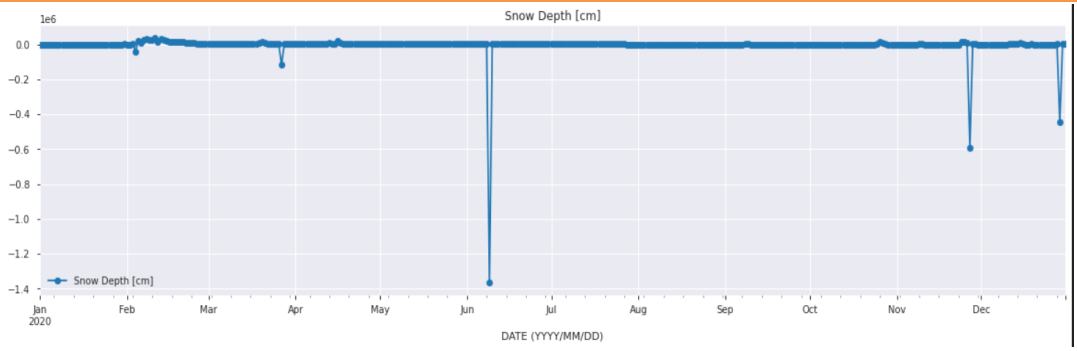
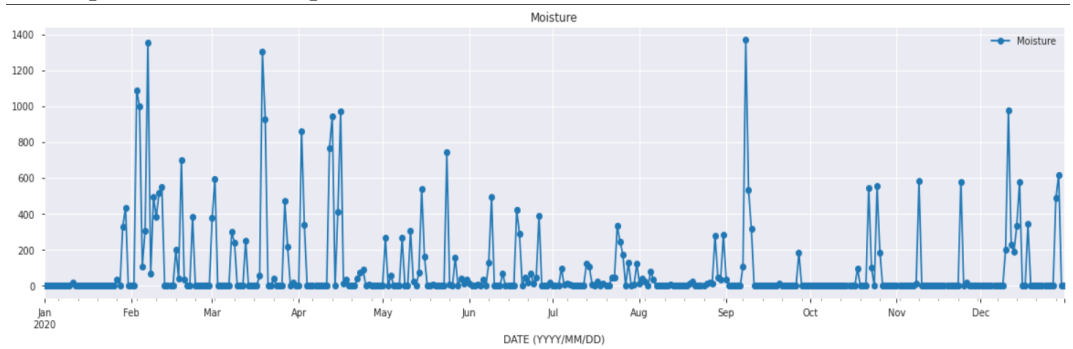
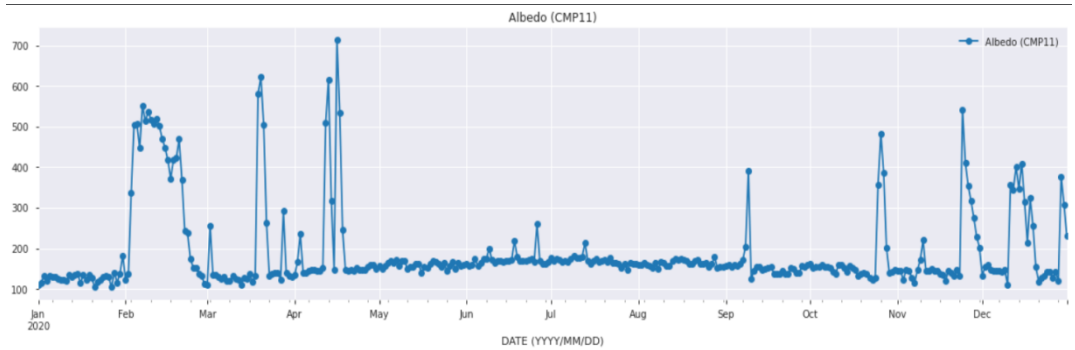


we have plotted a line graph between Snow Depth and time with the interval of 1 month. It represent the depth of snow depleted and its peak is in june means snow depletes more in june.



we have plotted a line graph between Moisture and time with the interval of 1 month. It represent the peak moisture present in atmosphere in month of feb, march and september. Due to the correlation between precipitation and moisture its peak is also in sept.



The CMP11 Albedometer Kit is a step up in performance from the CMP6 kit and is recommended for scientific applications, for which accuracy needs to be according to the highest standards.
CMP6 is ideal to define the ratio of irradiance reflected to the irradiance received by a surface (albedo). This results in a scale from 0 (no reflection) to 1 (total reflection)
we have plotted a line graph between Albedo CMP11 and time with the interval of 1 month.

Correlation Graph

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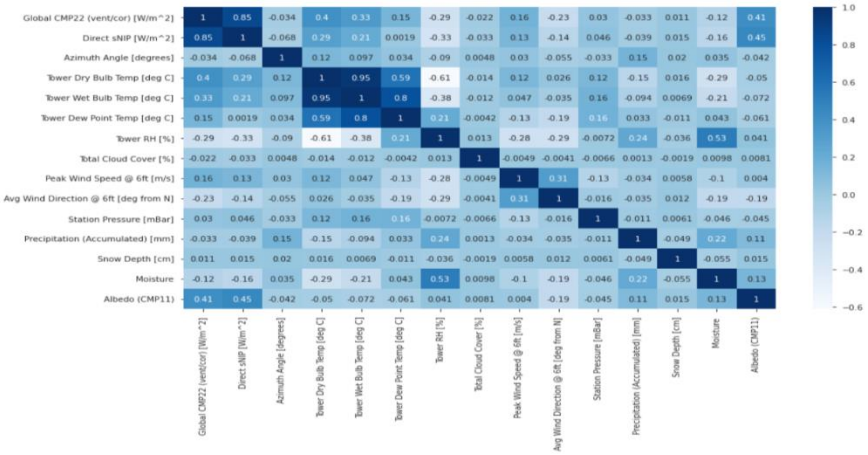

Target Variable here is Global CMP22. This correlation graph explains the relationship between different variables and how they are affecting each other.

our target variable is affected the most by following variables:

Direct sNIP : 0.85 positive linear correlation

Azimuth Angle : -0.034 negetive linear correlation

Tower Dry Bulb Temp. : 0.4 positive linear correlation

Tower Wet Bulb Temp. : 0.33 positive linear correlation

Precipitation : -0.033 negetive linear correlation

Albedo : 0.41 positive linear correlation

But knowing the correlation we got to know that these factor will affect our target variable directly.

4.5 Results and Conclusion

Result

Models	Accuracy	Mean Absolute Error	Mean Squared Error
Random Forest Regressor & PCA	0.984975	14.797356	1265.354257
XGB Regressor & PCA	0.965990	30.194431	2864.270995
Decision Tree Regressor & PCA	0.956612	21.603971	3654.047953
Gradient Boosting & PCA	0.881525	59.158058	9977.675040
XGB Random Forest Regressor & PCA	0.853480	64.237827	12339.523891
Linear Regression & PCA	0.783782	97.858689	18209.346835

Table 2 Machine Learning Models Comparison Table

As shown with the above table the different AI models along with PCA techniques are used to predict the target variable Global CMP22 ,global solar irradiance , as per the results the random forest regressor & PCA model showed the highest accuracy of 98.4.Solar energy will persist to contribute a foremost role in the future, reducing dependency on conventional fuels and addressing environmental concerns as a major priority. Photovoltaics (PV) are solar panels that convert sunlight into electricity anticipated to exist as the bearer of the flame for the the expansion of the new energy market, as well as a backup service in the event of a power outage. Although this poor maintenance, environmentally friendly.A photovoltaic energy is simple to produce, its reliability and manufacturing costs have yet to reach the point where it can totally replace traditional energy sources. As a result, well-designed PV plants are required to get the most out of them. Because PV system efficiency is entirely dependent on weather elements such as solar irradiance and sky settings, precise climate forecasts will aid in PV facility sizing. This study compiled and examined the present state of AI

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approaches for forecasting weather characteristics, with a focus on hybrid systems. With the fast expansion of processing capacity, it appears that there is an increasing interest in forecasting approaches. This research will be valuable for academics and researchers interested in employing AI for weather forecasting. In the future, we will propose and validate more learning techniques are employed to create a unique hybrid model for solar forecasting.

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E-BOOKS AS PART OF THE LIBRARY COLLECTION DEVELOPMENT

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Abstract
The research paper attempts to describe the importance of e – books in library collection development. Collection development in higher education libraries are transiting more in digital collection than print materials. Because, the e – books are part of the library collection development. Hence, the need arises of requirement of e-books among library collection development in higher education institutions. Especially to support today's learning in higher educational institutions there is requirement of e-books among the library collection. E-books are aiding in providing nascent information to the learners faster than print media. The changed situation necessitates use of digitally enabled e-books for learning needs of library users. This research paper will also portray how and what are the various components of e-books to play a collective role in library collection development in libraries of higher educational institutions more efficiently. Overall, this research paper also tries to look in to various related aspects of e-books more effectively.

Key Words: *e-books, digital books, digital information sources, Digital library collection*

Introduction:

The library colletion development of information resources is ongoing precess with addition of new information sources as required by its users in every academic year. The role played by the e-books in library collection development is paramount one in the context of the study as well as it is need of the day. Because, it will become need of the day for the libraries to include e-books among the collection development from time to time. Library users will utilize the e-books for their learning needs in order to find more efficient and authoritative information. Transformation of more and more print books sources in digital form compelled libraries to include e-books in their collection development. It is to be considered as a revolutionary step. It is a step to prepare a libraries to move with the time. Emergence of the Internet and with information revolution have caused the birth of e-books will be considered a benchmark step in the education sector. The effect of ICT and the Internet has changed the facets of print books in to e – books. Recent study of research suggests that increase in usage of e-books by the library users day by day. Thus, it necessitates the libraries to include the e-books day by day due to emergence of books in digital form in more number. Accordingly, there will be a need in adding the more number of e-books to the existing collection development of library sources.

Need of e-books:

E-books can be helpful for library users in many ways for their learning activity specifically by saving their precious time in searching the required information for their needs. Scalability of usage of e-books are more than conventional books in print form in libraries. E-books in libraries were shown significantly saves the library space for stacking and also in reaching out to its users in safer and faster mode with the help of Internet technology. It has also been shown by various studies that increase in proper usage of e-books by implementing proper and suitable library information literacy programmes to greater extent. Undoubtedly, e-books will play a greater role in library collection development by helping the library users in many ways.

Definition of e-books:

E-books are in digital or electronic form and utilization of these sources with the aid of computer or similar devices.

Features of e-books:

Few of the features of e-books are as follows,

1) Content is in digital form
2) Remotely accessible by any time.
3) Available in free or paid form.
4) Always needs computer or similar device to access the e-books.

E-books in Libraries:

Always library collection development of e-books in libraries of higher educational institutions consists of sources which are the

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importance of educational needs. The nature of the e-books are of online which can be accessible with the aid of computer. All these e-books are also remotely accessible. The following table exhibits few of the e-books available through sources provided in libraries.

Table 1 Exhibits Typical e-books Sources in Libraries.

Sr. No.	E-book Source
1	Kindle
2	NDLI – National Digital Library of India
3	NLIST of INFLIBNET – Portal for colleges in accessing e – books and e-journals
4	Other sources

It is clear from the table that, various sources will provide e-books for users needs.

Statement of the Problem:

Present research study has basically look into the reasons for inclusion of e-books among library collection development in libraries of higher educational institutions. Also the role played by the e-books among the library users in aiding the learning activity. Hence, the research problem selected for the study has to be stated as " E-books As Part of The Library Collection Development".

Objectives of the Paper:

The research paper has the following objectives,

1. To know the need of e-books in library collection development.
2. To find out the characteristics of e-books.
3. To made an effort in analyzing the review of literature published.
4. To draw the findings, suggestions and conclusions based upon the study.

Purpose of Research Paper:

Basic purpose of this research paper is to know the reasons for inclusion of e-books as part of collection development in libraries.

Scope of the Research Paper:

The definition of scope of the study is primarily pertains to various issues of e-books.

Research Methodology:

In adherence to the requirements of the objectives of the research study, research design employed for the study is analytical and descriptive type. This research design is adopted to have greater accuracy and in depth analysis of research study. Present research study has its own limitations.

Research Questions to be Raised:

The following research questions will have to be raised in the context of the study are;

1) What are the e-books?

2) Why there is a need to include e-books in library collection development?

3) What are the outcome of the research study?

Advantages of e-books:

In the context of the research paper, we can note down few of the benefits of e-books as part of the library collection development are as follows,

1) Saving the stacking space in libraries.
2) Faster and easier to search leads to saving the precious time of the library users.
3) Remote accessibility with any time use to the e-books for the library users.
4) It gives a new technological experience to library users in searching the e-books.
5) Promotes the habit of self way of searching among library users.

Disadvantages:

Few of the disadvantages have to noted down in context of the study.

1) Most of the e-books are costlier to procure for all the libraries. Hence it can become major barrier.
2) Always needs the availability of the proper bandwidth Internet facility.
3) Always needs uninturrupted electricity supply.
4) Always one has to sit infront of the computers or similar devices. Sitting longer time infront of the electronic devices emits radiation. It affects health of the users.
5) Maintenance problem with non-availability of technicians in need of time and escalating costs for the same.

Tools Used for Gathering Information:

Useful information for the study has been gathered from secondary resources. Available information from secondary sources from the journal article and from the Internet are used. Further, all the information collected

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from different sources has been collated and presented herewith.

Review of Literature:

Few selected works of the researchers in the field have to be reviewed herewith as part of the research study are as follows,

Luo Y-Z & Others (2021): Presented the results of survey report on the use of e-books in libraries, their use in support teaching, and reading activities, potential uses for library archives, and the motivation and intention of e-book users. Students at Guilin University of Technology participated in a survey.

Casselden, B., & Pears, R. (2020): This article explores the results of survey research, which investigated student perceptions, expectations and experiences of using ebooks as a learning resource at two universities in the northeast of England.

Vogus, B (2020): Elaborated on the number of ebooks continues to grow in academic libraries. Ebooks have many advantages that make them attractive as a library resource.

Kumbhar, R (2018): Discussed the results of e-book research. For this review, literature on e-books published in English language, in 2016 was searched from various databases. The review finds that the focus of current research on e-books is on use.

Walters, W. H. (2014): This paper reviews the recent literature on e-book sharing and use in post-secondary libraries, exploring current restrictions on viewing, printing, downloading, circulation, and interlibrary loan. It also discusses the ways in which these restrictions influence the library lending of e-book readers and other mobile devices.

Findings of the Study:

We can note down few of the important findings of the research study are as follows,

1) Benefits of including e –books as part of collection development in libraries are many.
2) Various researchers are published papers on many issues related to advantages of including e-books in library collection development, which is based upon outcomes of the review of literature published worldwide.
3) E-books are providing new technological experience to libary users.

Suggestions:

A few important suggestions have been noted down as a part of the discussion have been made herewith. The few suggestions are as follows,

1) Libraries should go for procuring the more number of various types of e-books which will helpful for library users in many ways. Because, it helps to serve library users in better way.
2) E-books in libraries will helps in easing stress among library space. Because physical resources require lot of space for stacking in proper manner.
3) Conduct of digital information literacy to library users in using the e-books provided by the libraries is must. Because it will make them self-reliant of their information requirements.
4) Properly structured digital information literacy skills will play a beneficial role among library users in using e-books to the fuller extent.

Conclusion:

It is evident from the research study that, the benefits of including e-books as part of the library collection development are many. Collection development of e-books is ongoing process in libraries. Emerged situation necessitates to procure more number of e-books in libraries. Because, e-books are fact of the day for library collection development. Hence, it is hoped that, study addressed issues related to theme of the article to some or wider extent.

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SOCIAL AND ENVIRONMENTAL PROBLEMS WITHIN THE INDIAN CONTEXT

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Abstract:

Any social problem whether its alcoholism, robbery, sexual abuse, unemployment, price hikes, poverty, trafficking, dowry death, casteism, gender discrimination etc, and environmental problems like heavy rains, draught, landslide, earthquake, pollution, global warming, deforestation etc, does not affects the only individual but to the entire living being on the globe which needs to be address with the collective efforts of mankind. It is as to survive on the earth we need to take care of individuals, groups, community, society and this will happen when we collectively work for the environment also. We come across with the efforts taken by the social scientists, environmentalist's members from the civil societies and general public in different parts of the world who are continuously working for both the issues. Social and environmental issues do not differ regarding the impact on living beings and the consequences are in front of everyone.

Keywords: *Environment, social issues, problems of adjustments, etc;*

Introduction:

A social problem emerges when a social entity begins to call attention to a condition or behavior that it perceives to be undesirable and in need of remedy. As part of this process, it tries to influence public perceptions of the problem, the reasons for it, and possible solutions to it. Because the social entity is making claims about all these matters, this aspect of Stage 1 is termed the claims-making process. Not all efforts to turn a condition or behavior into a social problem succeed, and if they do not succeed, a social problem does not emerge. Because of the resources they have or do not have, some social entities are more likely than others to succeed at this stage. A few ordinary individuals have little influence in the public sphere, but masses of individuals who engage in protest or other political activity have greater ability to help a social problem emerge. Because politicians have the ear of the news media and other types of influence, their views about social problems are often very influential.

At any situation when particular social condition disturbs the social order and creates disturbances for the proper functioning of social institutions that have been identified as a social problem. At the beginning, such conditions are not paid attention that much as it is thought that they do not have any kind of affects on the social system. But as the changes take place, they get concentrated and collectively begin to affect the social life. Such a condition is recognized as a social problem.

Methodology:

The research is mainly based on the secondary data that is available in the forms of scholarly articles, newspaper publications, various surveys conducted by environmental agencies.

Problems within the Indian Context

Social and environmental problems in India have changed depending upon the social, environmental, cultural, economical and political condition at that instance of time. In each of this period it has been reflected the then existing social norms and values. At present we are facing problems like environmental degradation, communal violence, drug addiction, offences against women, unemployment, poverty, migration and displacement, terrorism, population explosion, etc.

Environmental issues and India

The major sources of pollution in India include the rapid burning of fuel wood and biomass such as dried waste from livestock as the primary source of energy, lack of organized garbage and waste removal services, lack of sewage treatment operations, lack of flood control and monsoon water drainage system, diversion of consumer waste into rivers, using large land

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area for burial purposes, cremation practices near major rivers, government mandated protection of highly polluting old public transport, and continued operation by Indian government of government-owned, high emission plants built between in 50's and 80's

Population growth and environmental quality

There is a long history of study and debate about the interactions between population growth and the environment. This environmental degradation ultimately reduces agricultural yields and food availability, famines and diseases and death, thereby reducing the rate of population growth. Population growth, because it can place increased pressure on the assimilative capacity of the environment, is also seen as a major cause of air, water, and solid-waste pollution.

Water pollution

Discharge of untreated sewage is an important cause for pollution of surface and ground water in India, since there is a large gap between the generation and treatment of domestic waste water. The problem is not only that India lacks sufficient treatment capacity but also that the sewage treatment plants that exist do not operate and are not maintained. The waste water generated in these areas normally percolates in the soil or evaporates. The uncollected waste accumulates in urban areas, causing unhygienic conditions and releasing pollutants that reach to surface and groundwater.

Air pollution

Air pollution in India is a serious issue, with the major sources being biomass burning, fuel adulteration, vehicle emission, and traffic congestion. India is the world's largest consumer of fuel wood, agricultural waste, and biomass for energy purposes. The biomass-based household stoves in India are also a leading source of greenhouse emissions, which contribute to climate change. Vehicle emissions are another source of air pollution. Vehicle emissions are worsened by fuel adulteration and poor fuel combustion efficiencies from traffic congestion and low density of quality.

Solid waste pollution

Trash and garbage is a common sight in urban and rural areas of India. It is a major source of pollution. Indian cities alone generate more than 100 million tons of solid waste a year. Street corners are piled with trash. Public places and sidewalks are despoiled with filth and litter, rivers and canals act as garbage dumps. In part, India's garbage crisis is from rising congestion. India's waste problem also points to a stunning failure of governance. The tourism regions in the country mainly hill stations are also facing this issue in the recent years.

Noise pollution

Noise pollution or noise disturbance is the most efficiently changing and disturbing or excessive noise that may harm the activity or balance of human or animal life. The source of most outdoor noise worldwide is mainly caused by machines and transportation systems, motor vehicles, aircraft, and trains. In India the outdoor noise is also caused by loud music **during festival seasons.**

Issues like water pollution, air pollution, forests and agricultural degradation of land, public health, livelihood security for the poor etc; issues which are alarming includes burning of waste in the name of fuel, pouring of chemical waste in the river water. Dumping of waste in the areas nearby to localities also causes to the health of people. Every year we come across the news showing the level of pollution that national capital of our country and several other metro cities has crossed the pollution limits whether it is water, sound and air this becomes the headlines of international news also which needs to be addressed by our political power.

Even though the directions and guidelines given by the apex court they have simply been ignored and has been side lined. There remains a necessity of taking comprehensive decision that to at the political will. India is again said to be a country of festivals due to its vast cultural and religions being practiced across the country and during these festivals there is large amount of sound pollution which is causing a problem of hearing and sometimes people becoming deaf.

Some of the causes of social and environmental problems

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The main reason for the particular social problem is that the sociologists cannot directly point out a single cause responsible for creating such a problem. Following are some of the highlight that may be said hypothetically the main causes behind the social problems in India.

1. Famines, cyclones, volcanic eruptions, tsunami, earthquakes, landslides, avalanche, Floods, etc. represent the furious faces of nature. Human beings attempts to control over the nature have not been possible in the history and can never become in future also because the very existence of humankind is due to the environment.
2. Political changes in any part of the world, revolts, communal riots, terrorism, military rebellion, arson and loots, bomb explosions, etc., disturbs the proper functioning of the society.
3. Imbalance in populations, population explosion, the spread of diseases like corona, lack of supply of nutritious food and such other biological factors may responsible in disturbing the social and environmental balance of the society.

Conclusions:

1) Major projects have caused devastating effects on the human population.
2) Displacement has created a problem in adjustment in human beings and animals
3) All kinds of pollutions has caused the mankind and has shown its effects on he future generation

Suggestions:

1) Every issue related to the environment need to be highlighted as the issue of human importance
2) Ministry of industries, refinery, health, agriculture, finance should be made more accountable while considering the environmental issues.
3) Establishment of major projects should be considered on the basis of human rights
4) All kinds of pollutions needs to be properly addressed and within the time framework.

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A CONCEPTUAL STUDY ON COLLABORATIVE LEARNING IN OPEN AND DISTANCE EDUCATION WITH SPECIAL REFERENCE TO NETAJI SUBHAS OPEN UNIVERSITY

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Abstract

Knowledge and education sow the seeds in the form of stories passed down from elders. While traditional education system restricts sharing to limited number of personnel, on the other hand modern approaches have helped to share knowledge worldwide. Internet is the most powerful vehicle to share valuable information and education. Developing and maintaining infrastructural facilities for educational purposes involves huge fixed cost. Internet has been considered to be the platform in which education can be shared to mass with minimum cost. ODL has transformed educational system by the use of Information Technology Enabled Services (ITES) to reach the unreached. Modern enhancements have also been adopted by ODL by introducing Massive Open Online Courses (MOOCs). The study is focused on the utilisation of sharing economy and its prospects with information technology.

Keywords: *ODL, ITES, MOOCS.*

Introduction

"Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses"- Lionel Robbins.

Economics is the study where scarce resources are allotted to make best possible remembering the fundamental truth of scarcity. To deal with the problems of unlimited human wants and limited resources the need for sharing was felt. The term 'Collaborative Consumption' or 'Sharing Economy' was possibly first coined in 2008 by Lawrence Lessig, which provides us with an opportunity to explore new sources of income. Smart use of resources is an initiative to lessen the problem of scarcity. Sharing can be helpful in many aspects like recycle, reuse and repurpose, decreasing environmental effects, accessibility to self-employment opportunities etc. Sharing has gained its popularity with increased use of internet and smart phone technology. The present Union Government of India has adopted an friendly infrastructure to digitalise the economy and henceforth enhancing the start-ups by providing them a ready market and easy access to information technology (IT) and information technology enabled services (ITES).

In this advance era of technology education is still limited to number of beneficiaries while education is for all. Technology plays a crucial role in upgrading education as well as enhancing the scope of sharing. E-contents provided by institutions can be accessed by students from anywhere and at any point of time. Audio-Video lectures are the perfect example of sharing in which a lecture once created can be accessed by students multiple times as required. Access to internet has no restriction or discrimination to users as followed in traditional education system. Traditional education system is restricted to seat capacity of class and use of high capital resources whereas internet removes these restrictions and enhances education access to all. Internet runs by the same set of rules, provides same access of information to all and offers equal privileges with no discrimination. Information asymmetry is now a thing of the past that was being followed in traditional education. Major drivers facilitating sharing economy applications are increasing flexibility,

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productive use of underutilized resources and assets, reducing wastage, creating new demand for existing assets, protecting the environment by recycle and reuse, reducing the cost of services to make them more convenient and affordable, and generating multiple revenue from a single asset. E-learning permits students and faculty to learn and teach any time, from anywhere, using various online platforms. Demand for certain courses and degree programs are decreasing while for others demand is increasing creating disequilibrium between demand and supply. Students are being deprived of these courses due to restrictions in availability of seats, whereas use of online platform can facilitate education and at the same time reduce geographical restrictions. Cost per credit hours can be further reduced by enrolling higher number of students.

Netaji Subhas Open University (NSOU) started functioning with effect from July 1998, only with the Bachelor's Degree Programme in Arts & Commerce to provide an opportunity of higher education in the vernacular medium with an objective to share education to various disadvantaged groups of aspiring learners. Open and Distance Learning(ODL) was established to provide quality education in flexible mode and to render services for the development of West Bengal state in particular and the Nation in general to excite all type of learners towards a more sensitive humanistic ecosystem. The university has always encouraged sharing of education in a way that distinct itself from other traditional universities which prefer regular courses. The university currently operates with 149 study centres in West Bengal for its Under-Graduation and Post-Graduation courses. NSOU also provides 10 Learner Support Centre for B.Ed. Special Education in South Bengal and 1 in North Bengal. All these study centres are example of how a university can reach students from the remote corners of our state without its own infrastructural facilities. ODL focuses on attaining students through utilisation of already existing government aided college campus. This reduction in capital investments helps the university to provide quality education in lower cost, which results in access to education for deprived students. Being a leader in educational sharing economy ODL has paved the way. ODL operates through its study centres which are not owned by the University rather it operates by distance education system which means the system of imparting education through correspondence course, seminar, broadcasting, telecasting and contacting programme or combination of means. As per the Act "Study Centre" means a centre established, maintained or recognised by the University for the purpose of advising or counselling, or for rendering such other assistance to the University as required by the students.

ODL has transformed educational system by the use of Information Technology Enabled Services (ITES) to reach the unreached. Modern enhancements have also been adopted by ODL by introducing Massive Open Online Courses (MOOCs). In recent years adaptation of educational sharing economy has gained popularity among different learners due to its unique features of flexibility and quality of content. MOOCs, being a digital platform provide access to education at any time and also gain knowledge on the relevant field of study. NSOU introduced online (MOOC) modular based short-term 6-8 weeks awareness programme based on few contemporary issues which are very material in our routine life and develops academic wellbeing. Learners gain their competency level and apply the knowledge for societal development in career. The basic philosophy of MOOCs is 3A's i.e., *Anytime, Anyone, Anywhere* which actually embraces the concept of sharing in education sector. This represents how the university have been continuously upgrading itself to provide quality education innovatively to its students who are deprived of basic education. Presently university provides two levels of certification based on participation and completion of activities. Six MOOCs based courses have been introduced by the University to provide mass education at effective cost.

Conceptual framework

Sharing economy has evolved recently and its implications in India are in embryonic stage. The concept of sharing education is a

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recent phenomenon in which business oriented institutions are sharing e-contents, lectures, materials, etc. using information technology. While on the other hand, the government is undertaking rigorous social objectives to provide free or subsidised education to its citizen via schools and colleges. These institutions provide regular academic and degree courses but can only attend restricted number of students using traditional methods of teaching learning. Under-utilisation of physical infrastructure is felt and how blended form of education can reform this sector, can be explained in this study. While sharing has proved its existence in different sector, but sharing of education is still developing. Internet has removed barriers like caste, gender, class, language and geographical restrictions. Internet has also provided a better platform for knowledge sharing in which anyone can access freely available educational resources. Optimum utilisation of knowledge requires equitable access to knowledge. Indian government has already recognised the importance of MOOCs. Currently sharing of education is done through NPTEL, mooKIT, IITBX and SWAYAM. These platforms uses blended or online learning model in which thousands of courses are offered to millions of users. These applications are so friendly that they also operate on mobile phones. Few of the most popular MOOCs platforms are mentioned below.

EdX- this platform provides the best and most renowned courses online from world's best universities. Started by Harvard and MIT, contains courses from all over the world. Online courses from MITx, harvardX, BerkeleyX, UTx and many other universities are engaged in providing free education and certificates on payments.

Coursera- is an educational platform which partners with different universities to provide free education worldwide. In 2021, it was estimated that more than 4000 courses are being offered by 150 universities through coursera.

Udemy- this platform provides more than 1,83,000 courses and 65,000 instructors teaching courses in 75 different languages. This platform helps students to gain technical skills and technical certification. Udemy focuses on corporate trainers to create coursework for employees of their company.

Open and Distance Learning's Model in Sharing Resources and shrinking illiteracy.

Open and distance learning have been providing benefits to the society from its base year of commencement. NSOU is not an exception in this field, The University started functioning with effect from July 1998. Sharing of education for free is the best practice which benefits the society and it is implemented by sharing Open Educational Resources (OER). While this concept is popular in foreign countries but India lacks initiative in this field. OER are learning material in any format in the public domain which can be used, reused, adopted, shared modified according to needs of the recipient. OER follows the following concept of

1. **Reuse** – Study materials can be reused in its original form.
2. **Retain** - Materials can be retained for personal use or reference.
3. **Revise** - Content can be modified or altered according to requirements.
4. **Remix** - Content can be mixed with other content to generate something new
5. **Redistribute** - Content can be shared in its original form to others.

Copyright protection is an intellectual property right which prevents others from using the original work from copying or using the work online without permission from the creator. This is called "all rights reserved." A creative work approaches public domain when its copyright expires. A work in the public domain means "no rights reserved" and can be used or modified by anyone with no restrictions. Creative commons are an open license access to their work granted by specifying how to reuse it. Open licenses work with copyright hand to hand in promoting sharing. This changes the copyright from "all rights reserved" to "some rights reserved."

NSOU is way advance in this field as it already offers online study materials, e-SLM, audio-visual lectures, NSOU WebTV, NSOU Web Radio, E-Store, E-content, SWAYAM etc. students can access these online materials whenever needed like an open

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repository for learning without the restriction of time. NSOU-OER provides an Open platform to access open educational resources having open license to Reuse, Revise, Remix, Retain and Redistribute (5Rs) to facilitate innovative, interactive and collaborative learning environment.

A comparative analysis

Basis	Regular Education System	Distance Education System
Attendance	Physical attendance is compulsory.	Physical attendance is not compulsory.
Mode of class	Classroom teaching	Blended form including class room teaching, online class, videos, material, etc.
Study material	Class notes and books only.	Audio, video, internet, books, library etc.
Availability of study material	Only in class.	24*7 as the source is from internet.
Fees	Much higher than distance mode.	Lower than regular mode.
Class timings	Regularly on weekdays.	Weekends
Use of internet	No use.	Optimum use.
Flexibility	No flexibility in learning methods.	Access to education anywhere anytime.
Dropout rate	Higher dropout rate as students with financial problems cannot work and study at the same time.	Lower dropout rate as students can enrol for these courses while working.

Conclusion

While the concept of collaborative education is still in armature stage but has prospects to serve the society to a massive extent. Teachers, scholars, schools, colleges, universities and regulating bodies need to formulate initiatives to encourage open educational resources and adopt the concept of sharing education in a flexible form by the use of information technology and information technology enabled services. NSOU is providing a route to other universities that sharing can hearten students who are deprived of regular education system. The university has adopted MOOC's and OER to encourage the concept of collaborative education among students. Slow but significant adaptation of technology will definitely result in social welfare. Sharing education overcomes the restrictions of illiteracy and adaptation of IT and ITES can restructure education in future days.

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PHYTOCHEMICAL SCREENING AND BIOLOGICAL ACTIVITY OF *NELUMBO NUCIFERA* SEEDS

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Abstract:

Nelumbo nucifera have been used as an indigeneous medicine in India. The aim of this study is to evaluate the phytochemical screening and biological activity of Nelumbo nucifera seeds. The different solvent used for the extraction is ethanol, ethylacetate, hexane, chloroform, acetone and aqueous . Quantification of phytochemicals revealed that ethanolic extract of seed has the maximum phenols, flavanoids and tannin content compared to other solvents. This study indicates that lotus seeds can serve as an alternate protein source as it possess potential nutritional and medicinal properties. Traditionally, the whole plant of lotus was used as astringent, emollient and diuretic.

***Keywords**: Lotus, phytochemicals, biological activity.*

Introduction:

Phytochemicals are the natural bioactive compounds found in plants, which are solely responsible for its medicinal activity. Knowing the importance of phytochemicals is desirable because such information will be of value for synthesis of complex chemical substances . The phytochemicals are grouped into two main categories namely primary constituents which includes amino acids, common sugars, proteins and chlorophyll etc., and secondary constituents consisting of alkaloids, essential oils, flavonoids, tannins, terpenoids, saponins, phenolic compounds etc., Majority of phytochemicals have been known to have valuable therapeutic activities such as antibacterial activity, antifungal activity, antioxidation activity. Phytochemical screening of medicinal plants and quantification of primary and secondary metabolite is very important in identifying new sources of therapeutically and industrially important compounds

Materials And Methos:

Collection of planting material and preparation of the extract:

The lotus was common in India. The seeds are collected from seed pod. The seeds are cut into two halves. Then the seeds were dried under shade, separated, crushed by a mechanical grinder and passed through a mesh sieve. A total of 10 g of the crushed plant material was taken and soaked for 3 days in 100 ml of ethanol, ethylacetate, hexane, chloroform, acetone and aqueous solvents separately. The extracts were then filtered by Whatman filter paper No.1. Dried solvent extract was kept at 4°C for further analysis.

Qualitative phytochemical analysis

Test for carbohydrate

Molisch's test: Filtrate was treated with 2–3 drops of 1% alcoholic α-naphthol solution and 2 ml of Conc. H2SO4 was added along the sides of the test tube. Appearance of brown ring at the junction of two liquids indicates the presence of carbohydrates.

Test for protein

Biuret test: 2 ml of the extract, 5 drops of copper sulphate (1%) and 2 ml of sodium hydroxide (10%) were mixed. The development of violet colour indicated the presence of proteins.

Test for phenols

To 1ml of plant extract, 2ml of distilled water followed by few drops of 10 % ferric chloride was added. Formation of blue/ green colour indicated the presence of phenols.

Ferric chloride test: To 1ml of plant extract, 1ml of 5% ferric chloride was added. Formation of dark blue or greenish black colour indicated the presence of tannins.

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Test for flavonoids

Shibita's test: To 2ml of plant extract, 1ml of 2N sodium hydroxide was added. Formation of yellow colour indicated the presence of flavonoids.

Test for alkaloids

Mayer's test: To 2ml of plant extract, 2ml of concentrated hydrochloric acid was added. Then few drops Mayer's reagent was added. Presence of green color or white precipitate indicated the presence of alkaloids.

Test for cardiac glycosides

Keller-kilani test: To 0.5 ml of plant extract, 2 ml of glacial acetic acid and few drops of 5 % ferric chloride were added. This was under layered with 1 ml of concentrated sulphuric acid. Formation of brown ring at interface indicates the presence of cardiac glycosides

Test for terpenoids

To 0.5 ml of the plant extract, 2 ml of chloroform along with concentrated sulphuric acid was added. Formation of red brown colour at the interface indicated the presence of terpenoids.

Test for steroids

To 0.5 ml of plant extract, 2 ml of chloroform and 1 ml of sulphuric acid was added. Formation of reddish brown ring at interface indicated the presence of steroids.

Test for coumarin

To 1 ml of plant extract, 1 ml of 10 % sodium hydroxide was added. Formation of yellow colour indicated the presence of coumarins.

Test for saponin

To 2ml of plant extract, 2ml of distilled water was added and shaken lengthwise in graduated cylinder for 15 min. Formation of 1cm layer of foam indicated the presence of saponins. temperature. The supernatant was obtained by centrifugation and absorbance was recorded at 725 nm using UV-Visible Spectrophotometer.

biological activity:

antibacterial activity:

Microorganisms tested

Four bacterial species (E. coli, Streptococcus faecalis, Psudomonas aeruginosa and Klebsiella pneumoniae) in addition to Candida albicans were isolated from different pathogenic samples in pathogenic bacterial laboratory in Biology Department of College of Science in Thi-Qar University and by using different biochemical tests and different culture media the diagnosis and the identification of bacteria and Candida albicans has been done. In order to prepare pure culture, every micro organismes had been tested cultured on blood

C for 24 hr.

Preparation of plant material.One hundred milligram per milliliter concentrations were prepred from each fraction. Muller -Hinton agar and Sabouraud agar plates have been prepared then 200 µl of overnight bacterial and yeast broth cultures were plated as lawn form on the agar dishes and left to dry. Holes were made in the agar by sterile stainless steel cylinder (diameter = 6 mm) and 50 µl of 100mg/ml of each fraction were added in the holes, then incubated in 37 degree Celsius for 24 hr. Chlomphinicol and Nystatin used as positive control while sterile normal saline was used as negative control in this experiment. Inhibition zones were expressed in as diameter of clear zones around the holes.

Results and Discussion :

Lotus seeds are rich in protein, minerals and fatty acids. It is also a source of a range of bioactive compounds like antioxidants, alkaloids, flavonoid etc., various researches revealed the therapeutic benefits of N. nucifera seeds. The antimicrobial activity of Fraction 1, Fraction 2 and Fraction 3 of seeed extract of Nelumbo nucifera against certain pathogens is shown in table 2. This study show no effect of seed extract fractions on the tested pathogens except some positive results with just two types of tested bacteria. The highest clear zone was obtained in fraction 2 with Enterococcus faecalis (15 mm) followed by the effect of same fraction on E. coli (10 mm) and finally there was a moderate effect of fraction 3 in 100 mg/ml concentration on Enterococcus faecalis with clear zone about (10 mm).

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Table 1: Qualitative analysis of phytochemical screening in Nelumbo nucifera seeds

Chemical constituents	Ethanol	Ethyl acetate	Hexane	Chloroform	Acetone	Aqueous
Carbohydrate	+	+	+	+	+	+
Protein	+	+	+	+	+	+
Phenols	+	+	+	+	+	+
Flavonoids	+	+	+	-	+	+
Tannins	+	+	-	+	+	+
Alkaloids	+	+	-	+	+	+
Saponin	+	-	-	-	-	-
Steroids	+	-	+	+	+	+
Terpenoids	+	-	+	+	-	-
Cardiac glycosides	+	+	+	+	+	+
Coumarin	-	-	-	-	-	-

Table2: Antibacterial activity of Nelumbo nucifera seeds

Phenolic compound (100mg/ml)	E.Coli	Enteroccous faecalis	Klebseilla pneumoniae	Pseudomanas aeruginosa	Candida albicans
F1	NIZ	NIZ	NIZ	NIZ	NIZ
F2	10	15	NIZ	NIZ	NIZ
F3	NIZ	10	NIZ	NIZ	NIZ
Chloramphenicol (Positive control)	8	11	7	NIZ	NIZ
Nystatin (Positive control)	NIZ	NIZ	NIZ	NIZ	14
Normal saline (Negative control)	NIZ	NIZ	NIZ	NIZ	NIZ

NIZ-No Inhibition Zone

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IMPACT OF DIGITALIZATION ON MBA STUDENTS' EMPLOYABILITY AND INDUSTRY'S RESOURCE MANAGEMENT

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Abstract:
COVID-19 has forced industry to look at the world from a different perspective. Several industries had a really difficult time executing operations and had to either stop or find alternative options to continue. Here ICT, digital methods and digitalization played a significant role and were used by the majority of the industry. Every industry, from manufacturing to service to government, has adopted digitalization in one way or another since the pandemic. There was no exception to this in the education industry either. In response to these changes in industry and people's mind set, new avenues of opportunity have emerged, which has improved the supply and demand of human resources on both sides. As a result, students are more employable and the industry's resource shortage is eased. In this paper, we examine digitalization's effects on MBA students' employability along with the industry's relief from human resource shortages in this paper.

Keywords: *COVID-19 pandemic; digitalization; Remote working; higher education institutions; employability, resource management*

Introduction

It was a tough time during COVID 19 Pandemic, when many firms were unable to conduct business as usual due to various restrictions, so all the industries struggled with conventional methods, just as education institutes and universities struggled to conduct lectures and exams in a traditional classroom setting. Business owners brainstormed how they could carry out their plans when limited resources allowed them to leave their homes. The 'Work from Home' concept was then widely adopted in a few industries. In the beginning, it was adopted by technology-driven industries like IT, and then almost every business followed suit.In the beginning, it was adopted by technology-driven industries like IT, and then almost every business followed suit. Until the pandemic, digital technology had made it possible for many workers to work from anywhere and at any time (Bader & Kaiser, 2017), yet the industry was not accepting this. Online and remote working evolved on unprecedented scale across many industries, not only during restriction times, but also following pandemics.

It was found that remote working is effective in many ways, including employee productivity, employee satisfaction, travel reductions, office space savings, and many others. The Talent Tech Outlook 2022 study found that 82% of respondents would prefer to work from home instead of working in an office. Sixty-four percent of employees said they are more productive at work. More than 80% of HR managers admitted that recruitment for full-time office presence is becoming more difficult, implying that working from home is the new normal (Remote working new normal; 82% employees prefer working from home, 2022) Despite the lifting of restrictions following the pandemic, the urge to return to work barely occurred, and preliminary results indicate it has reversed. The work from home concept helps all the stakeholders including employer, employees, and the country's economy at large (Choudhury & Cirrus Foroughi, 2019)

Digital transformation bridging human resource demand supply gap

The work from home concept not only introduced industries to new way of working, but also opened the avenue of talent and human resource, which were not accessible due to location and geographical hurdles. This opened the door of opportunity for both employment and human resource management, reducing the existing need gap in the industry. In pre Covid- 19 times, the research were suggesting that there would be a global human resource shortfall of more than 85 million persons by year 2030

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(Pearlman, Kane, & Euan-smith, 2017), however, post Covid-19, the industry looked at digitalization and remote working as a solution for this.

Advantage on Demand Side

The advantage of employing remotely is that you are not restricted to a specific location. Brazil, India, China, and South Africa have a total of 50 million jobless people. Anyone who claims that the vast majority of the unemployed population does not fit many of the required profiles is probably correct. However, every job filled counts, and even employing a small portion of this population would have a significant impact on the labour shortage (Smith, 2022). Employing from the country wide talent pool present in remote locations does not only fill that role. It also has better advantages that with every job opening filled, the pressure from the labour shortage is reduced by more than an element of one. Firstly, the best candidate for the job: It matters whether employers can source only from a city or regional population or from any corner of country. Companies has better probability to find better-suited employees from a larger talent pool.

This boosts productivity while decreasing the open positions numbers. Secondly, both in a country level setup, remote work is projected to rise labour participation and employability. Post adopting this concept, the employers has access to talent located in remote town without location hurdles, which was one of the key issues, as many of the resources were not willing to relocate to other locations. Company used to bear a huge cost on relocation benefits for those who were ready for relocation. Because of these issues, organizations used to restrict their recruitment to certain city/ regional limits and loosing on many fronts. Similarly, the companies practiced campus recruitment only in same city or nearby cities only, resulting in limiting their search of talent pool. All these issue can be addressed by use of remote working and digital transformation. Many companies have already realized the benefits and have declared permeant work from home, while many companies are coming up opining as permeant work from home.

Advantage on Supply Side

The current students and recent graduates has benefited with remote working in multiple ways. They are not able to find more jobs but also are able to find job of their interest, moreover with their preferred employers. All these is possible because of digitalization and possibility of working remotely. For recent business school graduates, remote work is a top priority. According to a new survey, one in every two current students wants to work in a blended format both in office and from home, while 27% only desire to work remotely (Kefford, 2022). Students now realize the advantages of remote work after spending the majority of their degree courses studying remotely or in a hybrid format. However the survey also suggest that students also realize that remote working requires skills like time management, disciplined, adaptability. This also marries with management graduate skill set.

MBA students has also benefited with internships, projects with companies located far away from their location, which was rare previously. This has helped them with better exposure to industry. This concept has bought new opportunity to the MBA colleges from remote areas, where there are less industries in the vicinity and limited employees approaches these institutes just because of location hurdle. Now, these students are equally standing with the students those studying in Metro cities and having employers around and have equal chances of getting job at larger scale. Previously, these students had to face issues like relocating to bigger cities and used to struggle with initial cost of job search considering investment on living expenses outside home at the time of job search period. These factors used to demotivate students from getting into local MBA colleges, ultimately forcing them to prefer institutes from metro cites, where employers participate in campus drives at large scale. However, these advantages are limited to certain industry and profiles and requires different skills to gel up with remote tools. The management graduate those not ready with skill may not be to sustain in this model of business.

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Advantage to Economy

Digitalization and possibility of working from remote location has not only benefited employee and employers, but also the country's economy. Remote workers contributed not only through their labour but also through their economic spending. For example, as people transformed their homes for remote working, there was a substantial increase in expenditures on office equipment. They would also have access to high speed internet, which paid by employers in most of the cases. The concept has also helped in circulating the money across the corners of the country, which earlier was concentrated in few cities of the country. Local business has also benefited and has increased chances of achieving higher turnovers as close to metro cities. This may also help to solve the larger issues of overpopulated metros, unemployment in various regions, concertation of economy to limited cities and many other social issues as well. Indian government also is aggressively promoting digital agenda and is actively taking initiatives like E-governance, digital banking and moany other areas. 'Digital India' is the Government of India's flagship program, with the goal of 'transform India into a digitally empowered society and knowledge economy'.

Conclusion

Digitalization, adoption of digital tools and remote working has created a very positive impact on business, employees and economy. Remote work is a win-win scenario for employee and employers, because the worker can relocate to a preferred location and save money on living expenses, while the employer benefits from increased productivity, lesser attrition, and lower costs of operations. The adoption of report working at such large scale and further the positive benefits resulting in continuation of the remote working across the industries is indicating it as new normal.

The digitalization can do wonders for the economy as it helps to reduce the concentration of economic activities to limited cites and

Remote working has created equal opportunity platform for MBA students studying small towns and enhance their employability chances. MBA students needs to gear up with these skills to make them enable to take advantage of these opportunities. The digitalization would not only help in overcoming economic issues but also social issues. The organization and government should be more aggressive in adopting these concepts for betterment of all the stakeholders.

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PEDAGOGICAL ISSUES AND CHANGING TRENDS IN TEACHING LEARNING METHODS IN SOCIAL SCIENCES

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Abstract

Global trends in the technological developments have led the way for innovations in educational paradigms and momentous adoption of the problem- and learner-centered methodologies with additional opportunities for new learners. Education is necessary to all mankind as it shows the right direction for learners, to achieve their goals. It is not just to teach a learner syllabus-oriented approaches but also to include rationale thinking, creativity, knowledge, and self-sufficiency in their learning. It is a method for making knowledge, skills, values, beliefs, and habits more easily learned or acquired.. Hence we can say that it makes the learners more knowledgeable and, creative, and have a mind of their own to meet the workforce in the altering global scenarios. The Student's success relies on the teacher or the instructor and the different types of innovative approaches which are incorporated into teaching. The recent development of information and communication technologies (ICTs) has created brand new challenges and opportunities and is similarly new for the designing and bearing of the education system for learners. Given the above challenges, in this paper an attempt has been made, to make suggestions for innovative teaching and learning methods and tools which may be put to use not only while imparting knowledge to the students but also to help students to take responsibility for their learning and constructing their knowledge, that can be especially useful in an inconsistent and rapidly changing world.

Keywords: *Education, Innovative, Teaching Learning tools, pedagogical issues.*

Introduction

The objective incorporated in this paper cover the new technologies adopted in the teaching-learning methods for creating a good learning experience for Schoolers & simultaneously a fulfilling teaching experience for teachers. Face-to-face learning and hybrid learning are the two models that are most frequently used across all institutions and schools. The traditional style of learning and teaching is synchronous and typically requires engagement in the classroom where the teachers and students interact with one another. Thereby, we can say it is a synchronous model of teaching. In this time of technological advancement, Learning and Teaching are the dynamic components of knowledge sharing. Creativity & innovation can be considered the soul of teaching & learning in many disciplines such as social sciences. Today's scenario teaching process has witnessed, a conceptual change from the archaic method to a more active and learner-centered approach that is able to satisfy the learners' needs for 21st-century skills (Schleicher, 2012). As per Hoffmann and Koifman (2013), the observed change has placed a colossal onus on the educators for possessing innovative skills for teaching which are fundamental to empower them to actively partake in the continuous learning process. Quality teaching has been considered to have become a major topic of significance as the scenario of higher education has undergone many changes. Schoolers have significantly inflated and spread, both geographically & socially learners are also observed to be looking for new methods of teaching. Contemporary technologies have pierced into the classroom,

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consequently modifying the form of interaction between the students and the professors.

Objectives

1. Identify to evaluate Innovative teaching methods and technique
2. To suggest emerging tools and techniques, and Innovative methods for Learning in Social sciences
3. Determine the interaction effect of schoolers taught by the means of innovative pedagogy and those who are taught without the same.

Literature Review

Traditional Teaching Approaches is a practice through which the faculty connects the schoolers, commencing it with their interest area and hence the problems encountered by them and then creating circumstances that will permit schoolers to advance toward their determined goals in the utmost effective fashion. As per Faraday et al. (2011), "teaching methods are prescribed structured sequence which is designed to elicit a particular type of thinking or responses to achieve specific learning outcomes". The demonstration approach is one of the faculties' most successful strategies for achieving the objectives of learning in real-life circumstances. (Akinbobola & Ikitde, 2011; Nwachukwu, 2006). It is "a process of teaching learners how to do something in a step-by-step process"

(Heemskerk, Volman, ten Dam & Admiraal, 2011) ICT i.e. Information and communication technology is observed to be executed in the process of education to give a variety of learning prospects and nurturing environments for the students. As stated by (Ertmer, 2005; Hew & Brush, 2007) Past research has shown the convenience and usefulness of using ICT for the learning of schoolers'. Luke (2003) ICT might be a possible means for generating and developing knowledge, this also entails transforming information from the past into knowledge today.. Though, the integration of ICT doesn't continuously give certain outcomes for the learning of the Schoolers'. Scholars have endorsed a number of negative critiques about the consequences of ICT integration on teaching and learning, including an abundance of pointless and erroneous information that wastes class time (Heafner, 2004; Scott & O'Sullivan, 2000).

It was stated by Martorella that ICT integration in social sciences was "a sleeping giant" (1997). On the other hand, Social Science has not embraced ICT as much as the other disciplines have (Doering, Scharber, Miller & Veletsianos, 2009; Martorella, 1997; VanFossen & Waterson, 2008). Though the positive effects of integrating ICT in Social Sciences classrooms have been accepted, some researchers have correspondingly explained that a lot of teachers in Social Studies are not possessing the knowledge and skills pertaining to ICT hence this is one of the most important obstacles that ICT has not been embraced for the education in social studies (Doolittle & Hicks, 2003; Gulbahar & Guven, 2008; Shriner, Clark, Nail, Schlee & Libler, 2010). Unfamiliarity and the lack of experience of the teachers referring to the trends in ICT have been one of the major reasons for the hesitation among the teachers in the introduction of ICT in their classrooms.

In-Personal classrooms of many sizes have been converted into Active classrooms for virtual types of courses to promote the concept of "active learning " (Prince 2004; Whiteside, et al. 2009; Cotner, et al. 2013). The participation of students and teachers in the learning process through cooperative classroom activities and reflection is known as active learning. (Prince 2004). Naz and Murad (2017), "many teaching strategies are such as personalization, minor group learning, Schoolers advisories, peer-tutoring, peer instruction, team teaching, industry-based method, expressing, among others which can be used by teachers at different levels of education" to invigorate education. The University's pedagogical philosophy and the technology foundation of conventional online courses are the ancestors of the Massive Open Online Course (MOOC) teaching method.

Min and Hongying Meng (2021) said Class assessment is an essential feature that

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helps the upgradation of online teaching its contribution has paved a way for further discovery of the online teaching system's system of class assessment. A form of teaching model that depends on network technology is online and network teaching. It achieves instruction through the use of software, including specialised online teaching platforms and some teaching-related APP applications, whether the course is live or recorded. The innovative structure in the teaching trends, methods, and techniques in online learning must be intensive on Schoolers as learning cantered in the new general perspective learning. It gears the design strategies in the new general to facilitate learning and pedagogy. Faculties on the other hand, acclimatize the resources, tools, and advice that suit the needs and sole teaching as to the movement of the new normal online contexts (Carag, Collado, & Largo, 2020).

Research Methodology

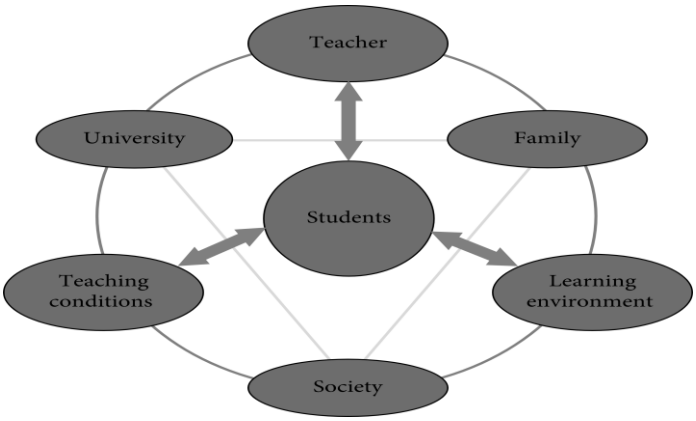
This paper undertakes an exploratory research methodology to analyze the data. To gather information about the teaching-learning paradigm, a variety of sources including journals, books, and blogs were used.. For this paper, reference from previous research articles has been taken. Along with this, different websites and professional magazines have also been referred.

Research Design

The study is a descriptive quantitative and qualitative research design in analyzing the strategies, trends, methods, and techniques of teaching in the new simple learning perspective of Schoolers.

Interaction relationship among the factors of online teaching.

Online instruction involves interaction between educators and students. Online teaching conditions including technical teaching resources. As depicted in the picture, it is a thorough procedure of interface between students, teachers, online teaching environments, online learning environments, and even other social factors. Subjective and objective factors stimulate one another and these cannot be evidently taken apart. In order to address the current issues with the growth of online teaching, the paper conducts a thorough review of both subjective and objective aspects. In this diagram, quality teaching is shown.



Role of ICT in teaching Innovation

ICT played an important role in teaching and learning. It is a research tool for finding information and resource and for better understanding material that is presented in the online and offline classes. Maximum faculties/instructors vouch for the notion that they need ICT to become effective teachers. ICT is best tool of teaching and learning.

Teaching Innovation

Teaching Innovation can be contemplated as an innovative technique of teaching. Here the researchers find out what is the primary purpose of teaching, this could be an

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innovative practice paving the way created to the further interest of the Schoolers.

Innovative Learning Methods

ICT and MOOC a new learning methods in teaching and education and it endorses active learning, where the learner seen videos and engages in interactive exercises.

Conclusion

This paper explained the perceptions and experience of social science faculty with ICT and their preferred and non-preferred teacher training styles in ICT. The teaching techniques should inspire students to work with one another this can be achieved by introducing various class activities to increase the learning process in the new ordinary learning perspective of teaching. The underlying objective of teaching is believed to be passing information and knowledge in a manner that it reaches the mind of the students or the Scholars. Bypassing the system, professors can provide students with the necessary resources, experience, and inventive thinking. Education is a light that exposes mankind in the right direction. The key purpose of innovative teaching is primarily to make the student technologically friendly and hence additionally promote rational thinking in the students, imparting knowledge, and encouraging self-sufficiency.

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DESIGN AND ESTIMATION OF POLYMERIC NANOPARTICLES CONTAINING CELECOXIB FOR THE TREATMENT OF INFLAMMATORY BOWEL DISEASE

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Abstract

Celecoxib (CXB) is a poorly aqueous solubility sulfonamide non-steroidal anti-inflammatory drug (NSAID). Hence, the formulation of CXB was selected for solubilization and bioavailability. To find out suitable formulation for colon targeted delivery of celecoxib for the treatment of crohn's disease. The prepared nanoparticles were evaluated for various evaluation parameters and formulated as SM1-SM7. The prepared nanoparticles were spherical with some looser aggregates. Thesize was in the range of 455.5 to 1338 nm and zeta potential in the range of -6.85 to -12.7 mV. The DEE was found to be in the range of 53.76 % to 71.62 %. As the concentration of polymer was increased in the nanoparticles, the DEE was decreased. The DSC and XRD analyses indicated the amorphous dispersion of drug in the nanoparticles. FTIR study indicated the stability of celecoxib within the nanoparticles. in vitro was tested for its integrity and transit in vivo in rabbits. The results indicated that the prepared formulation was intact up to 8 hours and transit was clearly seen. Drug release mechanism followed non-fickian transport.

Key words: *Celecoxib, Nanoparticles, In-vitro release, Crohn's disease*

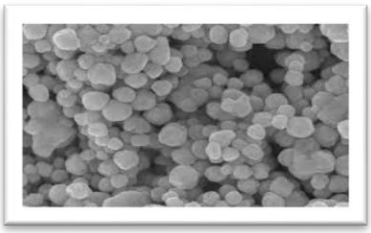
1. Introduction

1.1. Oral Route of Administration

The oral route of administration is the most commonly utilized method for drug administration because of its simplicity of administration, self-medication and patient compliance has gain the advantages over the other route of administration.[5] However the route has problem with controlled drug delivery system because of variable gastric emptying motility, further more gastric emptying time in humans is up to 2 – 5 hrs. A few endeavors are being made to create controlled medication conveyance framework. In the present investigation the endeavor had been made to plan the nanoparticles for oral medication conveyance as a result of its capacity to cross the mucosal hindrance accordingly. nanoparticles oral drug delivery system have slower transit time than larger dosage form which increase the concentration gradient across the absorptive cells and enhances the local and systemic delivery forfree and bound drug across gut.[5]

1.2. Nanoparticles

Nanoparticles are particles in the vicinity of 1 and 100 nanometer in estimate. In nanotechnology, a molecule is characterized as a little question that carries on overall unit with individual to its vehicle and properties.[6]



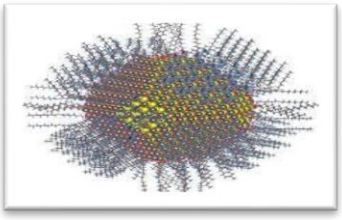


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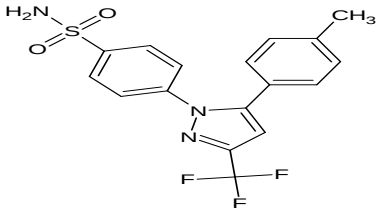
Figure 1: Photograph of nanoparticlesPreparation of nanoparticles

2. Drug Profile

Celecoxib



Chemical Name: 4-[5-(4-methylphenyl)-3-(trifluoromethyl)-pyrazol-1yl] benzenesulfonamide

Physicochemical properties

Molecular Formula: C17H14F3N3O2S

Molecular Weight: -Average- 381.4

Category: - celecoxib inhibits cyclooxygenase 2 (COX-2) enzymes**.**

Description: - Celecoxib is indicated for symptomatic treatment of adult osteoarthritis (OA) and adult rheumatoid arthritis (RA). Celecoxib is not a substitute for aspirin for cardiovascular event prophylaxis.

Melting point: - 157-159 ^{0}C

Solubility: - Celecoxib is insoluble in Water, soluble in Ethanol, methanol.

Pharmacodynamics

Celecoxib inhibits cyclooxygenase 2 (COX-2) enzymes, reducing pain and inflammation. It is important to note that though the risk of bleeding with celecoxib is lower than with certain other NSAIDS, it exists nonetheless and caution must be observed when it is administered to those with a high risk of gastrointestinal bleeding.

3. Mechanism Of Action

Unlike most NSAIDs, which inhibit both types of cyclooxygenases (COX-1 and COX-2); celecoxib is a selective noncompetitive inhibitor of cyclooxygenase-2 (COX-2) enzyme. COX-2 is expressed heavily in inflamed tissues where it is induced by inflammatory mediators The inhibition of this enzyme reduces the synthesis of metabolites that include prostaglandin E2 (PGE2), prostacyclin (PGI2), thromboxane (TXA2), prostaglandin D2 (PGD2), and prostaglandin F2 (PGF2). Resultant inhibition of these mediators leads to the alleviation of pain and inflammation. By inhibiting prostaglandin synthesis, non-steroidal anti-inflammatory drugs (NSAIDs) cause mucosal damage, ulceration and ulcer complication throughout the gastrointestinaltract.[9]

Conclusion

The drug delivery systems targeted to colon should not only protect the drug being released in the stomach and small intestine, but they should also release and sustain the drug release in the colon. Hence, in vitro drug release studies were performed in phosphate buffer pH 6.8 containing 4% rat ceacal contents. represent the drug release pattern in the presence of rat cercal content medium. The SM6 and SM7 formulations which showed satisfactory results were chosen for the study. A 33.09% and 36.52% of drug was released from SM6 and SM7 formulations at the end of 5th hour in the environment of stomach and intestine.

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FISH DISEASES AND HEALTH MANAGEMENT

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Abstract
Long-term studies are needed to address the interactions between the immune system and invasive pathogens in teleosts. Intensive studies on specific cellular (T cell) responses and innate immunity (lectins, lysozymes, interferons, phagocytic cells) later became available. During the period from 1980 to the present day, an enormous amount of data has been published on regulation (cell coordination, cytokines, etc.) and cell surface receptors (T cell receptor; MHC, etc.). We also found that innate responses often interacted with adaptive immune responses. It turns out that fish are like all other vertebrates with sophisticated immune systems that exhibit specificity and memory. This basic data on the immune system can be used for vaccination and disease-resistant fish selection. Effective vaccines against bacterial diseases are now available. Effective antiviral vaccines have appeared since his 1980s. Undoubtedly, fish immunology emerged as a thriving science in his late twentieth century, contributing to the understanding of fish diseases and the success of aquaculture.

Introduction

The fastest growing aquaculture sector (worldwide) is increasingly being felt. However, disease is increasingly recognized as a potential impediment to aquaculture production and trade, causing human health risks and huge economic losses through fish deaths and reduced meat quality, with consequent consequences. Profitability is declining. The economic losses of aquaculture due to disease problems are far greater than losses from other means. An effective way to control or prevent disease problems in any system is to effectively manage resources, soil, water, nutrients, and the environment. Pathogens can colonize animals and cause disease, health hazards to consumers and/or handlers of these pathogens, and zoonotic problems, as appropriate treatments are not always effective. and indirectly increase the incidence of human diseases by preventing them. Occurrence in animals with enhanced immunity against a wide range of pathogens. There are many drawbacks to using chemicals to control bacterial and parasite populations. Similarly, the widespread use of antibiotics to treat bacterial diseases has brought many drawbacks. Vaccination is a useful preventative and effective method to combat fish infections. However, there are few successful commercial bacterial vaccines. Currently, the range of bacterial infections for which vaccines are commercially available include classical vibriopathy (Listonella anguillarum, Vibrio ordalii), furunculosis (Aeromonas Salmonicida subsp. Salmonicida), cold-water vibriopathy (Vibrio Salmonicida), yersiniosis (Yersinia ruckeri), Pasteurellosis (Photobacterium damselae). Supplement.

Ontogeny and tolerance

Unlike higher vertebrates, most species of fish are free-living during the early stages of life. In other words, the need for effective defense systems against various aquatic pathogens is evident. It is generally accepted that acquired immunity is not fully operational at hatch. As a result, fish larvae are primarily dependent on their innate immune system for a period of time (Zapata et al., 2006). Protein inhibitors are present in eggs of various fish species (Magnadóttir et al, 2006). Furthermore, it has recently been suggested that maternal transmission of immunity may be influenced by environmental factors to which parent fish are exposed. B. Pathogen or diet (Zhang et al., 2013).

Genetic aspects of disease resistance

A classic case of disease resistance selection in carp is presented by Kirpichnikov et al. (1993). Between 1960 and 1990 they crossed between his three local fish species and successfully selected for rapid growth and

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resistance to edema (caused by rhabdovirus carpio). Several other examples of genetic variation in disease resistance in fish have been described (Jeney et al., 2009; Dixon et al., 2009; Tanekhy et al. 2009a,b; Tanekhy et al., 2010; Tanekhy et al., 2010; 2014). Defined genetic markers are still rare. Few studies have addressed the functional aspects of fish MHC molecules.

A pivotal study on Atlantic salmon found significant associations between resistance to infectious salmon anemia virus and A. salmonicida and MHC gene polymorphisms. Another excellent study in carp showed that resistance to carp herpesvirus (KHV) is influenced by MHC class II B genes (Rakus et al., 2009). All these studies highlight the importance of genetic variation, especially MHC polymorphisms, in fish populations. Observations in Atlantic cod (Gadus morhua) are rather unique, indicating that these animals have relatively many MHC class I genes but lack class II and CD4 genes (Pilstrøm et al. al., 2005; Star et al., 2011). Despite this, cod is not particularly susceptible to disease. This indicates that their immune system has evolved compensatory mechanisms in both adaptive and innate immunity when MHC II is absent. Using genome sequences and genetic linkage maps, the quantitative trait locus (QTL) approach has achieved breeding for several disease-resistant fish families in recent years, as demonstrated by the pioneering work of the Okamoto group. did (et al, 2001; Fujii et al, 2007).

Quarantine and restriction of movement

Quarantine occurs when fish intended to be moved from a suspected or infected geographical area to an uninfected geographical area must be held for at least as long as the incubation period of the suspected disease. You can then move to a new geographic area only if no suspected illness develops. Movement is restricted when all movement of fish from infected areas to non-infected areas is prohibited. The sale of fish in markets is also often prohibited. Quarantine and movement restrictions can only be used effectively with good cooperation between fish farmers, fish health professionals, government agencies, and anyone interested in controlling fish disease. The most effective use of quarantines and movement restrictions to control disease has been to regulate the movement of fish between continents, states or regions. Quarantine and movement restrictions have proven particularly effective when combined with inspection and slaughter or sanitation and disinfection.

Immunity and disease resistance Immunity and disease resistance have had limited use in controlling infectious diseases in fish. The reasons for the limited success of fish immunization are: Especially at low temperatures, fish are not as immunologically competent as higher animals. Also, herd immunization techniques for farmed fish are limited. It is usually not possible to inject all fish in a fish farm. Oral methods of immunizing large numbers of fish against bacterial pathogens have had limited use. Oral immunization is a method in which an immunizing agent is added to fish food and fed at regular intervals. Mass immunization techniques, in which fish are first soaked in a hypertonic solution followed by a hypotonic bacterin, are better suited to the needs of large numbers of fish in most aquaculture facilities. Put the fish in the bacterin in the pressure vessel. A partial vacuum is created in the container and then released. A sudden change in pressure causes some of the bacterin to penetrate the fish tissue.

Conclusion

Disruption or reduction of compounds in the transmission cycle has been used to control infectious fish diseases involving animal parasites. Fish metazoan parasites have specific transmission cycles that involve fish in specific developmental stages. Many of these parasites require one or more other animal host species to complete their life cycle. Each developmental stage of each host offers an opportunity to stop parasite transmission. In practice, however, eliminating a compound in the transmission cycle is not feasible because it could mean eliminating protected mammals and birds, or difficult-to-eliminate crustaceans and mollusks. There are cases.

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EFFECT OF PLYOMETRIC AND CORE TRAINING ON SKILL RELATED PERFORMANCE VARIABLES AMONG MALE MEDIUM FAST BOWLERS IN CRICKET

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Abstract

Cricket is a team game played by all over the world. It has three skills i.e., batting, bowling and fielding. Pace bowling is very much vital in this game. The purpose of the present study was to find out the effect of plyometric and core training on skill related performance variables among male medium fast bowlers in cricket. 30 male medium fast bowlers aged 18-27 from Guru Ghasidas Vishwavidyalaya and Atal Bihari Vajpayee Vishwavidyalaya was selected. The significant improvement observes in bowling velocities as well as in the throwing distance. It is concluded that Twelve-week plyometric training increases the physiological and skill related performance variables hence improves their performance.

Key words: *plyometric training, Core training, skill related performance etc.*

Introduction

In present day serious games have above and past the athletic exercises of the past, as far as their business esteem, physical capacity of the competitor and the degree of significance that is put on progress. Likewise, Cricket is one of the most demanding and popular team sports in all over the world. It is a bat and ball sport, usually played outdoors natural grass fields. In cricket bowlers try to resist the batter to score, where batter try to scores maximum in the timespan of play. So, both the Skill are similarly important in this game. Basically, bowling is two type – one is pace and another is spin. In Pace bowling various variations are found like as Fast bowling, medium fast bowling, Slow pace bowling etc. In Explosive bowling action; whereby a large amount of force must be generated in a very short period of time. medium Fast bowlers have always been identified as the type of cricket with the highest risk of injury.

Recent time in most of the cricket team specific trainers are recruited for specific purpose and also the specific coach's responsibility reduces the injury of the players. So various training program also implementing like as plyometric, Core exercise. The word Plyometric has been in use since the 1950's in Soviet Olympians. Plyometric is a kind of systematic training for developing speed, power which means explosive power with the help of designated jumping exercises. Moreover, it is helpful to boost the producing muscular force maximum.Core training is- The Exercise program that aims to strengthen muscle groups in lumbopelvic area and the deep muscles that are responsible for stabilizing spine, and done by athlete's own body weight. Core strength trainings and their effects have been analysed by many researchers and results show that they help to development of athlete's motor skills, increasing of balance ability and prevention from sports injuries. The aim of the study is to analyse the effects of plyometric and core training on selected skill related parameters in male medium fast bowlers in cricket.

Material And Method

Subjects

The experimental study design to 30 university level male medium fast bowler aged 17 to 27 years, were purposively selected from Guru Ghasidas Vishwavidyalaya and Atal Bihari Vajpayee Vishwavidyalaya for the twelve weeks plyometric program.

Methodology

The purpose of the study was to find out the effect of plyometric training and core training program on selected skill related performance variables among male medium

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fast bowlers in cricket. To achieve the purpose of the study 30 male medium fast bowlers in the age group 18 to 27 years were selected at random from Guru Ghasidas Vishwavidyalaya and Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur (C.G.). Selected subjects were divided into three groups of experimental I (plyometric training), experimental II (Core training) and control group (only daily routine) for the twelve weeks training period and three alternate days per week. The data pertaining to the variables in this study were examined by using paired sample 't' test to find out the significant differences and analysis of covariance (ANCOVA) for each variable separately in order to determine the differences and tested at 0.05 level of significance and Bonferroni post hoc test also administrated wherever 'f' ratio was tested.

Criterion Measures

	Variables	**Tests**	**Units**	**Tools**
Skill Variables	Bowling Speed	Speed sports radar	Km/h	Speed gun
	Throwing distance	Manual	Meters	Manual

Table-2, Significance of mean gains & losses between pre and post test scores on selected variables of plyometric training group

Paired Samples Test							
	Mean	Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	T	df	Sig. (2-tailed)
Bowling Speed Pre-test & Post-test	107.200 108.700	-1.500	.527	.1667	-9.000	9	.000
Throwing Pre-test & Post-test	64.200 67.600	-3.400	2.503	.791	-4.295	9	.002

The result of the paired "t" test of table- 2 indicates that the obtained 't' ratios were 9.000 and 4.295 beside Sig. (2-tailed) were .000, .002 for Bowling Speed and Throwing distance respectively. The significance level was set at 0.05 level. The results of this study showed that all the variables were statistically significant and explained its effects positively.

Table-3, Significance of mean gains & losses between pre and post test scores on selected variables of core stability training group

Paired Samples Test							
	Mean	Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Bowling Speed Pre-test & Post-test	109.300 111.500	-2.200	.789	.249	-8.820	9	.000
Throwing Pre-test & Post-test	69.700 71.350	-1.650	1.055	.334	-4.944	9	.001

The result of the paired "t" test of table-3 indicates that the obtained 't' ratios were 8.820 and 4.944 beside Sig. (2-tailed) were.000, .001 for Bowling Speed and Throwing distance respectively. The significance level was set at 0.05 level. The results of this study showed that all the variables were statistically significant and explained its effects positively.

Table-4, Significance of mean gains & losses between pre and post test scores on selected variables of control group

Paired Samples Test							
	Mean	Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Bowling Speed Pre-test & Post-test	107.300 107.500	-.200	.78881	.24944	-.802	9	.443
Throwing Pre-test & Post-test	67.600 68.100	-.500	1.43372	.45338	-1.103	9	.299

The result of the paired "t" test of table-4 indicates that the obtained 't' ratios were.802, 1.103 beside Sig. (2-tailed) were.443 and .299 for Bowling Speed and

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Throwing distance respectively. The significance level was set at 0.05 level. The results of this study showed that all the variables were statistically insignificant and explained no positive effects.

Computation of analysis of covariance on performance related fitness components

The following tables illustrate the statistical results of the plyometric training and core training on selected Performance related fitness components among male medium fast bowlers in cricket.

Table-5

Levene's Test of Equality of Error Variances[a]			
Dependent Variable: Bowling Speed Post-test			
F	df1	df2	Sig.
2.305	2	27	.119
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + Bowling Speed Pre-test + Group			

The results of the levene`s test in table number 5, show that the value of the F test is 2.305 and is insignificant at 0.05 (Sig.- .119) which means that the null hypothesis stating the same variance is accepted or indicating that the group variances are equal. It means that the assumption of homogeneity of the variance is not violated.

Table-5.1

Univariate Tests						
Dependent Variable: Bowling Speed Post-test						
	Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	24.857	2	12.428	38.258	.000	.746
Error	8.446	26	.325			
The F tests the effect of Group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.						
a. Computed using alpha = .05						

A one-way ANCOVA was conducted to compare the impact of Plyometric and Core Stability training in shaping Post-test Bowling Speed scores while controlling Pre-test Bowling Speed scores. Levene`s test and Normality checks were carried out and the assumptions met.

In Table 5.1 shows that F (dfbetween, dfwithin) = Test statistic, p= F (2, 26) =38.258, p=.000. It means there was a significant difference in Bowling Speed post-test between Groups, while adjusting for Bowling Speed pre-test. The partial Eta Squared value indicates the effect size and should be compared with cohen`s guidelines (0.2- small effect, 0.5- moderate effect, 0.8- large effect). It`s seen that for Group the effect size is moderate (0.746). It also explained that 75% of the variance in the dependent variable is explained by the independent variable. So, all the three group has significant effect on Bowling Speed post-test.

Table-5.2

Pairwise Comparisons				
Dependent Variable: Bowling Speed Post-test				
(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.[b]
Plyometric	Core Stability	-1.032*	.268	.002
	Control Group	1.284*	.255	.000
Core Stability	Plyometric	1.032*	.268	.002
	Control Group	2.316*	.267	.000
Control Group	Plyometric	-1.284*	.255	.000
	Core Stability	-2.316*	.267	.000
Based on estimated marginal means				
*. The mean difference is significant at the .05 level.				
b. Adjustment for multiple comparisons: Bonferroni.				

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The table 5.2 discovered Bonferroni post hoc test method of analysing were used to find shows that the Bonferroni post-hoc method of testing the significance for finding mean difference among plyometric training, core training and control group, following significant analysis of co-variance. For the Bowling Speed mean values in order of magnitude, the mean difference between plyometric training and core training group is -1.032*, and significance difference was found (sig[b].002). In the mean variation between plyometric training and control group 1.284*significance difference was found (sig[b].000) then the mean difference between core training and control group is 2.316*and here is also found significance difference (sig[b].000), at 0.05 confidence level. This indicating that in Bowling Speed the experimental groups have significant improvement when compared to control group. Hence there is a positive variation between core training and control group and plyometric training and control group. There is also positive variation between plyometric training and Core Stability on Bowling Speed variable.

Figure-1

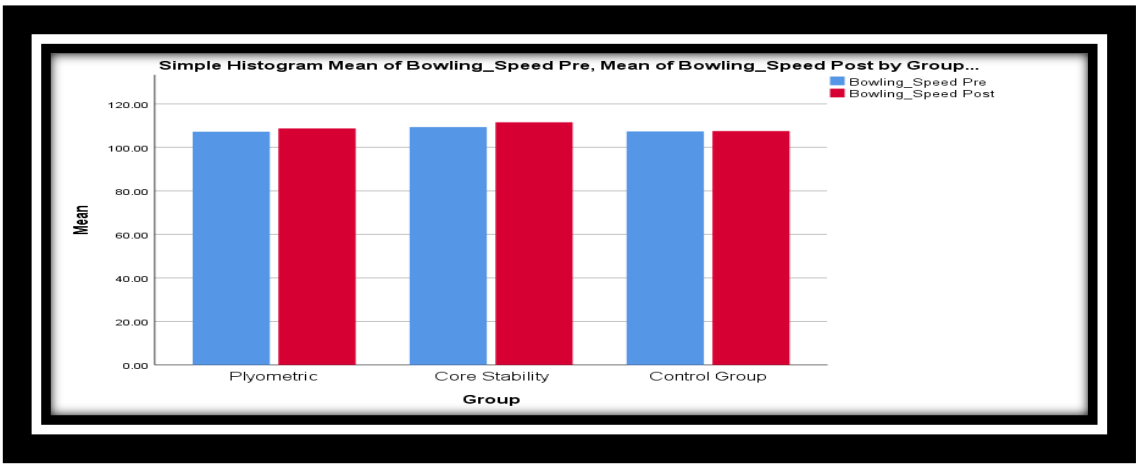

Table-6

The results of the levene`s test in table number 6.1, show that the value of the F test is 1.341 and is insignificant at 0.05 (Sig.-.278) which means that the null hypothesis stating the same variance is accepted or indicating that the group variances are equal. It means that the assumption of homogeneity of the variance is not violated.

Table-6.1

Univariate Tests						
Dependent Variable: Throwing Post-test						
	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared

Levene's Test of Equality of Error Variances[a]			
Dependent Variable: Throwing Post-test			
F	df1	df2	Sig.
1.341	2	27	.278
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + Throwing Pre-test + Group			

Contrast	21.892	2	10.946	15.387	.000	.542
Error	18.496	26	.711			

A one-way ANCOVA was conducted to compare the impact of Plyometric and Core Stability training in shaping Post-test Throwing scores while controlling Pre-test Throwing scores. Levene`s test and Normality checks were carried out and the assumptions met. In Table 1.3 shows that F (dfbetween, dfwithin) = Test statistic, p= F (2, 26) =15.387, p=.000, It means there was a significant difference in Throwing post-test between Groups, while adjusting for Throwing pre-test. The partial Eta Squared

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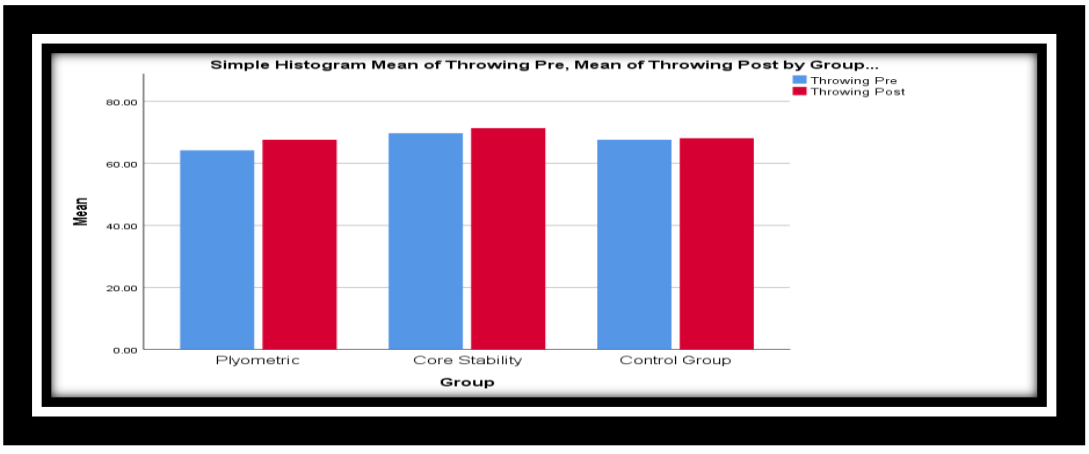
value indicates the effect size and should be compared with cohen`s guidelines (0.2- small effect, 0.5- moderate effect, 0.8- large effect). It`s seen that for Group the effect size is moderate (0.542). It also explained that 54% of the variance in the dependent variable is explained by the independent variable. So, all the three group has significant effect on Throwing post-test.

Table-6.2

Pairwise Comparisons				
Dependent Variable: Throwing Post-test				
(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.[b]
Plyometric	Core Stability	-.031	.420	1.000
	Control Group	1.799*	.394	.000
Core Stability	Plyometric	.031	.420	1.000
	Control Group	1.830*	.384	.000
Control Group	Plyometric	-1.799*	.394	.000
	Core Stability	-1.830*	.384	.000
Based on estimated marginal means				
*. The mean difference is significant at the .05 level.				
b. Adjustment for multiple comparisons: Bonferroni.				

The table 6.2 discovered Bonferroni post hoc test method of analysing were used to find shows that the Bonferroni post-hoc method of testing the significance for finding mean difference among plyometric training, core training and control group, following significant analysis of co-variance. For the Throwing distance mean values in order of magnitude, the mean difference between plyometric training and core training group is -.031, and no significance difference was found (sig[b]1.000). But in the mean variation between plyometric training and control group 1.799* significance difference was found (sig[b].000) then the mean difference between core training and control group is 1.830* and here is also found significance difference (sig[b].000), at 0.05 confidence level. This indicating that in Throwing distance the experimental groups have significant improvement when compared to control group. Hence there is a positive variation between core training and control group and plyometric training and control group. There is no positive variation between plyometric training and Core Stability on Throwing distance variable.

Figure-2



Conclusion

The results of this study showed that after a 12-week of plyometric and core training, subjects have shown a significant improvement in medium pace bowling velocities as well as throwing distance for both the experimental group (i.e., Experimental-I: -Plyometric, Experimental-II: - Core Training Program) but no improvement was found for control group.

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LANGUAGE AND READING DIFFICULTIES AMONG CHILDREN WITH LEARNING DISABILITIES IN AN INCLUSIVE CLASSROOM

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Abstract
The area of special education serves individuals with special needs. In India, according to RPWD Act, 2016 there are 21 types of disabilities categorized by the government. Learning disability is one among them; learning disability is an umbrella term containing a variety of disabilities. Learning disabilities are disorders that affect the ability to understand or use spoken or written language, perform mathematical calculations, coordinate movement, or focus attention. Language and reading difficulties are common problems among the learning disabled. Inclusive education is an approach to teaching and learning children with special needs in a general classroom along with general students. According to a study, 10% of the school population is categorized as dyslexic, which means they have problem in language and reading. When we talk about inclusive classrooms, there are about 10% of children are dyslexic and have difficulty in language and reading. But classroom teachers, teacher educators, principals, school administrators, and parents do not pay attention, due to which they are left behind in the class and gradually drop out of school. So, knowledge of the language, reading, and writing are most important for acquiring knowledge. This paper explores how identifying such children in an inclusive classroom and how their language and reading problems can be overcome so that they too can take education by studying in the mainstream with all the children.

***Key words**: language and Reading difficulty, Learning disability, Inclusive classroom*

Introduction:

Learning disability is an umbrella term that encompasses a variety of disabilities. Learning disabilities are disorders that affect the ability to understand or use spoken or written language, perform math calculations, read, coordinate movement, or focus attention. Students with learning difficulties are average or above average Intelligence. They exhibit a discrepancy between IQ and performance, i.e. they do not do better academically according to their intelligence. Reading is one of them.

A major problem in children with learning disabilities called dyslexia. A large percentage of learning disabilities (80%) manifest as problems learning to read. This reading problem can be overcome with proper treatment at an early age. Children with reading problem often have poor phonological skills, difficulties with decoding, reading fluency, and spelling. And also, they have reading comprehension and writing problem. According to RTE act 2009, every child have right to learn in their neighbor schools without any discrimination. Government declared that every school is an inclusive school and all students with and without disabilities are eligible to learn them. In a study, it is found that 3.08% population is learning disabled. Prevalence of dyslexia is estimated to be between 5% and 17% of school aged children (Habib&Michel, 2013). From the different study it is clear that approximately 5-17% of school children are facing problem in understanding language and reading, that means in an inclusive class room maximum 17% are facing problem to understand language and reading. The teacher should identify such children in the class and work to solve their problem so that they learn better.

Concept of language and reading among children with learning disabilities:

Language has an important role in the acquisition of knowledge; through language we enhance our knowledge. If we do not have knowledge of language of language then we cannot acquire knowledge. It is necessary to develop language in children right from childhood so that they do not face any

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problem in learning any knowledge in future. When we talk about the English language, there are 26 letters in it. It is very important for children to have knowledge of this, only then they can lean new knowledge because knowledge is expressed in the language itself, when we have the right knowledge of the language of the language then we can learn anything easily. But the biggest problem of children with learning disabilities is that they have difficulty in recognizing and understanding the letter itself, if they cannot understand the letter, then how will they learn specific subject. As a teacher or parent, it is our responsibility to pay special attention to the language development of the child. So that, he/she can learn the language better, if the child learned the language then it will be easier for him to lean the subject. There are different many component of language learn for a child

Phonemic awareness:

Phonemic awareness is the understanding that the words of spoken language can be broken down into individual phonemes, the smallest unit of spoken language. Phonemic awareness is not the same as phonemics: Phonemic awareness focuses on the individual sounds of spoken language. As students begin the transition to phonetics, they will learn the relationship between a phoneme (sound) and a grapheme (the letters that represent the sound) in written language.

Phonics:

"identification, recognition, analysis, and synthesis of phoneme elements in written words" (Lerner, 2006). Decoding is the process of turning printed words into spoken words. Readers use phonic skills, beginning with letter-phone correspondences, to pronounce words and then assign meaning to them.

Fluency:

Fluency is defined as the ability to read quickly, accurately and with appropriate expression. In order to understand what they are reading, children need to be able to read fluently, whether they read aloud or quietly. When reading aloud, fluent readers read in sentences and add intonation accordingly.

Comprehension:

Comprehension is the understanding and interpretation of what is read. Ability to understand accurately what they read.

Morphology:

Morphology is the study of words. Morphemes are the smallest meaningful word units that cannot be further subdivided.

Characteristics of children with learning disabilities facing problem in reading in Inclusive classroom:

1. Children with learning disabilities who have reading problems are more affected by boys than the girls.
2. Children with learning disabilities who have reading problems has average or above average intelligence.
3. Children with learning disabilities who have reading problems tend to be spatially disoriented.
4. Children with learning disabilities who have reading problems shows poor figure ground discrimination, fine motor, and visual motor.
5. Children with learning disabilities who have reading problems show hyperactive and clumsy behavior.
6. Children with learning disabilities who have reading problems distracted in the classroom.
7. Children with learning disabilities who have reading problems show insufficient visual memory.

Causes of reading problem among children with learning disabilities:

1. Delayed development
2. Inadequate language development
3. Maturational delay
4. Difficulty recognizing the individual sounds in spoken words.
5. Limited language skills and vocabulary.
6. Comprehension.

Error made by learning disabled in reading:

Omission:

Children with learning disabilities have problem in reading omit letters or whole words during reading. Generally it is seeing that the child omit middle or end letters or word of any sentence.

Addition and Insertions:

A learning disabled child inserts extra letters during reading which is not required.

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Substitutions:
It is always seeing that learning disabled child substitute the word which looks same as the other. (e.g. pay for play)

Repetition:
During reading learning disabled student repeated the word because he could not understand the meaning or sense of the given word.

Reversals:
During reading learning disabled student confusing similar type letters and read wrong. (e.g. p & q, b & d)

Word by word reading:
During reading learning disabled student frequently forget the place of the word.

Sound Blending:
During reading learning disabled student facing problem to combining the letters into the words.

Memory problem:
Children with learning disabilities facing problem in reading have poor memory.

Approaches for teaching children with learning disabilities facing problem in reading in Inclusive classroom:

1. Letter & Word identification
2. Letter & Word discrimination
3. Auditory discrimination
4. Word in context
5. Teaching phonics
6. Teaching word meaning
7. Comprehension skill
8. VAKT
9. The Orton Gillingham
10. Word in color
11. Break the task

Conclusion:
Language and reading difficulties are common problems for people with learning disabilities. Inclusive education is an approach to teaching and learning of children with special needs in a general education classroom together with general education students. According to a study, 10% of the school population is classified as dyslexic, which means they have problems with language and reading. When we talk about inclusive classes, around 10% of children are dyslexic and have language and reading difficulties. As teacher we have to pay proper attention to that type of children so that they learn effectively. In an inclusive classroom, the teacher has to pay attention to which child's problem reduced. The teacher should use all those methods to teach such children in the class which is mention for children with reading problem.

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Recent Advances in Humanities, Commerce, Management, Engineering, Science & Technology

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DEVELOPING SOCIAL AND LANGUAGE SKILLS IN YOUNG CHILDREN THROUGH FOLKTALES

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Abstract
Children's literature is one of the major areas of literature in Modern India. The present article represents an effort to interpret Panchatantra, a classical Sanskrit book and its importance in the modern day classrooms. Historians found that in-between 300-500 BC, basically in India, stories and animal fables were narrated for educating students with special purpose of making them competent within a short period of time. The collection of these kind of moral stories is known as panchatantra. In this article, we will see some stories from Panchatantra, its content, its educational values, usefulness and adaptation of its techniques in the modern day language classrooms. The main aim of this article is to present an ancient Indian Short story book with its specialties and its tentative use in the present day education. Children usually have fascination towards short stories and when animated characters are there they enjoy it even more. Overall we will see how short stories from Panchatantra can be used not only to fine-tune the linguistic skills in children but also to fine-tune their socio-moral skills in the social group and in the community at large.

Introduction

From time immemorial human beings have always told stories. It is considered to be one of the most important things which make us who we really are and distinguishes us from other creatures on this planet. In pre-modern era before electronic equipments like television or computer came into existence, listening and telling stories was the most favorite pass time of people. Stories were used to pass on real events, history, family connections and also as an entertainment. Long before writing came into existence, the only culture majorly used was oral, spoken culture. (Fox & Jennifer 2005, 11.) That is why it is important and interesting to view modern education from the narrative perspective.

This short story collection of Bishnu Sharma, Panchatantra takes us into the deep educational history of India. When we speak about narrative learning in schools for identity construction then we cannot overlook the Vedic educational system of ancient India. In India, since the Vedic age there has been a tradition of oral education. Oral education means transferring the knowledge from one person to other through narration. Most of the ancient Indian scriptures were preserved like this, generations after generations.

In India today majority of students lack proficiency in English as it is not their first language. They need proper guidance and assistance to develop this proficiency in English. We have limited number of students who are good at this foreign language but many are not up to the mark. For a second language learner a teacher has to look into developing his all four skills like Listening, speaking, reading and writing. From these skills writing invokes the creative faculty in children. While stories often have a profound effect on us due to its emotional content, recent research also shows that our brains are actually made such to seek out a coherent narrative structure in the stories we hear and tell. This structure helps us absorb the information in a story, and connect it with our own experiences in the world. We all know that pictorial memory or listening has an added advantage, i.e. it invokes our imagination and increases our power of understanding.

History of Narration or Storytelling

Storytelling is an essential part of human nature. Man is the only creature that tells stories. Man has been telling stories and listening to them since the time he learnt to speak. The storytelling began with oral traditions and in forms of myths, legends, fables, anecdotes, ballads etc. These were

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told and retold and were passed down from generation to generation and they show the knowledge and wisdom of early people. The basic theme of the stories was fears of natural forces, deeds of heroes, gods and goddesses, and they might be told to learn a lesson from an experience. Biblical stories have the primary purpose of teaching spirituality. Most biblical stories were performed in churches to convey spiritual messages to the masses. Similarly mythological stories are the treasure of every country.

The modern narratives have a broader function. After a close study of famous examples of Modern narrative, one would realize that such narratives do not merely entertain but serve as ways to communicate moral, cultural and political perspectives of the time. Moreover, narratives have contributed to achieving educational objectives in our life. Different forms of media are enabling people to express and record their real life stories and to share their knowledge and their cultural values across the world. In addition, many documentaries on television adopt a narrative technique to communicate information in an interesting way. Narratives are the central means by which people make sense of their experiences. Their functions also include presentation of autobiographical memory, socialization of children into cultural membership, and mediation of ways of thinking about problems and difficulties.

These functions are crucial for adult second language learners who are looking for ways to become 'meaningful' in the new environment since "person can only be a meaningful entity, both to himself or herself and to others, by being 'read' in terms of the discourses available in that society" (Burr, 1995: 142). A misunderstood narrative becomes an inappropriate presentation of self – or a sequence of events – and may result in cross-miscommunication. And yet second language curriculum and classroom practices continue to privilege acquisition of linguistic, or, at best, pragmatic competence, and rarely focus on the teaching of narration. Several factors explain this oversight, including the perennial lack of time and the mistaken belief that learners who can construct 'correct' sentences should be able to string them together into narratives. Yet nothing could be further from the truth – learners who are very skilful at the sentence level may still fail to construct language – and culture – appropriate narratives because narrative competence is not tantamount to linguistic competence and does not fully correlate with measures of syntactic complexity or vocabulary size (McCabe & Bliss, 2003).

It remains something of a mystery why narrative text is so easy to comprehend and remember. Perhaps it is because the content of narrative text has such a close correspondence with everyday experiences. Perhaps it is because the language of oral conversation has a closer similarity to narrative text than other discourse genres. Perhaps it is because there are more vivid mental images, or a more elegant composition of the conceptual structures. Narratives are more interesting, so perhaps they are more motivating to read. (Graesser et al. 2002, 240.) This interesting element of storytelling was used in Panchatantra to educate the students as story telling is nothing but participation, participation by the narrator and participation by the listener. It has also been part of formal education for many years. In the nineteenth century, student teachers were trained to tell stories (Fox & Jennifer 2005). Storytelling is not only important for literacy but can be applicable in other curriculum areas. Storytelling is enjoyable, creative, responsive, active, inclusive and flexible. Stories being enjoyable are an important factor in imparting happiness in students. Martin Seligman (2003), a psychologist has shown through his study, that positive enjoyment improves learning. It also teaches the children to be creative by creating their own stories. Two ways of using stories in teaching language are, to use traditional tales which has number of characters and other way is to create a story.

About Panchatantra

To teach his students in a short period of time, Vishnusharma creatively used the stories of different animals and human beings. As his students were not so eager to

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study through the routine method he found an exciting and entertaining method, that is, teaching through narration or with the help of stories. Interestingly, the characters in the fables are often animals, perhaps because children find animals interesting, and have a strange way of connecting with them. Panchatantra is not just a compilation of tales with morals. It is a collection of stories within a story, a manner of story-telling that engages a reader very effectively. The end result is the communication of morals and deep philosophy without preaching (Meler 2011). With the help of the characters of the story he tried to explain simple but useful and important concepts. As people remember stories that are well told and are centered on ideas the listeners either know well or want to know well (Schank & Berman 2006).

The unique feature of Panchatantra is the structure of frame story. This structure keeps the reader or the listener involved in the story. Draper (2006) says that "stories use words to create imaginings in hearers. That could be a description of education". For learning anything new one needs concentration. Concentration is an active involvement in a task with undivided attention. As Vishnusharma also wanted them to learn, remember and use their knowledge afterwards, he explained the principles of political science and practical wisdom with the examples illustrated in the form of stories. In support of using narratives for teaching, Williams (2000) says that narrative text (fiction) is easier to comprehend and remember than expository text (factual and informational material). In modern education, narration is already in use but to limited extent. Conle (2003) explored various narrative practices in the classroom to highlight the effects of different forms of engagement. According to her, such narrative practices can produce five outcomes: advances in understanding; increased interpretive competence; richer practice repertoires; changes in life and visions gained.

As the lessons were given through stories they were entertaining and at the same time brainstorming. So it was an important strategy which is useful in the current scenario also. A story tends to have more depth than a simple example. A story tells about some event – some particular individuals, and something that happens to them. Stories engage our thinking, our emotions, and can even lead to the creation of mental imagery (Green & Brock 2000). Individuals listening to stories react to them almost automatically, participating, in a sense, in the action of the narrative (e.g., Polichak & Gerrig 2002). Bringing all of these systems to bear on the material in your course helps student learning. Students are awake, following along, wanting to find out what happens next and how the story ends.

Bruner (1986) has contrasted the paradigmatic (logical, scientific) and narrative modes of thinking, but these modes need not be mutually exclusive in the classroom. As it is a very simple method it can be generalized. It can be used all over the world without any restriction. It can be very entertaining while teaching subjects like mathematics or science. If a teacher finds that the students are not following what he is teaching then he can make a story using the same concepts. At the same time it can also be used if the students are getting bored. Another benefit of this method is it can be used without any educational aids. This does not require a video projector or an audio visual system. So it can also be efficiently used in economically developing countries. This method will enhance the creativity of the teacher and the students also as they can together construct a story related to the subject. Other perspective is about the development of moral and social identity. 'Story' is the most important piece of narration to induce moral values in the students at an early age. Through the stories the personal and social responsibility can be imparted into the students. They can understand the society and their role in the society. So in all it can be said that this method can really prove helpful if used widely.

Some Examples

Panchatantra' by Vishnu Sharma, written thousands of years ago, has much to offer by way of insight into human behaviour though the characters are entirely from the animal kingdom. Not surprisingly, the running theme of the `Panchatantra' is

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"Knowledge is the true organ of sight, not the eyes" and is a practical guide to niti, or the art of intelligent living. The morals in the `Panchatantra' are not preachy tales of good overpowering the evil but it teaches you how to be a good person in life. Franklin Edgerton, the Yale professor known for his masterly translation of the `Bhagavad Gita', calls the `Panchatantra' Machiavellian. He notes, "This is a textbook of artha,

'worldly wisdom', or niti, polity, which the Hindus regard as one of the three objects of human desire, the others being dharma, 'religion or morally proper conduct' and kama 'love'... The so-called 'morals' of the stories... glorify shrewdness and practical wisdom in the affairs of life, and especially of politics, of government." Joseph Jacobs said, "...if one thinks of it, the very raison d'etre of the Fable is to imply its moral without mentioning it". The stories convey messages that are direct and simple. Malicious gossip can destroy even great friendships. Never trust an enemy; "reformed enemy" is an oxymoron. Deceit is the only way to overcome an unscrupulous enemy. Caste, colour and religion are no barriers to forming lasting bonds; against tyrants, unity is strength. A fool and his gains are soon parted.

An intelligent man can overcome adversity by the use of his wit. The consequences of an ill-conceived hastily executed action could be death. The stories of the `Panchatantra' offer us the possibility of making our lives richer and more meaningful. Through the wisdom of its fables the `Panchatantra' offers a vision of us, like a mirror it reflects our society. In so doing, it makes us aware of the fact that solutions lie within ourselves only.

For example we can take two stories from panchatantra

1st we can take for example the story of The Monkey and the Crocodile. In the said story a monkey lives in a jamun tree near a bank of a river. One day a crocodile came to rest under the tree and the monkey offered some sweet jamuns to the croc, (here we get to learn atithi devo bhaba) the croc was too happy to taste the sweet jamuns and gradually comes daily and in the process the croc and the monkey become friends, (here we see love can make hunter and prey friends also). One day the monkey gives some jamuns to the croc as a gift for his wife. After eating the sweet jauns the crocs wife persuades the croc to bring the heart of the monkey as that would be sweeter after eating these sweet jamuns everyday. With a heavy heart the croc agreed (we often put our relationship in trouble to please others) then the croc went and invited the monkey for lunch at his place after persuading a lot the monkey believed him and sat on his back to go to his place. The croc was simple and on the way told the monkey that he is taking him so that his wife can taste his heart. The monkey was scared for a second but he kept his calm and told the croc that he had left his heart in the tree and they have to return to the tree to bring back the heart. The foolish croc returned ashore and the monkey jumped to the land and went to the tree and never returned.

This story teaches us mainly that when in difficult situation we should not lose our calm and if we have common sense then we can handle difficult to difficult situations. The students will learn a lesson of life in an entertaining way. In our modern day life there are a lot of crocs who are hovering around us to have our hearts. Stay alert stay safe. The second story that we can take for example is the story of the thirsty crow. Once there was a crow that was very thirsty. He tried to find some source of water but failed. Lately he found a pitcher with some water in it but unfortunately the neck of the pitcher was too narrow for the crow to enter his beak into and reach the water. He thought for a while and saw some pebbles nearby. He brought one after another pebbles and dropped them in the pitcher. The water level gradually rose up and the crow drank water and flew away. This story teaches us that when there is a will there is a way. While in a situation you may feel there is no way out but don't be disheartened think and definitely some way will always be there.

Authors take on role of storytelling in classrooms

Storytelling has tremendous benefits for classroom learning. When we meet heterogeneous groups at +2 level where we get a mixed audience group from different medium schools. When at times as a teacher

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we struggle to engage our students as fluent English speakers and reader, you can always set aside your worries and resort back to age old style of teaching through stories. If we do these in our class at times and gradually try to get learners involved in the creative process then surely with the passage of time it is going to create a healthy ambience for the students to use their creative faculty in a positive manner. We can create a memorable learning experience for the students by using the power of storytelling inside the classrooms. By engaging students with compelling stories that impart important material, teachers reach students both emotionally and biochemically, increasing the potential for rich learning experiences. Spending a little extra time on storytelling during lesson planning and actual classroom time keeps the learning experience highly engaging, creative, and truly, dynamically human. A story-filled classroom also encourages students to relate their own stories (whether factual or fictional), which helps grow their critical thinking, memory, and vocabulary skills.

As a Teacher we can keep a few things in mind-

1. You can make the classroom ambience bit entertaining setting aside the attention of students to listening to a story.
2. You can initially go slowly with some physical actions like postures and gestures, incorporated to help learners assimilate themselves with new and difficult words of English.
3. You can ask simple questions in between as- ask to repeat difficult words with you and laugh with you, it may also work as an ice breaker for learners
4. We have to motivate learners during initial stages giving him confidence if he is struck in some word or by praising for any little deeds of, like speaking some part in his own language in English etc
5. At times we can stage a drama type atmosphere and ask students to act like the characters and with passage of time can ask them to create their own story line, own dialogues and in turn enhance skills like writing, speaking, acting etc.
6. They can learn creativity at personal level and can also develop group activity or team work which will help them in future also.
7. We can have language games from stories like puzzle words, simple sentence making etc
8. We can take them till the problem and let them decide what ways are there to get out of the situation like croc is taking the monkey and tells the reason, the monkey is in river, how will he save his life, or the crow is thirsty the water level is low how will he manage to drink water etc. These questions will drive certain different out of the box answers from students.
9. Lastly we can gradually give them simple topics from day today life to create small pieces on topics like family, sports, fashion, movies etc.
10. Narrative, telling stories and anecdotes forms an important part of our everyday communication. Scholars agree that storytelling creates an useful learning situation. It allows our minds to think outside the box of our own experiences and to develop creative ways to problem-solving. It also allows us to identify with the theme and character of the story and to see their way of thinking.

Short stories will never fail us in accomplishing our purpose because -

1. Story telling is no doubt the most popular genre found everywhere irrespective of culture, language and countries.
2. The structure of a story of having an introduction, body and conclusion will teach them a lot of things of writing like essays, stories, any answer to a question etc.
3. When you get appreciation from others for your own creativity it boosts your morale and can get you in many good places also.
4. Children normally like fantasy worlds and writing their own story permits them to express themselves more clearly and innovatively. They develop strong imagination powers.
5. We should not get bogged up by spelling errors, grammar errors, wrong pronunciation etc from the very beginning as it can de motivate the students.

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6. If given full freedom then in later stages they can fine tune their spelling and other minor errors gradually.
7. They will get a platform to live their dreams and can express their dreams in pen and paper which will definitely enhance their creativity as well as their linguistic skills.

It will help us in enhancing their academic achievement by developing writing skills and memory power and creativity. It will help in fine-tuning the learner's communication skills inside and outside classrooms in his social circles also. It develops his reading skills and his listening skills also. Finally his self motivation is enriched and it can take a student to new heights of success in life.

Conclusion

In summary, it can be said that Panchatantra has vital importance in the world literature for its contribution in the field of practical wisdom. In India, it was narrated to teach the students who were not much interested in studies. The disinterest of students about learning is a major problem of modern education where Panchatantra can come to help as an interesting technique in bringing these students again towards studies, schools and education. Panchatantra has an element of entertainment, wisdom, creativity and logical thinking in it. The elements can be aptly used by the teachers, students and parents. It might help the teachers to understand how to involve their students in the process of learning and how to weave the threads of knowledge with the threads of entertainment. Panchatantra is a piece of ancient Indian literature which can be useful in the modern education because of its specialties and can still contribute a lot with a directed and dedicated research in this field. If we use stories carefully in our classrooms then someday our L2 learners will complete their journey from "CAN I?" to "I CAN".

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Recent Advances in Humanities, Commerce, Management, Engineering, Science & Technology

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MAPPING DISTRIBUTION OF PUBLIC SPACE IN MYSORE CITY

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Abstract :

Public space is a vital component of a prosperous city. Well designed and managed public space is a key asset for a city's functioning and has a positive impact on its economy, environment, safety, health integration and connectivity. The quality of life for people in cities is directly related to the state of its public spaces. Public space refers to an area or place that is open and accessible to all people Public space is more essential for all people for healthy and peacefully life. It is bring the economic, social, and cultural aspects of daily life together and it is highly regulated. Public spaces are important assets for any city to improve the quality of life of its citizens by providing accessible and safe places for everyone to enjoy. Deprived of getting access to the basic service such as circles, markets, bank, post office, hospital, park, transportation and others for leading dignified life The present context it limited to Mapping distribution of Public Space in Mysore city. The main aims of present paper are examine different types of Public spaces in Mysore city and mapping them. And to study the characteristics of different types of public spaces. therefore, government and others to give more important to create friendly environment in the basic service sectors in Mysore city

Key words: *Public space, Distribution, Quality of life. Mapping .*

Introduction:

Public space is also where many basic needs must be fulfilled. Public space is so important, and it is highly regulated. Public spaces that bring the economic, social, and cultural aspects of daily life together. Public spaces are important assets for any city to improve the quality of life of its citizens by providing accessible and safe places for everyone to enjoy. Public space plays a crucial role in the quality of a city, however the quality of life of a person depends on several factors. Public Space specifically urban space effect our physical, Psychological, and emotional well-being. It is a space that gives people a chance to see something new, to feel differently, to learn and to be inspired.

Concept of Public Space:

Public spaces are those spaces that are open and accessible to the public. Public spaces include streets, local public markets, parks, public squares and beaches. UN-Habitat considers public spaces "a Vital ingredient of successful cities" and places in a city that build a sense of community, culture, social capital, and community revitalization. Public spaces create livable communities and facilitate the enjoyment of the higher – density neighbourhoods typically found in cities. Target by 2030 provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities. (Public spaces SDG July 2016).

Public spaces are important assets for any city to improve the quality of life of its citizens by providing accessible and safe places for everyone to enjoy. As urban populations begin to rise posing huge challenges for the environment and well-being of citizens, it has become important to reaffirm the need for protecting, developing and reclaiming quality public spaces in all cities. (Public space design and assessment Tool 2021)

Public spaces are basic resources for the city, because of its physical dimension, its symbolic value and its character as place for collective use. Public spaces include a wide range of types, shapes and functions, especially in the context of urban and metropolitan areas today. (Antonio Garcia Garcia 2011). Contemporary urban public space and environment are facing a significant shift from the comprehensive range of political, economic, technological, social and cultural brought. (Maimunah Ramlee et al. 2015). The human presence in social spaces may be divided into flows and concentrations: flows are connected with movement/traffic and are related to space,

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following the definition by **Yi. Fu. Tuan (2001).**

Methodology:

The present study is based on the secondary information collected from different source like Department of Posts, Office of the Senior Superintendent of post offices, Mysore Division, Mysore, and State Bank of India, Lead Bank, Ashoka Road, Mysore. And Mysore City Corporation, Horticulture Division, Mysore, District Health Office, Mysore. And other sources related to public space in Mysore city, then show the spatial distribution of selected Public Space in Mysore city by use of cartographic techniques like Maps. Used the Arc GIS 10.3 and using the Google Earth mapping for the preparation of maps. The base map of the study area has been geo-referenced and digitized using GIS Software .

Objectives:

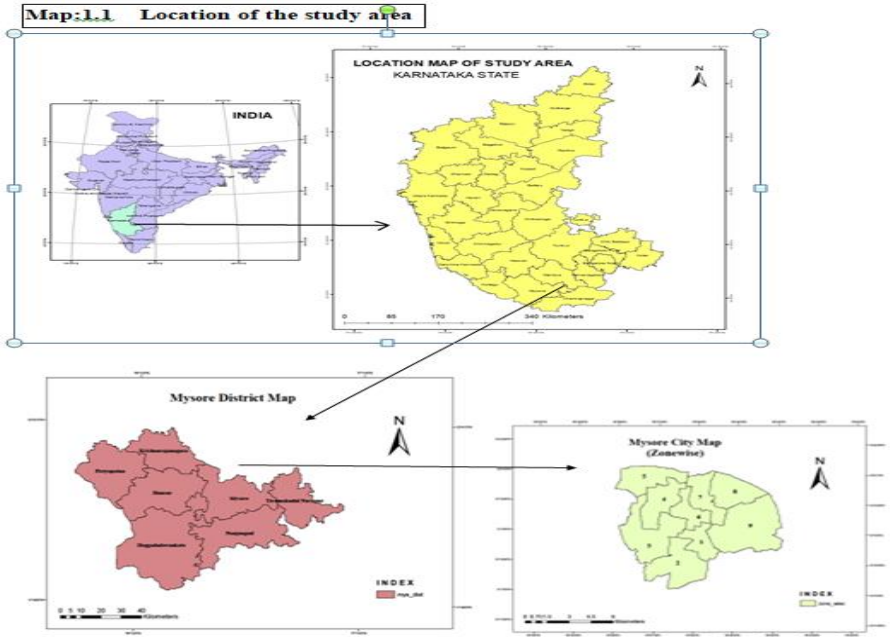
1. To Examine different types of public spaces in Mysore city and Mapping them
2. To study the characteristics of different type of public spaces.

Limitations: The Urban area of Mysore city has 65 wards, The paper concentrated only Mapping distribution of public space in Mysore city. Mysore city administration comes under the Mysore city corporation, therefore MCC can divide the Mysore city into 65 wards further it grouped the wards into 9 zones. All public spaces Mapping located only in Mysore city. All the facilities provided by the MCC limited only these 65 wards.

Study area:

Mysore city is located at $12^{0}13'$ North to $12^{0}22$ North latitudes and $76^{0}33'$ East to $76^{0}45'$ East longitudes and has an average altitude of 770 meters. It has spread across an area of 128.42 km^2 (50 sq. ml) at the base of the Chamundi Hill in the southern region of Karnataka. Mysore is the southern-most city and second largest city in the state of Karnataka. It is described as one of the Garden city of India. The population of Mysore city has increased to 8.93 lakh in 2011 from 2.54 Lakhs in 196.

Map:1.1 Location of the study area



Discussion:

Different types of Public spaces in Mysore city and Mapping them:

The term 'Public space' is described as municipally owned urban land which is commonly considered so in many parts of the world today. The term public is used to describe accessibility to all. Public space is thus owned by none in particular. In our paper public space definition is public spaces include/such as Hospital, Post office, Bank, Sub registar offices, Court, Park, Bus stand and railway station. This definition is based on the dimension of accessibility like biological, Economic, Social dimension,

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transportation facilities and recreational centers.

Characteristics of Public spaces:

Public space is a vital component of a prosperous city. Well designed and managed public space is a key asset for a city's functioning and has a positive impact on its economy, environment, safety, health integration and connectivity. The quality of life for people in cities is directly related to the state of its public spaces.

Public spaces take many forms, from the streets to parks and playgrounds of recreation to marketplaces. Public space is the setting for a multitude of activities such as festival, trade, the movement of goods and people, provision of infrastructure or the setting for community life and livelihoods. Public spaces must be seen as multi-functional areas for meeting, economic exchange, and cultural expression among a wide diversity of people and should be designed and managed to build peaceful and democratic societies and promoting cultural diversity (2016 Kristie Daniel). Public space plays a crucial role in the quality of a city, however the quality of life of a person depends on several factors (WHO2003).

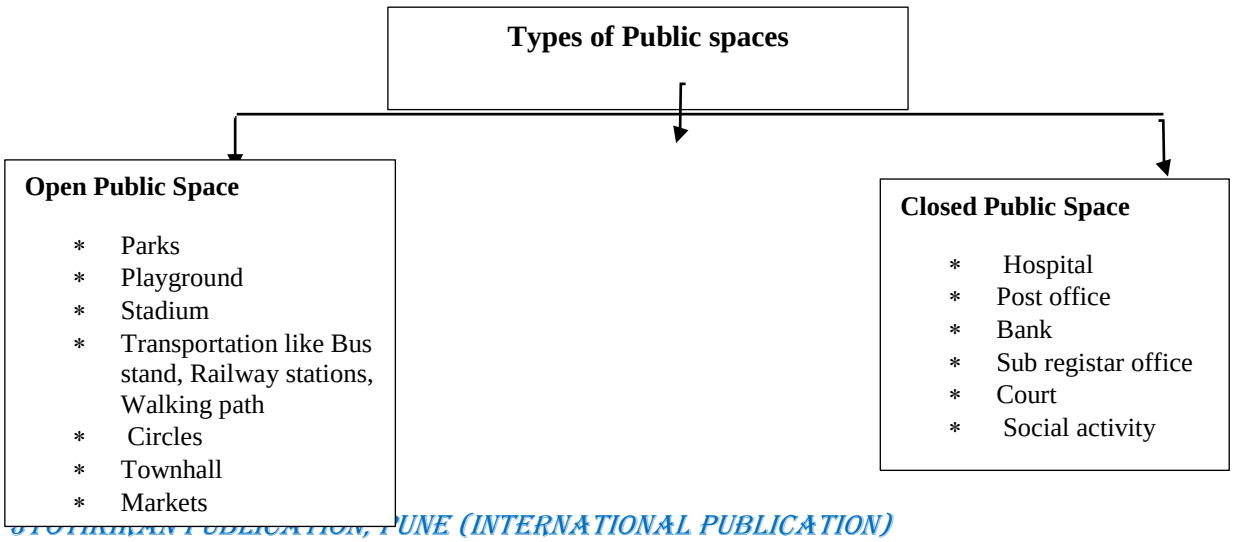
There are significant differences in public spaces across climate zones, in different cultural and social settings and between the developed and developing world, in formal and informal parts of the city, as well as the flexible use of space by different groups of people over time. Public space generates substantial economic value. There is evidence that a well-planned, well- managed public space has positive impact on the price of nearby residential properties.

Types of Public space in Mysore city:

Urban Public spaces are a crucial issue in social, environmental and economic development. The concept of "Public spaces" are changes over time. The Public space examined in the research paper here include areas as public spaces such as Hospital, Post office, Bank, Sub register offices, Court, Park, Bus stand. The enjoyment of free time in public spaces was highlighted in a study examining the different age wise people. There are two types of public spaces like Open Public space and closed Public space.

Open Public space such as Parks, playground, Stadium, Bus station, streets, sidewalk/pavement, Circles like Town hall, Markets. Many of these spaces have been characterized as "every day space". Closed Public space such as Economic activities like post office, bank, court, sub register office, and biological aspects like Hospital. These are all two types of public spaces can provide opportunities for social interaction, social mixing and social inclusion and can facilitate the development of community ties. Neighborhood spaces were important places for people to come together but their significance varied.

Public space a shared resource to improve people's Quality of Life (QOL). Public spaces like a self- organizing public service, The more successful social spaces examined were places that encouraged people to play a role in a the evolution of activities and help these spaces. In this main features of successful public spaces in Mysore city.



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More roads including the pavements are considered public space, as are parks, government buildings which are open to the public. The area is built for a range of various activities including meeting, economic activities, social gathering recreation and entertainments. The physical setting is socially constructed. Urban public space may be open like parks, roads, pavement and closed like government office or building means sub register office, court, post office, bank, hospital these are closed or Indoor public space. In this paper, mapping distribution of public space in Mysore city are shown through the map.

Public space is marked on the above map. Two types of public spaces like open public space and closed public space. Open public space such as parks, circles, community hall, markets.

The total number of parks is 469 out of which 420 are development parks and 49 are public parks, and circles and town hall are in Mysore city, circle names are KR Circle, Doddagadiara circle, chikkagadiyara circle, JSS Mahavidyapeeth circle. Markets is 2 main markets and their names are vanivilas market and Krishnaraja Markerare. Bus stands and railway stations are also public areas. Mysore city has two main bus stations Thus in open public space the public gathers together in an area according to their needs. Closed public spaces such as banks, hospitals, Post Offices, Courts, Sub Registar office these are in closed public spaces. Number of Banks in mysore city 142 these are all main nationalized bank, number of post office is 73 is has 2 Head post office and 71 sub post office, number of courts is 3, number of sub registar office is 4 and total number of hospitals is 23. Thus, open and closed public areas are areas which are very much needed by the people to carry out their daily activities.

There are also types of urban zones which have strong density at the center, and is used in many way. Defined as a part of a city, the design of public space is to be integrated in an overall reflection of the city. Urban intervention is particularly sustainable development of cities. User friendliness promotes the use of public spaces ad therefore the encounters and exchanges can occur there. Therefore, public spaces contribute to the construction of social equality

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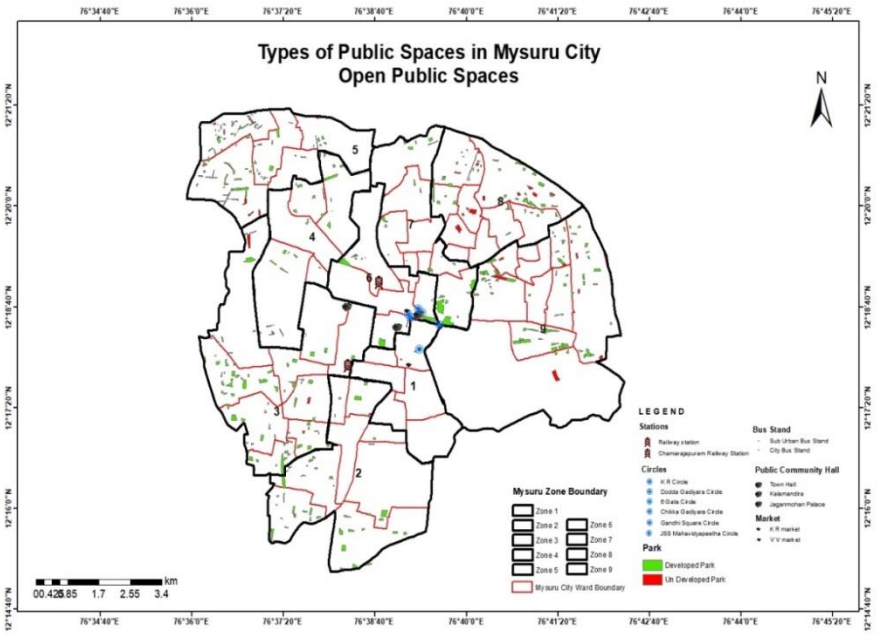

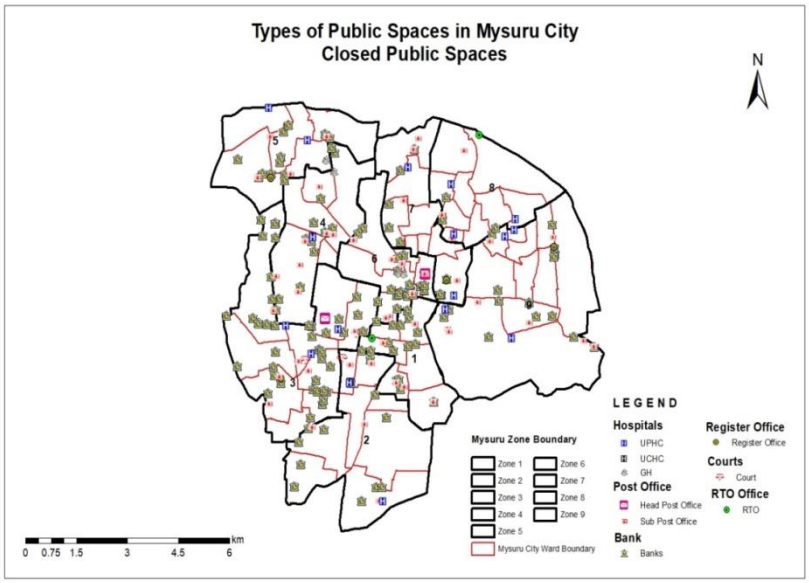

Social Benefits:-

1. Fosters community relationships.
2. Helps in the process of socialization by encouraging community relationships .
3. Helps is bringing different people closer and thus helps in developing tolerance.
4. To young people and marginalized group it gives a sense of territorial ownership.

People of different ages, gender, culture and status really interact within public spaces. Different types of public space encourage a variety of interaction. Different age groups tend to use public spaces at different times of day and for different reasons. Elderly people and children in particular appear to be influenced by the presence of other age groups. Elderly people are frequently absent from public places, especially after dark. In addition to the social function of public spaces, some people

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use them for privacy or to support a sense of territorial ownership. This particularly applies to groups of young people ad marginalized groups.

Conclusion:-

Public space is often a feature of regeneration schemes design alone cannot produce places that become liked and well used. Sustainable communities need dwell designed everyday spaces and places that are well managed, well serviced safe and activated by different forms of economic, cultural, biological, recreation and social exchange. Public spaces play an important role in the social community.

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SYNTHESIS OF BIOACTIVE 3,4-DIHYDROPYRIMIDIN-2(1H)ONES :GREEN APPROACH

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DOI- **10.5281/zenodo.7264337**

Abstract:-

An efficient and rapid one-pot synthesis of 3,4-dihydropyrimidin-2(1H)ones is carried out at room temperature in the presence of molecular iodine(10mol%) by grinding the mixture of benzaldehyde , ethyl acetoacetate , Urea and ammonium acetate . Excellent yield in short reaction time is characterized by simple work up procedure and efficient recovery. The 3,4-dihydropyrimidin-2(1H)ones were synthesized and tested for antibacterial effects against Bacillus Subtilis, Escherichia coli, Staphylococcus aureus and Pseudomonas aeruginosa. The antibacterial screening of the synthesized compounds was performed in vitro by the filter paper disc diffusion method and it is found that the 3,4-dihydropyrimidin-2(1H)ones show good antimicrobial activity.

Keywords:- *Benzaldehyde, ethyl acetoacetate, urea, ammonium acetatate, iodine,*

Introduction:-

3,4-Dihydropyrimidin-2-(1H)-ones is a significant heterocycle due to their interesting biological and pharmacological activities such as antibacterial, antitumour, antiviral and anti-inflammatory activities[1]. Several alkaloids have been isolated from marine sources which contain the dihydropyrimidine core unit. Most notable among these are the batzelladine alkaloids which were recently found to be potent HIV gp-120-CD4 inhibitors[2].Previously different derivatives of 3,4-dihydropyrimidin-2-(1H)-ones have exhibited calcium channel modulators, αa-antagonists and neuropeptide Y(NPY) antagonist[3]. The pyrimidine ring is an integral part of various natural products[4] and serves as a building block for various pharmaceuticals and biopolymers. It also has very good coordinating ability similar to pyridyl ligands in supramolecular metallogrid-like architecture[5]. Pyrimidopyrimidine are also known to be inhibitors of tyrosine kinase of the epidermal growth factor receptor family[6] Numerous reports delineate the antitumor,[7] antiviral,[8] and antioxidant[9] activity of these compounds. Recently, considerable attention has been focused on the development of new methodologies to synthesize many kinds of pyrazolopyrimidine ring systems[10]. Indeed, these compounds are widely recognized as important organic materials with interesting biological activities[11]. The most important biologically active compounds of this class are the formycin, allopuriol, and their corresponding nucleosides.

A number of synthetic methods for the preparation of pyridones and pyrimidines have been reported in the literature due to its broad-spectrum biological activities and its skeleton. In this section we have reviewed some of the important synthetic methods for the preparation of 3,4-dihydro-2-pyridones and 3,4 dihydropyrimidones,3,4-dihydropyrimidin-2(1H)ones which have appeared in the literature recently. Svetlik et al[12] reported the synthesis of 4-substituted aryl-3,4-dihydropyridones , from condensation of aromatic aldehyde , Meldrum's acid , methyl acetoacetate , ammonium acetate and acetic acid in refluxing methanol which afforded desired product in very poor yield even after long reaction period. Rodriguez's [13-14] 3,4-dihydro-2-pyridones was synthesized by solid-phase synthesis using Wang resin from the immobilized ß-ketoester. using microwave irradiation as alternative to conventional heating. Mohan et al[15] have discovered a simple, one-pot conversion of 4,5-diamino-6-chloropyrimidine in equimolar amount of sulfur in DMF to 90–100 ^{0}C for 17 h. Mohammad et al [16] in 2009 reported the use of 2-chloropyridine (2-ClPyr) with trifluoro methane sulfonic anhydride (Tf2O) as a versatile reagent combination for the synthesis of pyrimidine and pyridine derivatives.

Result and Discussion:

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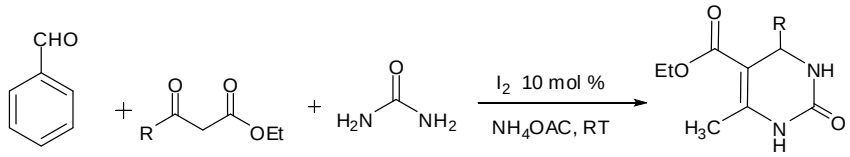
Since 3,4-dihydropyrimidin-2(1H)ones and 3,4-dihydro-2-pyridones serve as valuable building blocks in the construction of piperidines, perhydroquinolones, indolizidines, quinolizidines and other alkaloid ring systems and have a wide range of biological and pharmacological activities.11 .Recently, molecular iodine has received considerable attention as an inexpensive, nontoxic, readily available catalyst for various organic transformations, affording the corresponding products in excellent yields with high selectivity. The mild Lewis acidity associated with iodine enhanced its usage in organic synthesis to realize several organic transformations using stoichiometric levels to catalytic amount. In a model study, in the presence of molecular iodine(10mol%) the mixture of benzaldehyde 1a , ethylacetoacetate 2a-b, Urea 3a and ammonium acetate was grind at RT temperature after 20 min reaction was completed(progress of reaction monitored by TLC) a single spot corresponding to3,4-dihydropyrimidin-2(1H)ones 4a-p. The pure product was isolated by column chromatography and fully characterized.



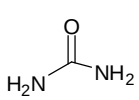
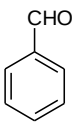
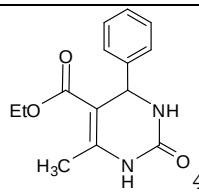
1a R= Et 2a 3a 4a-p
R=Me 2b

Scheme1. green synthesis of 3,4-dihydropyrimidin-2(1H)ones in high yield catalyzed by I_2

The IR spectrum of 4a-h showed absorption at 1565, 1638 and 3438 cm-1 corresponds to C=C, C=N, –NH respectively. The 1H NMR spectrum of 4a-h showed singlet of three protons at δ 3.85 corresponds to ethoxy group, multiplet for ten protons in the region δ 7.25-7.59 for aromatic proton and 12.52 (brs, 1H) corresponds to –NH. The 13C NMR spectrum showed peaks at δ 54.6 and 145.7 corresponding to ethoxy carbon and C=N respectively, elemental data confirms with the structure of 4a-h and corresponds to the known data **(Scheme 1).**

The variety of aldehydes and ethylacetoacetate, urea summarized in Table 1. This protocol is rapid and efficient for the preparation of several 3,4-dihydropyrimidin-2(1H)ones 4a-h from both electrons efficient as well as electron deficient aromatic aldehydes. The aryl groups substituted with different groups did not show any effect on the formation of 3,4-dihydropyrimidin-2(1H)ones. A nearly stiochiometric amount of ammonium acetate was used in the course of the reaction, whereas previously a many-fold of ammonium acetate was required. This is an additional advantage of the novel methodology.

Table 2: Synthesis of 3,4-dihydropyrimidin-2(1H)ones

Sr. No	Urea (3a) Ethylaceto Acetate(EAA) 2a	Aldehydes	Pyrimidines(4a-d)	Time (min)	aYield (%)
01	 **3a**		 **4a**	18	92

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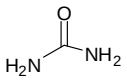
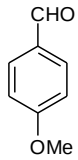
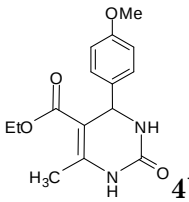
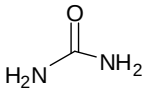
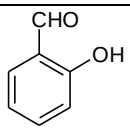
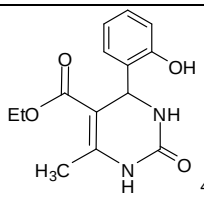
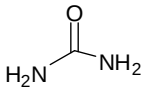
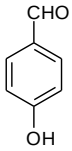
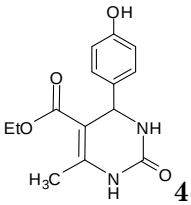
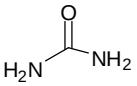
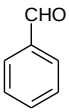
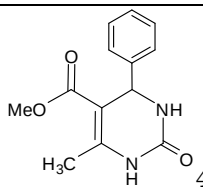
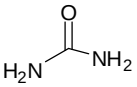
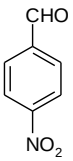
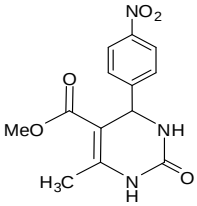
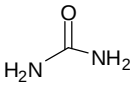
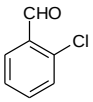
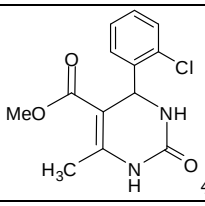
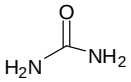
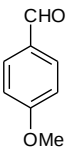
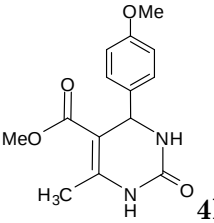
02			 **4b**	16	95
03			 **4c**	15	88
04			 **4d**	24	95
	Methyl Acetoacetate MAA(2b)	**Aldehyde**	**Pyrimidines (4e-h)**	**Time (min)**	**Yield (%)**
05			 **4e**	**20**	**92**
06			 **4f**	**18**	**91**
07			 **4g**	**18**	**90**
08			 **4h**	**20**	**90**

Experimental procedure:-

The 1H-NMR spectra were recorded on a Bruker AC-200 spectrometer with TMS as internal standard with 200 MHz frequency; chemical shifts (δ scale) are reported in parts per million (ppm) relative to the central peak of the solvent. 1H-NMR Spectra are reported in order: multiplicity, approximate coupling constant (J value) in hertz (Hz) and number of protons; signals were characterized as s (singlet), d (doublet), t (triplet), m (multiplet), br s (broad signal).

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The 13C-NMR spectra were recorded at 50 MHz; chemical shifts (δ scale) are reported in parts per million (ppm).IR spectra were recorded on ATI MATTSON RS-1 FTIR spectrometer. Melting points were recorded in an open capillary. The crude products were purified by column chromatography using silica gel (60–120 mesh size).

General procedure for synthesis of 3,4-dihydropyrimidin-2(1H)ones in high yield catalyzed by I2:

A mixture of Urea/thiourea 3a, 3b (4 mmol), substituted aldehydes 1a (4 mmol), ammonium acetate (10 equivalent), ethylacetoacetate (4mmol) and molecular iodine (10 mol%) was stir for the appropriate time mentioned in Table 2. The completion of reaction was monitored by TLC using 25% ethyl acetate in petroleum ether. After completion of reaction, the reaction mixture was diluted with water (25 ml). The solid 3,4-dihydropyrimidin-2(1H)ones products, which separated out, were filtered, washed with sodium thiosulphate and dried. The crude products, thus isolated, were pure (single spot on TLC). They were subjected to further purification by chromatography through a column of silica-gel using 25% EtOAc in petroleum ether as eluent to yield the desired substituted 4,4-dimethylcyclohwxane-1,3-dion (4a-h) in excellent yields of 84-95% and were fully characterized in the form of IR, 1H, 13C-NMR spectral and elemental analyses and mass spectroscopy.

Antimicrobial Activity:

The antibacterial activities of the synthesized compounds (4f) and (4g) were studied against four bacteria, viz. Bacillus subtilis (G+), Escherichia coli (G–),Staphylococcus aureus (G+) and Pseudomonas aeruginosa (G–). For the detection of antibacterial activities, the filter paper discs diffusion method was used[17]. Streptomycin sulphate was used as positive control. Nutrient agar (NA) was used as basal medium for test bacteria. The discs were prepared by impregnating them in methanol solution of each sample (1 mg/1 mL). Each culture was prepared to a turbidity equivalent to McFarland and spread on the test tube. The paper disc containing the compound was placed on the agar surface previously inoculated with suspension of each microbe to be tested. All determinations were made in duplicate. Inhibition diameter was determined after incubation at 37°C ± 1 for 24 h. The antimicrobial activity was indicated by the presence of the clear inhibition zones around each disc. Minimum inhibition concentration: The determinations of the minimum inhibitory concentration (MIC), the serial dilution technique was followed using nutrient broth medium. The MIC was defined as the lowest concentration of samples that had restricted the growth of microbial. The MIC value of compound(g) was determined against Escherichia coli (G–).

Table 03:- Antimicrobial Screening of 4f &4g

Organism	**3,4-dihydropyrimidin-2(1H)ones(4f &4g)**	Streptomycin sulphate
Bacillus subtilis	13·5 ± 0·3	22·0 ± 0·3
Staphylococcus aureus	--	22·5 ± 0·7
Escherichia coli	12.5± 0·3	22·0 ± 0·0
Pseudomonas aeruginosa	--	22·0 ± 0·0

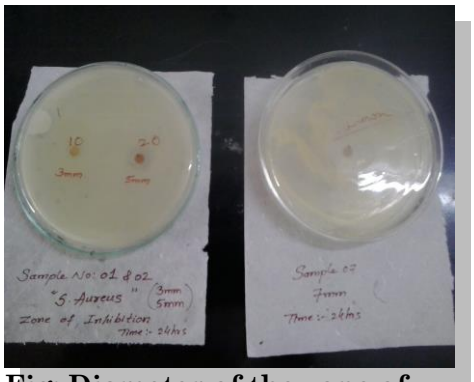

Fig: Diameter of the zone of inhibition (mm)

Antimicrobial Screening:

The antibacterial activity of compounds (4f) and (4g) has been assayed at the concentration 1000 µg/mL against four human pathogenic bacteria. Among them two were gram-positive and the other two were gram negative. The inhibitory effect of compounds (4f) and (4g) against these organisms are given in Table 3. The screening results indicate that compounds was active against a gram negative bacteria, Bacillus subtilis and Escherichia coli with a

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mean zone of inhibition 13·5 ± 0·3, 12·5 ± 0·3 mm (Table 3).

Determination of the minimum inhibitory concentration (MIC) :

The active sample in the disc diffusion method was then tested for its activity by the serial dilution method to determine the minimum inhibition concentration (MIC). The MIC value obtained for 3,4-dihydropyrimidin-2(1H)ones was 1000 µg/mL against Bacillus subtilis and Escherichia coli.

Conclusion: - In conclusion, we have developed a mild, simple, straight farward, convenient and green protocol for the synthesis of a library of Synthesis of bioactive 3,4-dihydropyrimidin-2(1H)ones with shorter reaction time.3,4-dihydropyrimidin-2(1H)ones was 1000 µg/mL against *Bacillus subtilis* and *Escherichia coli*.

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Spectral data:-

Methyl-4-(4-methoxyphenyl)-1,4,5,6-tetrahydro-2-methyl-6-oxopyridine-3-carboxylate (4h):

M. P. (0C) : 188-189
IR (CHCl3, cm-1) : umax 1038, 1215, 1669, 1705, 3019, 3218.
1H NMR : δ 2.40 (s, 3H), 2.66-2.72 (dd, J= 16.5, 1.3 Hz, 1H), 2.91-3.03
(200 MHz, CDCl3) (dd, J= 16.8, 7.5 Hz, 1H), 3.66 (s, 3H), 3.75 (s, 3H), 4.21-4.26
(t, 1H), 6.76-6.79 (d, J= 8.0 Hz, 2H), 7.08-7.09 (d, J= 7.8 Hz, 1H), 7.90 (brs, 1H)
13C NMR : δ 18.8, 37.7, 38.4, 51.6, 55 7, 106.8, 114.3, 128.8, 133.5, 146.8,
(50 MHz,CDCl3) 158.0, 167.3, 170.2.
Elemental Analysis : C15H17NO4 Calcd. C, 65.44; H, 6.22; N, 5.09.
Found C, 65.34; H, 6.09; N, 4.98.

Methyl-4-(4-nitrophenyl)-1,4,5,6-tetrahydro-2-methyl-6-oxopyridine-3-carboxylate (4f)

M. P. (0C) : 208-209
IR (CHCl3, cm-1) : umax 1159, 1215, 1352, 1618, 1673, 1702, 2400, 2953, 3240.
1H NMR : δ 2.45 (s, 3H), 2.63-2.72 (dd, J= 16.6, 3.0 Hz, 1H), 2.94-3.06
(200 MHz, CDCl3) (dd, J= 15.1, 3.0 Hz, 1H) 3.65 (s, 3H), 4.34-4.37 (t, 1H),
7.37 (d, J= 8.2 Hz, 1H), 8.00 (brs, 1H), 8.14 (d, J= 8.0 Hz, 2H).
13C NMR : δ 19.3, 37.6, 37.9, 65.1, 105.8, 124.1, 127.4, 147.3, 149.5, 166.8,
(50 MHz,CDCl3) 170.2.
Elemental Analysis : C14H14N2O5 Calcd. C, 57.93; H, 4.86; N, 9.65.
Found C, 57.82; H, 4.78; N, 9.55.

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Exploring the Impact of Artificial Intelligence on Teaching and Learning in Higher Education: Research and Practice in Technology Enhanced Learning

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Abstract

Artificial Intelligence currently became a region and parcel of each one' life. it's started penetrating in virtually every aspects of human life as well as education. during this abstract paper the author tried to explore the emergence and use of AI within the educational arena. The paper speaks concerning the advancements in recent technologies that predict the long run of education system. The introduction to new technologies in the tutorial field has brought out several advancements in the learning designs and methodologies of teaching learning method in the classrooms. AI has increased the educational state of affairs of this educational organization.

Keywords: *Intelligent auto-assessment, Education, Artificial Intelligence, Machine learning, customized learning.*

Introduction

Artificial education intelligence (AIEd) is one among the rising educational technological fields. A most obvious question that comes up is, is it doable to confirm quality in higher education? will Use of AI and sister technologies facilitate us deliver within the mission? can it's ready to tackle all or most of shortcomings in the field of education? This study aims during a systematic review to produce a summary of AI applications analysis in education. Technology use in education and learning has undergone a noteworthy transformation in the education sector. so as to accomplish this purpose, a mensuration approach was employed by open finish form for a survey of scholars. This chapter examined the possible impacts of artificial intelligence on universities. The empirical findings indicate that the data of AI is declining and there's a requirement to disperse knowledge of technology in higher education. educational practices have undergone a forceful modification as a results of the event of latest educational technology. AI (AI) as a teaching and learning technology are examined during this theoretical review study. to boost the standard of teaching and learning, the employment of artificial intelligence approaches is being studied. AI integration in educational establishments has been addressed, though. Students' assistance, teaching, learning, and administration also are addressed within the discussion of students' adoption of artificial intelligence. The use of computing (AI) is currently determined in most areas of our lives. computing may be a thriving technology to rework all aspects of our social interaction. In education, AI will now develop new teaching and learning solutions which will be tested in numerous situations. instructional goals are often higher achieved and managed by new educational technologies.

II AI-Application-Oriented In-Class Teaching analysis

The approach folks travel, organise their time, and acquire info has modified thanks to information technologies. computing (AI) and machine learning (ML) are mechanisms that evolved from knowledge management and developing methods. Incorporating these mechanisms into business may be a trend many various industries, as well as education, have known as game-changers. As a result, education platforms and applications are a lot of closely aligned with learners' wants and knowledge, creating the academic process more efficient. Therefore, AI and metric capacity unit have nice potential in e-learning and better education establishments (HEI). The study addresses important issues, like public knowledge and

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stance of research bases relating to AI and metric capacity unit in HEI; best practices regarding usage of AI and metric capacity unit in HEI; students' information of AI And metric capacity unit; and students' attitudes relating to AI and metric capacity unit opportunities and challenges in In applied mathematics considerations, planning to measure if the symptoms were thought-about reflexive and, during this case, belong to identical theoretical dimension, the matrix was presented, followed by the Composite Reliability. In a very classroom, academics are committed to coming up with teaching activities, whereas students perform learning activities beneath the steering of teachers. Whichever aspect goes wrong could have an effect on the entire in-class performance. the strategy of in-class teaching evaluation has in the main seasoned 3 stages:

(1) within the early stage, investigators were organized to travel into school rooms for sophistication observation, and so evaluated in-class performance by victimization traditional assessment scales and questionnaires;

(2) The emergence of video recording technology created it doable for a few courses to use videos rather than room observation, nonetheless these videos still have to be compelled to be watched manually for analysis;

(3) Driven by the demand for convenience, efficiency, and accuracy, rising AI (AI) technology makes the automated analysis of in-class audio and video knowledge become a reality, so substitution the manual analysis workloads.

III AI in Education for Next Generation

The performance of students and academics is calculable supported several criteria. In general, teachers judge students for certain predefined reasons: discipline, creativity, participation, speed of learning, obedience to the teacher, and so on Among them, the eye to the topics of the code and strength to breed their understanding within the communication occupies the primary place in the list. Marks/grades for the student' data of the topic space at the highest of the list for several reasons. The necessary reasons are the appropriateness that an educator ought to judge a student supported their responses to queries over a given time. Student learning models and teacher teaching models modification from time to time thanks to several of those deviations. within the current scenario, students would like an easy thanks to learn, and that they are expected to be mentors. This modified the structure of teaching and teaching materials. the utilization of AI in education has attracted attention in the following ways:

• Automation: the only use of AI typically provides the foremost immediate benefit: by automating simple tasks corresponding to evaluating, classifying digital assets, or schedule, academics will increase time interacting with students.

• Acclimation: Today' technology is an integral part of such an academic and business environment. On the newest information from bench Research, 95% of adolescent's approach to their sensible phones, whereas 45% are nearly always on the network. AI in colleges can facilitate students begin the technological change.

• Integration: AI answer is integrated with different IT initiatives corresponding to intelligent technology and a managed IoT network to produce applicable solutions to show students.

• Delineation: Student wants and syllabus priorities are perpetually changing, and making certain that the content provided by academics has relevancy and practical, AI-driven Analytics in education helps determine key trends, draw key markers, and facilitate academics develop the foremost effective schoolroom that drives digital transformation.

• Identification: information analysis permits North American nation to know that adaptive AI solutions are going to be distinctive necessary areas for the learner. With robust security, access control, you'll sight and handle the formation problem.

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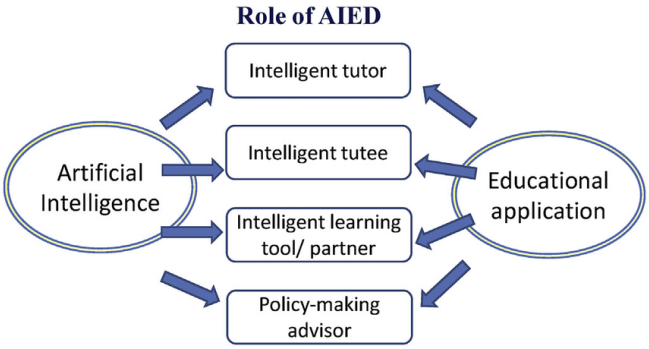

Personalizing Learning: The program in AI, normally referred to as AN intelligent system tutor (ITS) or adjective tutor, involves student' dialogue, respondent questions, and giving feedback. ITS and adaptive lecturers adapt learning materials, pace, sequence, and severity to satisfy the wants of every student. The AI may additionally support a student' special needs, equivalent to teaching children-to acknowledge facial expressions.

IV Opportunities and Challenges of computer science and Machine Learning in instruction establishments

The recent reviews recommend that analysis relating to AI in Education is especially focused in developed countries and is proscribed within the developing world. There are multiple limitations or challenges Janus-faced by each country to leapfrog education systems mistreatment AI technology opportunities. Let's have a fast look on these limitations here.

1: AN comprehensive public policy on AI for development.

though' AI holds unimaginable potential for rising education systems, the 360-degree inclusion of AI in education wants a sturdy policy support. Education leaders ought to be power-assisted financially, yet as ethically, to specialize in shaping learners who have the talents to thrive within the AI society.

2: Inclusion and Equity in AI in Education

AI could deepen the prevailing inequalities and divides as a result of the deprived populations might get excluded from AI-powered education, leading to a digital divide. Digital divide could be a new reasonably divide where there exists a divide within the use of empirical data for intelligent call making.

- Urgency of infrastructure in developing countries
- Learnings from previous experiences in terms of digital rights
- AI edges for the deprived teams and populations
- shut the academic gap between economically wealthy and poor students
- shut the gender gaps

3: getting ready lecturers for AI-powered education

it's of utmost importance to handle the prevailing problems that lecturers face. lecturers stay at the frontline of education as artistic and social-emotional aspects of teaching will ne'er get neglected. during this lane, AI-powered software system in education should fabricate a solid scaffold in cognition, classrooms, and large-scale check scores

4: Develop quality and inclusive data systems

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the info we've is sporadic, erratically distributed, and limited. Also, learning results are connected tightly with the emotional health, socio-economic status, family, and background of the students. In addition, government policies and connected factors would possibly modify educational performance.

5: Ethics and Transparency

There are bound social group and moral issues to be addressed whereas implementing AI. Technology is rising quickly and what's not possible these days will become possible tomorrow. information privacy and security is that the immediate question that comes up in any discussion relating to data ethics. The challenge lies in mistreatment personal data while guaranteeing the protection of individual privacy preferences and in person recognisable information.

Conclusions

College students these days have a wonderful chance to be told in associate degree interactive and individualized setting. AI, in particular, is capable of aiding with each of those issues. AI, fed and learned from massive data, will give students with individualised learning experiences. Simultaneously, professors can discover new ways that totally different students learn and advise them on trade their teaching ways to satisfy their needs.

schools, universities, and different academic establishments and EdTech corporations can profit additional from these technologies if they're willing to do new approaches and, as a result, gain a competitive advantage. If these institutions are desperate to implement AI methods, they'll meet the increasing demand for accommodative associate degreed individualized education. Adopting an information science approach centred on mil as a tool is an exciting new thanks to promote AI and mil in instruction.

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A NEW GRASS GALL-MIDGE (CECIDOMYIID : DIPTERA) FROM INDIA

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Abstract

This contribution reports the description of a new species, lasioptera bothriochloae, reared from the earheads of Bothriochloa pertusa (L.) (Willd.) A. Camus, in the University Campus, Nanded. The new midge can be distinguished in the number of antennal segments, absence of vein M_{1+2}, subdotsal plate being entire, and oblong lobes of ovipositor.

Male :

Body 1.04 mm long. Palpus quadriarticulate, sparsely setose ; first segment short, indistinct in the preparation; second segment cylindrical, length 1.85 X its maximum thickness (13 : 7); third segment cylindrical, 3.00 X its maximum thickness (15 : 5); fourth segment cylindrical, longest of all, length 5.25 X its maximum thickness (21 : 4). Antenna : less than half the length of the body, with 2+12 sessile, cylindrical segments with two whorls of long setae, low circumfila ; scape cup—shaped (17 : 12); pedicel globose (13 : 13) : third segment (19) confluent with and longer than fourth, enlargement with a very small basal prolongation (4:3) length 1.66 X its maximum thickness (15 : 9); fourth segment (15) with enlagement 1.87 X as long as thick (15:8); fifth segment nearly similar to the fourth; sixth to ninth segments nearly similar and shorter than ninth; penultimate segment (11) slightly shorter than twelfth; terminal segment (12)

slightly longer than penultimate, conical, length 1.70 X its maximum thikness (12:7); wing hyaline, 2.50 X as long as broad (50:20); costa sealed, R_6 meeting costa beyond the middle of the wing and interrupting at its union; M_{1+2} absent, Cu forked; legs thickly hairy, metatarsus short (7), second tarsal segment longest of all (51), terminal tarsal segment longer than metatarsus (10) ; claw dentate on all legs, empodium 0.50 the length of the claw (5:10); geratalia ; basal clasp segment cylindrical, 3.20 X as long as broad (48:15), with finely setose rourded basal lobe; terminal clasp segment slender gradually tapering towards the tip, ending in a tooth, length 4.33 X its maximum thickness (26:6); dorsal plate broadly and decply incised, lobes triangular; subdorsal plate shorter and narrower than dorsal, entire; aedeagus slender, rounded apically, length 6.25 X its maximum thickness (25:4), surrounded by paramerc lobes, tips of the latter bifid.

Female :

Body 2.10 mm long including ovipositor, Palpus as in male Antenna less than ¼ the body length, with 2 : 14 cylindrical, sessile segments, low circumfila, two whorls of long setac; scape and pedical as in male; third segment (20) confluent with and longer than fourth, enlargement with a very small basal prolongation (2:4), length 1.63 X its maximum thickness (18 : 11); fourth segment (17) with enlargement 1.70 X as long as thick (17 : 10); fifth segment (15) shorter than fourth : sixth to tenth segments similar to each other and slightly shorter than fifth (14); eleventh and twelfth segments similar and shorter than tenth (12); thirteenth and fourteenth segments shorter than twelfth (10); penultimate segment (10) as long as fourteenth; terminal segment (11) conical, slightly longer than penultimate and 1.37 X as long as thick; wing, legs and claw as in male. Ovipositor nearly as long as abdomen, prouactile, typical lasiopteran type, dorsal lamella 3.12 X as long as broad (50 : 16); sparsely setose, densely hairy at the tip, with a row of recurred hooks at the sub apical region; ventral lamella very small, densely hairy.

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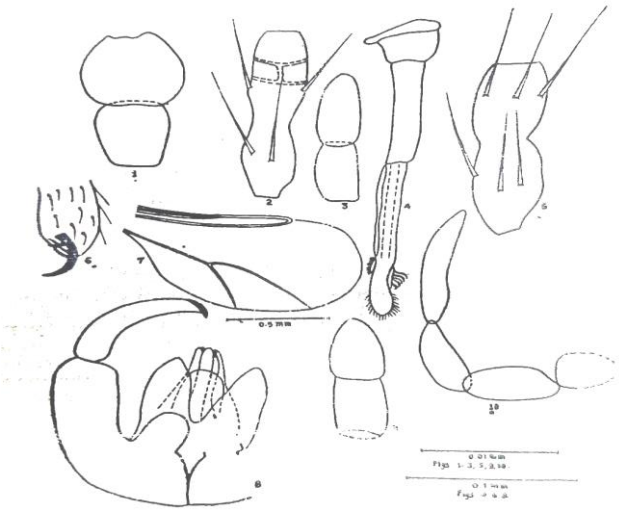
A new grass gall- midge



Lasioptera bothrioehloae sp. Nov.
(Figs. 1-10)
1-3, 6-8 and 10. Male : 4,5 and 9, Female.
1. Scape and pedical. 2. Third and fourth antenual segments. 3. Terminal two antemal sesments, 4. Ovipositor, 5.Third and fourth antennal segments. 6. Claw, 7. Wing, 8. Genitalia, 9. Terminal two antennal s egments, 10. Palpus.

Materal

Holotype : One male dissected and mounted on slide labeled as reared from earheads of Bothriochloa pertusa (L.) (Willd.) A. Camus, University Campus, Nanded, India, 24 . ix 2019 Coll. P. R. Surve. Type slides and other material are retained, for the present, in authors coliections at B. S. College, Basath, India.

Paratypes : Two males and one female dissected and mounted on slides, many males and females in aicohoi, data same as in holotype.

Allotype : One female dissected and mounted on slide labeled as in holotype.

Discussion

Lasioptera bothriochloae sp.nov. (Figs. 1-10)

Remarks

This species very closely resembles L. tomentosae (Grover, 1967) but differs in the (i) different proportions of palpal segments, (ii) number of antennal segments, (iii) absence of vein $M_{1+2'}$ (iv) subdorsal plate being entire, and (v) ovipositor lobe being 3.12 X as along as broad.

Acknowledgement

Thanks are due to the Vice-Chancellor, Swami Ramanand Teerth Marathwada University, Nanded for awarding a result of junior auther as research guide and permition to collection.

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LIFE CYCLE OF *TRILOCHA VARIANS* WALKER (LEPIDOPTERA : BOMBYCIDAE) UNDER LABORATORY CONDITIONS ON *FICUS BENJAMINA* L.

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Astract

Life cycle of Trilocha varians (Lepidoptera : Bombycidae) was studied under laboratory conditions on foliage of Ficus benjamina. The larvae feed on the foliage of Ficus benjamina L. and cause serious damage to the plant in the form of complete defoliation. The study showed that total life period of T. varians from egg to adult was 26- 33 days. The fecundity of female ranged from 100-120 under laboratory conditions. It has five larval stages. Higher rate of mortality was recorded in first two instars and gradually reduced in later instars.

Key Words : *Trilocha varians, Ficus benjamina and Biology.*

Introduction

Insect herbivores play a significant role in the management of ecosystem. If the population of insects increases abruptly in an any give area, it will cause serious damage to floral elements. Insects population, their breadth of diet can be determined by studying life cycle in field as well as under controlled conditions. Life cycle or life table data is an analytical tool that becoming predictable in these days, used by many entomologists to study the population dynamic of insects. The *Ficus benjamina* L. is decorative ornamental plant which belongs to family Moraceae. It also has medicinal properties (Zoloutin and Witt, 2009). During the present studied *F. benjamina* was found infested with severe infestation of *Trilocha varians* (Lepidoptera: Bombycidae). The immature forms of *T. varians* feed on foliage of wide variety of plants such as *F.benghalenesis, F. infectoria, F. elastica* , as well as *F. religiosa*. The family Bombycide is comprised of four subfamilies; Apatelodinae, Phiditinae, Prismostictinae, and Bombycinae, (Lemaire and Minet, 1998). The genus *Trilocha*, with 20 others including *Bombyx*, is member of the sub family Bombycinae (Lamaire and Minet, 1998; Zoloutuhin and Witt, 2009). *Bombyx mori* (domesticated silk worm), the Lepidopeteran model insect of Bombycidae and its wild species *B.mandarina* were the most studied. Recently, the third species *Trilocha viricans* was studied by various workers to increases the knowledge of species related to *B.mori* (Diamon et al., 2012). The young larvae of *Trilocha varians* are feed on leaves, twigs and tender shoots also. In earlier studies, *T. varians* is reported on species of *Ficus* from Tamil Nadu, Hariyana, Karantaka, in India (Singh & Brar, 2016).

Rationale of the study

It is very important to monitor the insect population associated with ornamental plants, roadside avenue trees as they cause severe damage to the plants in outbreak conditions. During the study, it was observed that immature forms of *T. varians* heavily infested plants *F. benjamina* L.

Objectives

The present study was carried out with the following objective.

1. Laboratory observation on the life cycle of *T. varians* Walker on the foliage of *F. benhamina* L.

Hypotheses:

Selection of larval food plants for the immature stages by the adult females is a well studies aspect in butterflies and other group of insects. The change in habitat and larval food plant can alter the life cycle of insects. It is seen especially in the duration required for completion of different stages of life cycle. The nutrition factor is also responsible for the growth and development of insect.

Methodology

Sampling site

Immature stages such as egg, larvae and pupa of insect were collected with the help of

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forceps from infested *Ficus benjamina* L. plant surrounded in the campus of collage.

Insect collection and Identification

The routine insect collection method was followed as per Alfred & Ramakrishna (2004). Identification of emerged adult from laboratory stock culture was based on published literature (Hampson,1892). Photograph of natural field infestation, and live and preserved specimens were taken using a digital camera.

Collection of leaf and Culture Maintenance:

The larvae collected from sampling sites were kept into separate plastic trays. The fresh leaves of *Ficus benjamina* L. were collected and washed using water to remove an impurity then to wipe the leaves and then placed into trays containing *T. varians* larvae for feeding purpose. Fresh leaves were provided as a food to growing caterpilars. After the completion of larval period newly formed pupae were transferred to separate trays. After the emergence of moth, the paring was done for mating purpose. After the mating females were placed in separate containers for egg laying on tender leaves of *F. benjamina* L. The eggs laid on the foliage were separated and kept for incubation.The data regarding fecundity, egg incubation period, larval duration, pupal duration and adult longevity was recorded during the laboratory studies. Culture of *T. varians* was maintained at at room temperature in the laboratory.

Analysis and Data Analysis

Eggs (Plate no. 2)

During the study, it was observed that 100 to 120 eggs were deposited by adult female in rows on the walls of containers while on the dorsal surface of the leaves in field conditions. Newly laid eggs were light yellow in colour. At the time of hatching, eggs were black in colour. Eggs were round & flat. Incubation period of eggs range from 5 to 8 days. Immediatley after hatching larvae did not feed on egg shell (Chuenban et al., 2017). Ramzan et al., (2020) studied effect of temperature on life cycle of *T. varians* and reported 6 days of incubation period.

Larval Development (Plate no. 2):

Caterpillars were cylindrical in shape with three pairs of thoracic legs and five pairs of abdominal legs. Presence of caudal horn is a distinctive feature of the caterpillar in all instars. The head was black in colour. There were 5 larval instars. The duration required for the completion of larval development is shown in table no. 1. The results obtained are in line with Ramzan et al. (2020) but the temperature can influence the duration required for development of larva. Earlier larvae of *T. varians* were reported foliage of different species of *Ficus*. Navasero et al., (2013) reported occurrence of caterpillars on Jackfruit and on some ornamental species of *Ficus*.

Table 1. Duration of different stages required for completion of life cycle of *T. varians* Walk.

Stages	Range (days)
Incubation period	5-8
1st instar	3-5
2nd instar	2-4
3rd instar	3-4
4th instar	3-4
5th instar	5-8
Pupa	5-6
Adult	5 to 8 days

Pupal Development (Plate no. 2):

Full grown larvae stops feeding prior to pupation and secrete silk threads to prepare a cocoon. Larvae cover themselves in a silken cocoon and pupate within. Initially the colour of pupa is white later turns into Pink colour. Pupa is obtect type. The results obtained about pupal duration and morphology were significantly line with Ramzan et al. (2020); Rajavel and Shanthi (2007) and Diamon et al (2012).

Adult (Plate no. 2):

Earlier studies on adult longevity reports differences in the longevity of male and female moths (Ramazan et al., 2020; Diamon et al., 2012; Jia and Jinxin, 1997).

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The head, thorax and abodomen of the moths shows dark reddish brown colour. The morphology of moth was described by Hampson (1892). The mated female laid the eggs in rows on the wall of rearing containers in the laboratory. In field, eggs were observed in rows on undersurface of tender leaves of *F. benjamina*. After egg laying female moths dies. Similar observations were reported by Udayagiri (2006).

Conclusions:

The data obtained from the present work reveals that physical factors of any habitat plays a very significant role in the development of insect. It is also associated with type of floral components available in habitat.

Recommendation:

Heterogeneous plantation practice is recommended to avoid insect pest attacks

PLATE NO. 1 : Rearing of *T. Varians* Walk on foliage of *F. benjamina* L.

Figure No.1 Foliage of *F. benjamina* L.

Figure No.2 : Adults in plastic jars

Fig. 3. Larvae in container

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PLATE NO. 2 : Developmental Stage of *T. varians* Walk.

Figure No. 1. Newly laid eggs in rows

Figure No. 2. Larva

Figure No. 3. Pupa enclosed within silken cocoon

Figure No. 4. Mating of Adult moths

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VECTOR GRAPHICS IN DESIGNING: A SEMIOTIC PERSPECTIVE

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Abstract-

Illustrator is used by artists and graphic designers who create logos, icons, diagrams, infographics, posters, advertisements, books, magazines, and brochures. Even comic book illustrators use it. It is an industry standard software application for anyone who wants to use vector graphics on the go. We can create small file size designs that can be printed with high quality. It is most commonly used to create company logos, illustrations, charts, diagrams, cartoons from real photos, any promotional advertisement and other promotional purposes, and even personal works, including print and digital formats. Using Illustrator you can easily create and edit any object as it does not require any prior knowledge of drawing or painting. We can create anything like in freehand drawing. Importing photos is a major feature in the program and can be used as a guide for tracking the colour of a specific subject and changing it to an artwork that provides a view similar to a freehand drawing. Illustrator enables designers to convert images into sketches, enabling them to check designs and make structural modifications. ... Once the project is in the development stage, architects and engineers can digitally transform the structure, interior, and landscape. By studying various concepts of designing and gathering information from various sources, would like to show how vector graphics in adobe illustrator helps the artists and designers make their work simple and elegant for both personal, educational and commercial usage.

Keywords - *Designing, Architecture, visual communication, Artists and Adobe illustrator.*

I-Introduction

Vector Graphics use mathematical equations to draw their designs. These mathematical equations are transformed into points connected by straight lines or curves (also called vector paths) and constitute all the different shapes you see on a vector diagram. This allows vector graphics to be scaled to any size without sacrificing image quality and keeping the file size small. Common vector file formats are .svg, .cgm, .odg, .eps and .xml.

The vector format is suitable for projects that require scalable graphics (including scalable text and fonts). For example, company and brand logos are displayed in different sizes; appear in the corners of mobile apps or on roadside billboards. Logos created with vector graphics can be enlarged or reduced without losing quality or creating large files. Scalability [1], The vector format is suitable for projects that require scalable graphics (including scalable text and fonts). For example, company and brand logos are displayed in different sizes; appear in the corners of mobile apps or on roadside billboards. Logos created with vector graphics can be enlarged or reduced without losing quality or creating large files. After fell out of favour with raster graphics in the 1980s, the scalability characteristics of vector graphics led to its return. Vector graphics were first used on computer screens in the 1960s and 1970s. The World Wide Web Consortium is dedicated to the Vector Markup Language, which evolved into an open source language containing vector and raster elements[2], scalable vector graphics. Web and

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application development. Vector graphics are useful in web and application development because web applications and the graphics they contain must be suitable for various screen sizes and device types [3]. For example, Amazon Work Link is a mobile application that enables a fully interactive representation of company data on employees' mobile devices. animation. Animated images are also usually created as vector files to provide clearer and smoother images. Computer Aided Design (CAD). CAD programs often use vector files for manufacturing, engineering[4], and design because of their scalability and easy editing of mathematical formulas.

Need and Objectives of the Study

Semiotics in animated advertising is an exciting professional discipline. Due to its charm and ability to attract a large audience through signs and symbols, it is widely used in advertising and marketing. Although we have all discovered animation today, the concept, type, mode and use of animation is not the preferred load.

Students will learn to use vector art to solve visual problems, and when they become entry-level designers, they will gain an important additional skill. In addition, they learn to exchange ideas, close to the real world work environment.

Research Methodology

This is an evaluation work based mainly on secondary statistics such as magazines, articles and web blogs. Literature is collected online from the KLEF Deemed Academy library in the Guntur district. This work is based entirely on my professional knowledge, and I quote actual works by different authors where necessary.

II-Theoretical and conceptual frame of semiotic:

The semiotic conceptual framework combines the reasoning mechanisms and description methods of established conceptual theories, rather than reinventing them. But these standard theories are reinforced by the expression of semiotics. Semiotics theory is a framework in which three types of images can be classified according to how they allow understanding. These categories include icons, indexes, and symbols. Icons, indexes, and symbols provide a coordinated way to discuss how to express meaning through the relationship between objects, representatives, and interpreters (Chapman, 2004). icons express "meaning" by using similarity and work by imitating the visual characteristics of the objects they represent. indexes convey the relationship between the signifier and the signified. The operation of symbols is not to use vision or concepts to connect to meaning, but through socially established conventions (that is, something that must be learned before to understand the meaning of symbols) (Pierce, 1982; Mahin et al., 2001; Chap Mann, 2004; Chandler, 2005).

III- Adobe Illustrator in designing

Adobe Illustrator is a popular vector graphics editing program for designing primarily vector graphics. Artists and graphic designers use it to create vector graphics. So far it is the simplest way to generate and edit scalable content that can be played at any size on various media [5], We can create a small file size design that can be printed with high quality. It is most commonly used to create company logos, illustrations, graphics, diagrams, cartoons from real photos, any promotional advertising and other promotional purposes, and even personal works, including print and digital formats. Using Illustrator you can easily create and edit any object as it does not require any prior knowledge of drawing or painting. We can create anything like in freehand drawing. Importing photos is a major feature in the program and can be used as a guide for tracking the colour of a specific subject and

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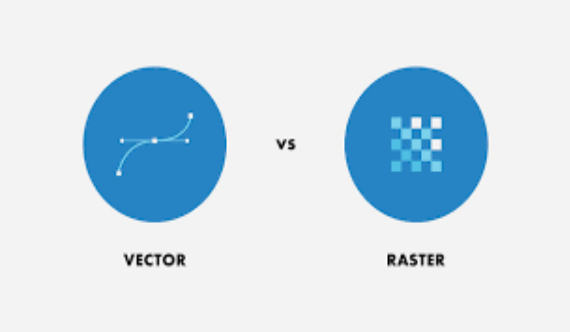
changing it to provide a work of art that resembles a freehand view.

IV-Vector vs Raster Graphics

Vector files are composed of points and lines to create paths, which can be enlarged and reduced without loss of quality[6], This makes vector files the best format for graphic assets such as illustrations, icons, and company logos, because the same file can be used for designs ranging from mobile applications to large billboards without sacrificing quality or increasing file size.

Raster images are composed of many small squares called pixels, usually called "bitmap" images. When zooming in close, a single pixel can be observed.



Source from web

V-Semiotics in Designing

In its simplest form, semiotics can be described as the study of symbols. It is not a symbol that we usually think of as a symbol, but a symbol in a broader context, including anything that can express or express a separate meaning. Paddy Whannel provides a slightly different definition. "Semiology tells us what we already know in a language that we will never understand." Paddy's definition is partially correct[7],

The language used by semiotics may often be redundant. In fact, semiotics involves what we already know, at least on an intuitive level. However, semiotics is still important to designers because it enables us to understand the relationship between symbols, what they represent, and the people who should explain them - the people we design for. Semiotics (derived from the Greek semeîon, "symbol") aims to study and understand the nature of symbols and the laws that govern them. Semiotics represents a series of studies in art, literature, anthropology and the media, rather than an independent discipline[8], The disciplines involved in semiotics include linguistics, philosophy, psychology, sociology, anthropology, literature, aesthetics and media theory, psychoanalysis, and education.

VI - Mainstream Semiology & Semiotics

Semiotics, semiosis, semiology: a study of signatures and signatory, processes and signatories, signs and semantic systems. A process study that the sign and symbols are significant. The signs are seen as basic components of the meaning[9], Semiotics is related to the way they were generated and maintained and the signs were maintained. This is the reason why semions can be called a study process. Signifier: There are some alternatives or somehow. The orally written words are Signifier. Then, the brain replaces the signer for the definition of work. For example, the word "tree" is a Signifier You can not create a log cabin of the word "tree". However, the brain can create a trunks cabin of an alternative to the "tree". Meaning: What does the signifier refer to (see Significant). There are two types of meaning: Connotation: refers to the meaning but has a deeper meaning. An example provided by Barthes is "tree" = lush green, shade, etc[9], Extension: What it really refers to, much like a definition, but using brain language.

VII- Advantages of vector designing

The details in the vector image are clearer and the lines are finer. Regardless of the size of the image, this maintains the visual appeal of the design. The same cannot be

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said for bitmaps, because if the actual image size or layout changes, the final product will look blurry.

Source from web

These vector illustrations can be easily developed using creative programs like Vector. This is particularly useful because the end result can be used to demonstrate the complexity of the product. Not to mention, the added complexity in design can help win over the most demanding customers. Vector design can be scaled to any size without sacrificing visual quality. [10], This is a crucial factor for designers or digital artists because their logo can be used on various platforms, whether it's on a huge billboard in the city centre or a small part of a business card.

Source from web

VIII. Conclusions

This stage began with an extensive conversation about the design and layout of vector and raster graphics, after which various limitations and problems were resolved. Finally, the impact of many efforts and investigations is discussed.

Discussion

This observation provides marketers with a simple understanding of the effectiveness of semiotics in designing. Designing is just a compilation of new creative ideas put onto a digital platform in a new approach that gives appeal to the content or a product as per the requirements of the clients. Many Multinational companies would go to designers for them to get a logo designed for themselves to promote their product or content developed which needs to be put into commercial sector. One can use vector graphics for any marketing activities. They are very useful because they can be used to create your logo, promotional items, billboards, and print ads.

Illustrations, Logos ,Websites, Album covers, Branded products , Email campaigns , Movie posters , Billboards ,Print ads, Books . Logos . Video games Cartoons

Limitations and Issues

The first and most important annoyance of this research is that it is not an empirical observation. There are hundreds of concepts, mainly based on the research of other researchers. The biggest problem I face is the evolutionary nature of vector management software and related standards. If there are small errors or errors in the vector diagram, you will see it when the vector diagram is significantly enlarged. Vector graphics are usually filled with solid colours or gradients. They cannot display detailed image attributes (photos) as raster graphics. But this research lays the foundation for vector design and artists by examining key factors such as what are vector graphics in design and how they are useful to designers. It is of particular relevance in the Indian context, and India has not yet conducted research on this topic. It opens the door to destination

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research in this exciting but unexplored field of design.

Implications

This research guides advertising companies to carefully study the role of logo design in vector graphics. Since Beyond Studies has demonstrated the state of design in terms of attention, advertising direction, and logo awareness, marketing is also expected to develop similarly. Also, vector graphics have a great value, so they can be a good option. However, the position of vector design in revenue is still unclear. Furthermore, this research also motivates students to learn this new element of marketing. There has been a lot of research on advertising and marketing, but this aspect is still intact. This file provides enough space for new discoveries. There must be some experience painting to show the impact of animated advertising and marketing on buyer behaviour and sales.

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INNOVATIVE TECHNOLOGY FOR LIBRARIES

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Abstract:-
The World is become very smaller place like a global village. How a day's people can easily communicate with each other and rapidly travel anywhere. Technology has give's a new way and standards of leaving, traveling, communicating and also knowledge shearing. Science and technology has made modern Society increased possible. Technological advance increased human life span and allowed a healthier life. The major information and communication technologies advanced creation transformed and developed the library and information services as faster quicker and easier. Every function of libraries are now started with automation and new mechanization.

Key Words- *ICT, library services, automation, innovative services and technology.*

Introduction-

Now a days it is facts prove that information technology is good for all parts and services industries social sectors, namely health, education especially media, business and agriculture. Information communication technological advances gives long term influences on almost every aspect of human life. Science and technology play a basic part in all sectors of life. The use of information communication technology provides better and faster services to end users. The world is presently heading towards a digital scenario. Every human being in today's worlds want quick access to information at the correct moment. So it is essential to provide information for development and its use. It is also necessary to work hard to make information science and technology available in all sectors.

Libraries play an important and main role in the society and academic environment .An every person's daily dealing with information. The libraries are the repositories of knowledge and information. Every information user wants information in right time with right way, therefore library utilities be very helpful in meeting information needs of citizens. Technology give verify remarkable ability to library for giving anf providing library services to the users. In the twenty first century many libraries provide services and done functions originally by manually, but now it is converted in to computerized process due to information technology. This ICT based services and functions are very fast and easy. Information communication technology is key factor in ensuring equal access. Digital information boosting the quality of life, therefore it is very necessary to work hard to make technology available in the libraries all departments. The use of technology based techniques is called in information communication technology. Data information is collected, stored and processed via hardware, software networks and other media. Information is collected, communicated and presented in the form of voice, text, pcture, and multimedia. Technologies modern techniques are vastly used in libraries, computer and other library related functions including acquisition storage and organizing information. Many people may now access enormous valuable material without investing a lot of time or efforts. The power of information communication technology gives a very clear way to people for the access to generate and organize the information from anywhere in the world ina short period of time. ICT is a system that collects analyse process and disseminates data.

Benefits Of Infromation Technolofy--

Information technology tools provide remotely access to the users at any time.

ICT based libraries various services allow and and give permitted users universal access to data from many sources.

ICT based libraries services make information accessible quickly and easily .

Technological tools and various services make libraries functions very simpler, quicker and more efficient.

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Computerization of libraries made minimize use of paper and save the paper and space..

Therefore there is no question that information technology is very useful in providing various library services . Information technology presents both new opportunities before the library as it creates new possibilities for the development of new informative product and delivery of services. Technological devices like Radio Telegram Telephone TV Fax mobile Internet e-mail satellite communication and video conferencing scanners barcodes codes are the essential parts in communication. Now a day libraries enormously increased the capabilities of library services creating various options for networking to provide access to vast storage of information. The major information and communication technologies transformed and developed the academic library and information services automated and fast and speedy useful. Academic institutions especially research institutions are making subject databases for specialization. Thus libraries offer multiple services and change their roles for the fast growing information. ICT has a great impact on the library services. Libraries are the services institutions and knowledge centers. Library is very fast growing organism. In the library the user and services and resources are very important. Attractiveness is the important part and its make library use smart way. Smart library and its smart services gathered library users.

Recent Innovative Technologies Used In The Libraries—

Digital age brought change in the style of information is stored and accessed and also in the collection and services. Many new terms are arrived in the library future like a Digital library, library without walls, virtual library automated library electronic library and all. There are many advanced technologies used by the libraries for providing better service and user satisfaction.

Barcode Technology–

Barcoding is the most important steps in library automation. The barcode technology is very useful in libraries to allow staff to handle users requests as quickly as possible. Barcode technology is mostly used technology in libraries circulation system. It is very helpful and effective because of its speed. Barcode is a code printed on a product, it is machine readable code. Aligarh University and library science department firstly used this technology.

Mobile Technology–

The libraries in HAND are possible as a result of mobile technology. Now libraries are acquiring the majority of mobile industries technology. Libraries can better serve their daily users with the help of this technology mobile technology refers to mobility related technology. Mobile technology devices are like Laptop, computer, personal digital assistance, smartphone, cellular phone. With the mobile technology, libraries offering mobile access to various websites and public access.

Rfid Technology---in the libraries it is very difficult to manage such a large collection. RFID library management system is made RFID tagged books RFID reader, a computer network and software, RFID technology is a mostly used technology in educational research librg and labeling of books. This is very useful and helpful technology in libraries work.

Artificial Intelligence-

It is one the modern techniques, it goal is to create computer systems to perform all libraries tasks. Artificial intelligence has a wide range of useful in library. It is expert system based automatic indexing intelligent online sources. It is very helpful techniques in library.

Internet Of Things

Internet of things techniques is very popular. it's give access to the internet is become a need. Internet of things is techniques increase access to resources or services. Internet of things sent only data through the internet to the user.

NFC TAG---

NFC technology is a device allows users to conduct various transactions easily. Some libraries are agreed to adopt NFC technology. In the library customer may complete a variety of transaction with their cell phones equipped with NFC technology. This app is integrated with the library management software.

Blockchain Technology-

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Block chain technology is databases that keep track of Digital transaction that every user on the network may see. It is an innovative data collection and storing method. It is used to create metadata and also in maintain records. It is also used in information sharing.

Big Data

Big data technology is very useful to boost the overall library activity. Big data helps in better connections with the user and create a flexible environment in all changes. It is useful in all activities in libraries.

Qr Code Technology-

It is very useful technology in the recent years. QR code technology allows users to receive information in the form of code. QR code may scan with a mobile device. QR code technology is free, inexpensive and very simple to use. QR code is decoded by a phone camera with a QR code reader installed with a QR code reader software and the information is shown to users on screen.

Thus all new and upcoming technological inventions and their techniques provide various smart library services to users. So technology is very useful in information dissemination and sharing. Innovative technologies provided many libraries services like a Digital storytelling, open libraries, Robot's libraries cloud printings, single sign on to all resources and also Digital makers lab's with these various services library provide smart service to smart library users. Now a day libraries offer multiple services and change their traditional role in the fast growing information age. Information technology has a great impact on the library services. all libraries are going to be Digital day by day.

Conclusion-

Libraries are one of the essential institutions of all human society. The importance of libraries has been universally accepted. The advent of information communication technology has purely transformed the system structure and working style of libraries. It is very essential to adopt the knowledge of advanced trends and technologies in library services like library automation, Digitalization, Institutional Repository and Digital services, QR code, RFID open access, references management, content management, virtual services, profiling services, web2.0 and web3.0, social media, expert systems, with these technologies libraries become up-to date and approachable for all library users.

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MUNICIPAL SOLID WASTE MANAGEMENT IN AMBIKAPUR CITY (C.G.)

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Abstract:

Solid waste generated from various sources needs to be disposed properly in scientific manners to ensure its minimum impacts on the quality of environment. Solid waste is a consequence of life and its varies from one society to other. In early time human consumed at resources and he had not any problems but deposal of its waste. Traditional compositing and producing the fertilizers were very typical solutions for most of the organic waste during that time; the disposal of the solid waste can be traced from that time when human started to make community, society and urban life. Municipal solid waste is one of major problem in urban centers. Ambikapur city is one of the urban centers of Surguja district Chhattisgarh state in India is our study area. The main objective of the study sources of the solid waste generation and disposal. At present study gives the details of municipal solid waste generation, in the forms of residential, industrial, commercial, construction, demolish, and agriculture. The solid waste collection in the forms of door to door, community bins and storage points. Different types of vehicles are used to transport the municipal solid waste. To study the implementation of disposal methods of solid waste in Ambikapur city. The population of Ambikapur city is 3,43,173 and city area covered 35.36 Sq. Km. the average solid waste generation 206.21 Metric tons.

Keywords : *Municipal solid Waste, Waste generation, collection methods, transportation*

Introduction

The solid waste means anything which is useless or discarded after its use for example yesterday's newspaper or empty bottle which is thrown after its use. In other words we can say that "matter in the wrong place". The term solid waste used internationally to describe non-liquid waste material arising out from domestic trade, commercial, industrial, agricultural and mining activities and from public services. Non liquid is a relative term because sludge of certain kind fall with the scope of solid waste management, which arise primarily from industrial and sewage treatment plants. The part of solid waste which is related to the municipality is called Municipal Solid Waste. These kinds of waste encompass packing, food wastes, bottles glass, cans, papers and agriculture waste are the wastes which are unwanted and useless for all inhabitants during their life. Because of changing the consumption patterns increasing the quantity of solid waste as well as the toxicity of them caused that it has been concerned more and more. The relation between collection, storage and disposal of solid waste to human health is so clear. Men while ecological problems of the function of the solid waste such as air pollution and soil contamination are so important. The leach of the poor landfills which has contamination with the surface and the ground water as an example of this ecological problem.

In many technological societies after the industrial revolution the problem of solid waste was appeared because of changing the consumption pattern of society. The clear example of municipal solid waste is packing which is usually used for many goods in our life. Usage of plastic and cardboard as the basic materials for packing cause increasing the amount of in our life every day.

Study Area

Ambikapur is a city and headquarters of Surguja district in the Indian state of Chhattisgarh. It is one of the oldest cities in the state, in east-central India. Ambikapur is also the divisional headquarters of Surguja Division which consists of the six districts of Surguja, Korea, Manendragarh, Balrampu r, Surajpur and Jashpur. Ambikapur was the capital of the Princely state of Surguja before Indian Independence. The

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name of the city is derived from the Hindu goddess Ambika (Mahamaya) Devi, who is the central figure of worship in the area. The area under Ambikapur Municipal Corporation is 35.360 sq km. According to Swachh Survekshan 2019, Ambikapur was the second Cleanest cities of India. As of Swachh Survekshan 2020, Ambikapur is the cleanest city of Chhattisgarh as well as the cleanest city in India amongst cities with a population of 1 to 10 lakhs Ambikapur is located at 23°12′N 83°2′E. It has an average elevation of 623 metres (2078 feet). The district is spread over a forest-rich area of 22,237 km². Most of the district's terrain is forested and hilly. Natural resources include bauxite, forest products and paddy crops

Objectives

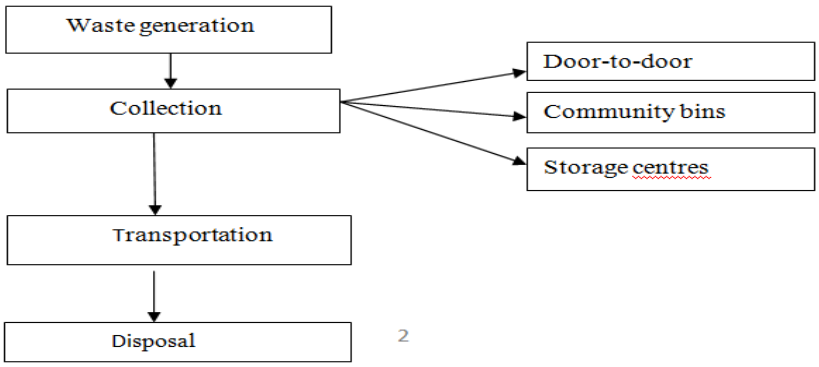
1. To study the Municipal solid waste generation
2. To study the collection methods of solid wastes, Solid waste transportation process and disposal methods.

Data Source And Methodology:

Population data will collected from census of India, 2011, Data collected in the forms of working employs, waste generation, collection centers, no of vehicles used in transport for disposal of solid waste, disposal methods are using municipality from Municipal Corporation of Ambikapur City.

Methdology

The study is conducted for period of five months by taking reading after every month and data obtained thus processed to draw conclusion. The waste material segregated into bio degradable and non-bio degradable which can be further divided into various groups, and measured in kg by using weigh-balance machine so that qualitative and quantitative aspect of solid waste can be calculated. The different component of waste generated from different sources such as shops, hotels, restaurants etc. is collected by safai karamchari and kachra gadi of municipal committee of Ambikapur town formerly it was Notified Area Committee manually either in baskets, wheel harrow etc. and dumped at nearby temporary dumping site, which was an open area nearby the city from where it carried away for dispose of weekly on trucks. Before every reading the solid waste from this temporary dumping site is segregated into bio degradable and non-biodegradable groups, which are further divided into different sub groups on the basis of their nature such as plastic, polythene, rubber leather, glasses etc. the quantity of the waste material is measured by using weight measuring machine. The reading taken in morning so that estimation of waste generated during the previous day can be quantified. The composition of solid waste is determined.



Municipal solid waste Generation :

In our study area solid waste is available in the forms of residential, industrial, construction, demolition, municipal services and agriculture.

Sources of municipal solid waste in Ambikapur City

Source Solid waste contents:

Residential

Food wastes, paper, cardboard, plastics, textiles, leather, yard wastes, wood, glass, metals, ashes, special wastes (e.g., bulky items, consumer electronics, batteries, oil, tires), and household hazardous wastes.

Industrial

Housekeeping wastes, packaging, food wastes, construction and demolition materials, hazardous wastes, ashes, special

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wastes. Collection is the component of waste management which comprises lifting and removal / passage of a waste material from the source of production to either the point of treatment or final disposal. Collection of generated solid waste is the crucial part in MSW management. Efficiency in collecting solid waste and segregating it decides how well solid waste is managed. Collection includes not only the gathering of solid waste, but also the transport of these materials, after collection, to the location where the collection vehicle is emptied. This location may be a material processing facility, a transfer station or a landfill disposal site.

Table 1: Waste Collection points in Ambikapur City-2021

S. No.	Collection points	No of collection points
1.	Door-to-door	72,256
2.	Collection points	134
3.	Community bins	100
4.	Storage points	08

Source: Data collected from Municipal Corporation of Ambikapur

Door-to-door Collection of waste:

This stage includes door-to-door collection of waste. Most collection is done by garbage collectors who are employees or firms under contract to the government. Garbage collectors employed by local governing bodies manually collect the waste generated at the household level. In our study area door to door collection nearly about 72,256 points are there .The municipality workers are collecting solid waste and transfer with help of trolleys, tricycles and trippers.

Communal bins:

Communal bins are placed near markets, in apartment complexes, and in other appropriate locations. Shopping complex, hotels, public places like gardens, religious places are other definite point sources. In Ambikapur city 100 communal bins are there. Vehicles collects large amount of waste from these point sources and then transport it to transfer stations and disposal sites.

Storage of Municipal Solid Wastes

Municipal authorities shall establish and maintain storage facilities in such a manner as they do not create unhygienic and unsanitary conditions around it. Following criteria shall be taken into account while establishing and maintaining storage facilities, namely:

1. Storage facilities shall be created and established by taking into account quantities of waste generation in a given area and the population densities. A storage facility shall be so placed that it is accessible to users.
2. Storage facilities to be set up by municipal authorities or any other agency shall be so designated that wastes stored are not exposed to open atmosphere and shall be aesthetically acceptable and user-friendly.
3. Storage facilities or 'bins' shall have 'easy to operate' design for handling, transfer and transportation of waste. Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be painted white and those for storage of other wastes shall be painted black.
4. Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers. In our study area having 8 storage points are there.

Transportation:

Transfer refers to the movement of waste or materials from collection points to disposal sites. Transportation of waste from collection point to disposal sites is carried out by using different types of vehicles depending on the distances to be covered by them. Larger vehicles carry the waste from the collection points to the disposal sites. Comparatively small vehicles discharge waste at transfer stations where the wastes are loaded into larger vehicles for transportation to the disposal sites. In metro cities transfer stations are located at different places to support intermediate transfer of waste from the surrounding areas up to the dumping grounds. Transfer stations are centralized facilities where waste is unloaded from smaller collection vehicles and re-loaded into larger vehicles (including in some instances barges or railroads) for transport to a disposal or processing site. Ambikapur municipality authorities are

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using 18 tractors, 30 trippers, 150 tricycles and 300 hand trolleys for transporting the solid waste from collection points door to door collection community bins and storage points to disposing places. In our study area they have collected municipal solid waste generation average per day 206.21 Metric tons.

Disposal

There are three main disposal methods are land fill, Incineration and Composting

Landfill

Landfill is a careful designed structure built in to or on top of the ground in which waste is isolated from the surrounding environment. The purpose is to avoid any water related connection between the waste and the surrounding environment, particularly groundwater. Landfills are generally located in urban areas where a large amount of waste is generated and has to be dumped in a common place. Serious threat to community health represented by open dumping or burning is avoided in this method. 54 percentage of solid waste of study area by disposal land filling method.

Incineration

The process of burning waste in large furnaces is known as incineration. Incineration is a disposal method that involves combustion of waste material. Incineration and other high temperature waste treatment systems are sometimes described as "thermal treatment". Incineration is carried out both on a small scale by individuals and on a large scale by industry. It is used to dispose of solid, liquid and gaseous waste. Incineration facilities generally do not require as much area as landfills. At the end of the process all that is left behind is ash. This method produces heat that can be used as energy. Incinerators convert waste materials into heat, gas, steam, and ash. It is recognized as a practical method of disposing of certain hazardous waste materials (such as biological medical waste). medical waste and liquid from chemical industries are 14 percentage generated solid waste Ambikapur city. This solid waste disposal by using Incineration method.

Composting

Composting is the process of decomposition and stabilization of organic matter under controlled condition. Waste materials that are organic in nature, such as plant material, food scraps, and paper products, can be recycled using biological composting and digestion processes to decompose the organic matter. It is a biological process in which micro-organisms, mainly fungi and bacteria, convert degradable organic waste into humus like substance. The resulting organic material is compost for agricultural or landscaping purposes. In addition, waste gas from the process (such as methane) can be captured and used for generating electricity. The intention of biological processing in waste management is to control and accelerate the natural process of decomposition of organic matter. 32% of municipal solid waste of our study area to processing as bio fertilizers.

Conclusion

In our study area Municipal solid waste generated per day 206.21 metric tons. The waste collection Process Door to door 72,256, Collection points 134, Community bins 100 and Storage points 08. Ambikapur municipality authorities are using 18 tractors, 30 trippers, 150tricycles and 300hand trolleys for transporting the solid waste from collection points door to door collection community bins and storage points to disposing places. In solid waste disposal by using three methods is 54 % of soiled waste by using land filling, 14% of soiled waste by using Incineration and remaining per cent age of soiled waste by using compositing method. We will suggest generating electricity and bio gas by using Municipal solid waste.

Recommendations for the solid waste management:

Solid waste management includes the process of generation, collection, storage, transport and disposal or reuse and recirculation or incineration or any relevant method of disposal. Jain (1884) stressed the need for recycling of municipals solid waste in developing countries and recommended the use of incineration methods for proper disposal of solid waste in urban centers. Keeping in views the problems of open dumping solid waste the recommendations

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for the solid waste management is suggested as below:

1. Biodegradable waste can be treated by composting techniques by which waste material can be converted in to compost which can be used as fertilizers in agricultural fields.
2. For the treatment of non-biodegradable methods such as sanitary landfill can be used.
3. Authorities needs to install dustbins provided with lids at major prominent location at the bus stand.
4. Reduce and recycling techniques can be further helpful for reducing the load of waste generation and at the same time conservation of natural resources.
5. Public awareness programmes needs to be organized at regular interval to impart knowledge about the ill effects of open dumping methods of solid waste and methods of solid waste management.
6. People needs to be aware about the open dumping menace of solid waste so they need to uses ecofriendly bags while go for shopping rather than the use of polythene.

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USE OF SOCIAL MEDIA PLATFORM TO PROVIDE LIBRARY SERVICES DURING COVID-19 PANDEMIC

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Abstract:
Pre covid-19 era all the academic libraries were providing library services in offline mode, few libraries were providing services in both offline and online mode too. But during covid-19pandemic lockdown it was impossible for the libraries to provide offline services to their users. This pandemic situation accelerated the need of innovative new systems that will help them to be more visible and effective in providing the library services notwithstanding the covid-19 lockdown. This has given rise to the adoption of social media tools and online platform. Suggestion to all the librarians and the head of the institutes is that they should provide training to the library staff on regular basis. This will make the library staff ICT compliant so that they can make the use of new tools and social media effectively in providing library services to the users.

Keywords: *Library, social media, covid-19 pandemic, library services, lockdown*

Introduction:

As we all know the library is a collection of Books, textbooks, magazine, Journals and non-prints materials. Library services are mainly focused on circulation of books and reference services to its users. Other services includes mainly as per the users needs are CAS, SDI, indexing & abstracting services, bibliography services, photocopy services, book bank, book reservation and many more. Library also organizes many programs for its users, such as Book exhibition, book talk, guest lectures, seminars, workshops on various topics. Such types of work and services are provided to the users in various types of libraries. Before covid-19 pandemic lockdown such services were provided offline, users visit library for there needs. Library website was the only source for users to get the information online and the news of events or to contact the librarian remotely. During covid-19 pandemic lockdown apart from library website every users needs something more and the librarian also needs ICT platforms to provide services to the users remotely.

The educational institutes were closed for many days / months. After the guidelines from the university and the local authority the classes were started online using meeting apps. Now it was the library turn to take the initiative to provide online services to the students and faculty members. The librarian search out the new ways to reach out the students and provide library services to their users. Many librarians and library started the use of social media platform to provide library services to their students and faculty members. Social media is the virtual information sharing space which gives us opportunities to interact face to face with two or more individuals. Computer and mobile based online platforms and tools facilitate the library to share the information like text, audio-visuals and images.

In order to maintain social distancing protocol during the corona virus outspread and lockdown, social medias facilities was introduced by the various academic libraries to provide library services online which helped the librarian to provide information to their users and faculty members. As social media use was already popular among students and youngsters it gives the room to provide various library services to the users very easily.

Librarians are now well aware about the importance and potential of social media and

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online meeting platform and e-versions of printed materials. Social medias like facebook, twitter, youtube, whatsapp, telegram, zoom, google meet, google classroom and similar tools that are making effort to integrate them into library services.

Use of Social Medias for Library Services during Covid-19 Pandemic:

Since the declaration of covid-19 pandemic lockdown in the country to stop the spread of the corona virus in March 2020. As per the guidelines and instructions issued by the WHO and health ministry the National lockdown was imposed by the central govt. and state govt. on the society. The education institutes were also closed for nearly 2 years for students to attend the offline classes in colleges and universities. The examinations were also conducted in online mode. In lockdown many lacunas were come forward of the libraries regarding the delivery of services to the library users. Slowly and steadily the librarian and the users became aware about the use and importance of the social media and online platform for getting the information from the library.

By adopting and using the social media tools, users were getting library notices, library newsletters and other important program intimations. Libraries can broadcast sms to groups of library users for promoting library services and information about the events. Online meeting with the users to know their needs and problems in getting the services from the library. In covid pandemic some universities of Florida uses mobile phone for text messaging and news updates in the campus. The system allows the students and the faculty members to use social medias platform for similar communication or interaction.

Collin and Quanhasse (2012) found that social media tools have become very familiar tools for academic libraries to market services and resources to present and future library users. Many libraries in the world (National, Public and Academic) in 21st century are making wise and extensive use of social media and online platforms to provide services to users and faculty members. This created an environment of mutual interaction in order to create a platform for sharing experiences, ideas, views and opinions with others.

Issues Regarding Social Media Use while Providing Library Services during Pandemic:

Social media and online platform have presented lot of merits to deliver effectively library services to the users in covid-19 pandemic lockdown. However many library professionals faced some issues that have affect their adoption for effective library services. The most important issue was funds availability. Due to funding issues most libraries faced problems to procure relevant medias tools which will facilitate their adoption and implementation of social media and other online platform for providing library services.

Most of the librarians are not aware about the use of social media platform effectively and online meeting apps and LMS, youtube channels, facebook page and instagram. These are the challenges in the way of providing online services of the library to the students and faculty members. Many students and faculty members are not use to, to such type of medias. Many students from rural areas cannot afford smart phone and internet charges.

Internet speed and connectivity is also the another important issue in most of the developing countries. This problem is also present in our country. There are also copy right issues while providing literatures to the users on social media. Many librarian do not know about the copyright issues and its legality.

Suggestions:

1) Library supporting staff should be provided training on regular basis regarding the use of online platform and tools for efficient library services delivery.
2) Social media tools and platform should be used by all academic libraries which makes the library to reach out to the remote library users.
3) The management of the college or institutes must made available sufficient

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funds to the library for making such type of setup in the library which will make the library to provide services with the help of ICT tools.

4) Users of the library also need to be trained on regular basis so that they can know how to access the resources of the library and how they can make best use of online platform and social media.

Conclusions:

Covid-19 pandemic and lockdown opened the new avenues for library. Most of the libraries transformed from traditional to modern by using ICT. Most of the librarians faced challenges regarding the use of social media and online platform and other related virtual tools to provide library services to the users or patrons. Slowly and steadily with the help of other professional and colleagues many librarians have overcome the challenges and started using social media and online platform to provide services to their users (students and faculty members). Many books publishers and journal publishers published the e-versions of the text books, journals, magazines etc even newspapers were also available in e form. Many librarians applied new ideas and done innovations in providing library services. After normalcy or post covid many libraries are still providing hybrid services i.e. offline and online. Librarians have got lesson from this pandemic lockdown that use of ICT is very important and they should acquire more knowledge about it.

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REDUCTIVE DESULFURIZATION OF *N*- SUBSTITUTED THIOCARBAMIDES TO FORMAMIDINES *VIA* RANEY-NICKEL

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Abstract:

A novel synthesis of N-benzyl-N'-[2-(N'-benzyl-formimidoylamino)- N-substituted]-formamidine has been synthesized by reductive desulfurization of 1-benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide by Raney-Nickel in toluene medium. The identities of these new N-substituted formamidine derivative have been established on the basis of usual chemical transformation and IR, NMR, and 13C spectra.

Keywords : *Benzyl thiocarbamide, Toluene, Desulfurization, Raney-Nickel.*

Introduction:

Amidines have long been regarded as valuable intermediates[1] in structural synthesis of heterocyclic compound[2]. Also amidines are important class of synthetic chemistry[3] and which have proved to be intermediates in a number of biological process[4]. Characteristic structural features of many natural substances would be very helpful for agricultural[5] and medicinal chemists[6] because amidines are found in many bioactive natural products[7] and identified as important pharmacophores[8]. They possessing anti-degenerative[9] anticancer[10] anti-platelet[11] and antimicrobial activities[12]. Amidine derivatives also act as serine protease inhibitors[13]. Very important compounds were prepared from amidines such as imidazole rings[14], purins[15] quinazolines[16]. Formamidines are considerable interest in the fields related to organic and medicnal chemistry[17]. They acts as strong material in several synthetic approaches mainly in the synthesis of hetrocycle[18]. Formamidine have claimed the interest of many research groups for there biological activity[19] and pharmacological potential[20]. Formamidine are of interest in synthetic chemistry[21] and have been used extensively as pesticide[22].

Result and Discussion:

This method currently available for the preparation of amidines often involve multi step process with long reaction times[23]. Herein we focused our efforts to provide a convenient route for synthesis of formamidines from respective thiocarbamide. *N*-benzyl-*N*'-[2-(*N*'-benzyl-formimidoylamino)-*N*-substituted]-formamidine is synthesize by reductive desulfurization of the 1-benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide by Raney nickel in Toluene medium. The solid gave charring test and non- desulphurisable. The purity of compound was checked by TLC. R_f value of the product was also recorded.

Experimental:

Melting points of the synthesized compounds were recorded on electro thermal melting point apparatus are corrected. IR spectra were recorded on model-Agilent Cary 630 FTIR spectrometer. ^{1}H NMR were obtained on Bruker DRX-300 (300 MHz, FT NMR) NMR spectrometer in $CDCl_3$ and ^{13}C NMR were recorded in $CDCl_3$. Purity of compounds checked by thin layer chromatography using Merck silica gel coated aluminum plates and ethyl acetate : petroleum ether (6:4) as eluent.

Material and Reagent : Solvent and reagent were commercial and used without further purification.

Preparation of Isothiocyanato methyl-benzene (3a-f) :

Equip a 500-ml three-necked flask with a powerful mechanical stirrer and a separatory funnel; leave the third neck open or loosely stoppered. Introduce, while the flask is cooled in a freezing mixture of ice and salt, 90 ml of concentrated ammonia solution (d 0.88) and 54g (43 ml, 0.71mol) of pure carbon disulphide . Stir the mixture and run in 56 g 55ml, 0.60 mol) of substituted amine from

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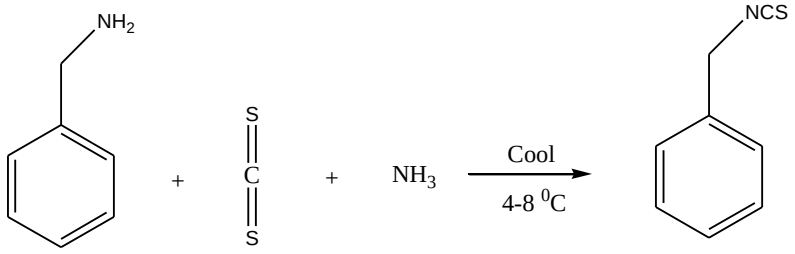
the separatory funnel during about 20 minutes stir for a further 30 minutes, and allow to stand for another 30 minutes. Separate the oil, dry it over anhydrous calcium chloride An Isothiocyanato methyl-benzene is formed.

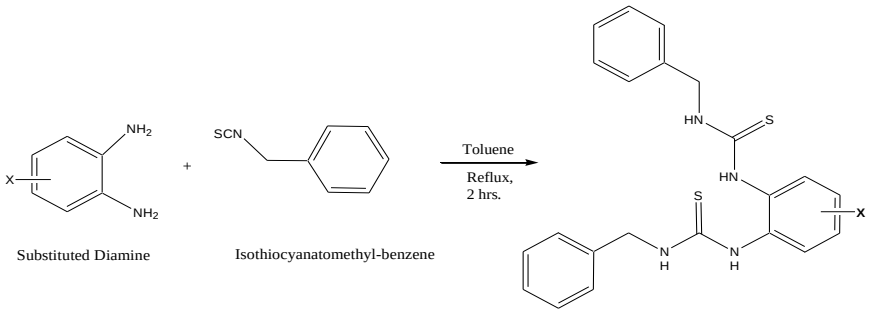


Benzylamine

Isothiocyanatomethyl-benzene

Synthesis of 1-benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide (3a-f) :

1-benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide was to be synthesized by interacting of Isothiocyanato methyl-benzene with substituted diamine in toluene medium, which was refluxed for 2 hrs. to get the solid product, the reaction monitored by TLC. toluene was distilled off. Product was purified by recrystallization by ethanol.



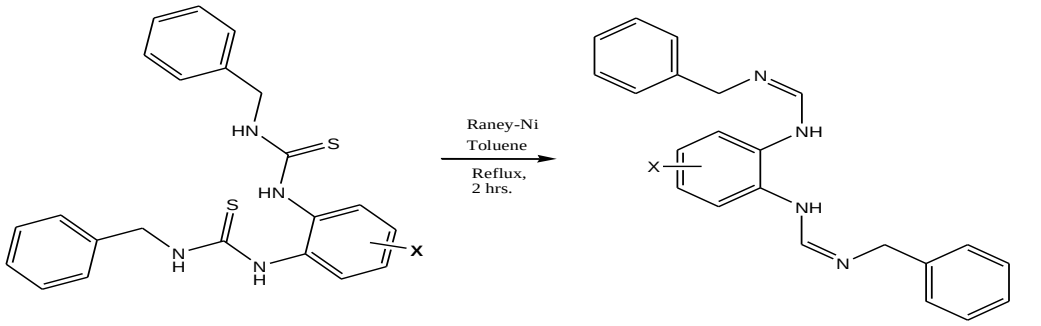
Substituted Diamine

Isothiocyanatomethyl-benzene

1-Benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide

Synthesis of *N*-benzyl-*N'*-[2- (*N'*-benzyl-formimidoylamino)-*N*-substituted]-formamidine:

N-benzyl-*N'*-[2-(*N'*-benzyl-formimidoylamino)-*N*-substituted]-formamidine was synthesized by carried out reductive desulphurization of 1-benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide by activated Raney-Nickel in toluene medium, which was refluxed for 2 hrs., the reaction was monitored by TLC. Toluene was distilled off to get the solid product which was purified by recrystallization by ethanol.



1-Benzyl-3-[2-(3-benzyl-thioureido)-substituted]-thiocarbamide

N-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoylamino)-substituted]-formamidine

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Where, X

1) -4-Chloro, 2) -4-Bromo, 3) -4,5-dichloro, 4)-4-Nitro, 5) -1,8-diaminonaphthlene, 6) -1,8-diaminobiphenyl.

Characterization data of substituted *N*-benzyl-*N'*-[2-(*N'*-benzyl-formimidoylamino)-*N*-substituted]-formamidine

Sr. No	Substituted Formamaidines **(IIIa-f)**	Yield (%)	M.P. (°C)	R_f value 6:4 EtOAc: Pet. Ether	Nitrogen (%) found (Required)
1.	*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)- 5-chloro-phenyl]- formamidine	71.24	132	0.64	4.33 (4.30)
2.	*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)- 5-bromo-phenyl]- formamidine	82.07	114	0.96	4.62 (4.89)
3.	*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)-4,5-dichloro-phenyl]formamidine	73.25	126	0.58	4.91 (4.72)
4.	*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)-5-nitro-phenyl]- formamidine	84.34	88	0.93	3.47 (3.83)
5.	*N*-Benzyl-*N'*-[8-(*N'*-benzyl-formimidoyl amino)-naphthalen-1-yl]- formamidine	75.69	110	0.46	3.74 (3.77)
6.	*N*-Benzyl-N'-[4'-(N-benzyl-formimidoyl amino)-biphenyl-4-yl]-formamidine	86.02	92	0.81	3.68 (3.81)

Spectral analysis :

1. *N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)- 5-chloro-phenyl]-formamidine (III-a):

IR (KBr cm^{-1}) 3407 (N-H), 3023(aromatic C-H), 1656(C=N), 1373(C-N)., 1066(characteristics of benzenoid) ; ^1H NMR($CDCl_3$): 6.9(1H, s, NH), 5.2-3.7(14H, m, aromatic proton), 2.1-2.0(4H, m, benzyl proton, 1.9(1H, s, C-H proton). ^{13}C NMR (TMS) δ 162.8 (NH,1-imine), 128.5 (CH,1-benzene), 135.6(NH,1-benzene),140.2(NC,1-benzene),162.8(NC,1-imine), 112.8 (CH, aromatic),20.9 (CH_3, aliphatic).

2.*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)- 5-bromo-phenyl]-formamidine (III-b):

IR (KBr cm^{-1}) 3350 (N-H), 3025(aromatic C-H), 2968(aliphatic C-H),1652(C=N), 1372(C-N).1054(characteristics of benzenoid). ^1H NMR($CDCl_3$): 6.6(1H, s, NH), 5.3-3.7(14H, m, benzyl proton), 2.1-2.0(4H, m, benzyl proton), 1.2(1H, s, C-H proton).

3.*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)-4,5-dichloro-phenyl]formamidine (III-c):

IR (KBr cm^{-1}) 3400 (N-H), 3022(aromatic C-H),1650(C=N), 1370(C-N). 1056 characteristics of benzenoid) ^1H NMR($CDCl_3$): 6.9(1H, s, CH), 6.3(1H, s, NH); 5.4-3.7 (14H, m, benzyl proton), 2.2-2.0(4H, m, benzyl proton), 1.2(1H, s, C-H proton). ^{13}C NMR (TMS) δ 163.1 (NH,1-imine), 135.6 (CH,1-benzene), 136.7(NH,1-benzene), 142.4 (NC,1-benzene), 164.7 (NC,1-imine), 114.6 (CH, aromatic),116.5 (C-Cl, aliphatic).

4.*N*-Benzyl-*N'*-[2-(*N'*-benzyl-formimidoyl amino)-5-nitro-phenyl]-formamidine (III-d):

IR (KBr cm^{-1}) 3401 (N-H), 3019(aromatic C-H), 1650(C=N), 1384(C-N), 1066(characteristics of benzenoid); ^1H NMR($CDCl_3$): 6.7(1H, s, NH), 2.1-2.2(4H, m, benzyl proton, 1.7(1H, s, C-H proton).

5.*N*-Benzyl-*N'*-[8-(*N'*-benzyl-formimidoyl amino)-naphthalen-1-yl]-formamidine (III-e):

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IR (KBr cm^{-1}) 3410 (N-H), 3020(aromatic C-H), 1655(C=N), 1374(C-N), 1076(characteristics of benzenoid); ^1H NMR($CDCl_3$): 6.6(1H, s, NH), 2.1-2.0(6H, m, benzyl proton, 1.4(1H, s, C-H proton).

6.*N*-Benzyl-N'-[4'-(N-benzyl-formimidoyl amino)-biphenyl-4-yl]-formamidine (III-f):

IR (KBr cm^{-1}) 3412 (N-H), 3022(aromatic C-H), 1652(C=N), 1390(C-N), 1070(characteristics of benzenoid); ^1H NMR($CDCl_3$): 6.2(1H, s, NH), 2.3-2.0(8H, m, benzyl proton, 1.6(1H, s, C-H proton).

Conclusion:

In conclusion, we tried to find efficient and new method for preparing *N*-Substituted formamidine. *N*-Substituted formamidine derivatives were synthesized and characterized for their structure elucidation. Various chemical and spectral data supported the structures. This method adopted in this investigation is dimple, efficient and inexpensive. It is useful in synthesizing pharmocological important molecules and provides methodology for chemical biology.

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ENVIRONMENTAL ISSUES AND IMPACTS ON HUMAN HEALTH

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Abstract
Environmental issues that affect our health are one of the main triggers to raise awareness of the need for better environmental stewardship. Environmental changes caused by human activity in nearly every area of life affect our health patterns. This development has caused several long-term health problems. Five children die every minute from malaria and diarrhea in developing countries. Nature is a great resource for our production and consumption patterns. Human behavior affects the flora and fauna of a particular region. Depending on the half-life of waste components, environmental and natural production values can be lost for very long periods of time. Environmental health, as defined by WHO, encompasses aspects of human health, including quality of life, determined by physical, chemical, biological, social and psychosocial factors in the environment.

Introduction

The assumption that economic growth is the only indicator of human progress is incorrect. Urbanization and industrialization are expected to bring prosperity, but on the other hand, diseases caused by overcrowding and deterioration of drinking water quality have occurred, resulting in waterborne infections such as infectious diarrhea and bacterial infections such as tuberculosis caused by airborne infections. disease is increasing. Heavy urban traffic leads to an increase in respiratory diseases such as asthma. Agricultural pesticides, which improved food supplies in the Green Revolution, have affected farm workers and all of us who consume agricultural products. Antibiotics promised solutions, but bacteria find ways to develop resistant strains, and even change their behavior in the process, so the constant development of new antibiotics is necessary.Many drugs. are known to have serious side effects. Sometimes treatments can be as damaging as the disease progression itself (The World Health Report 2002). The development has therefore created several long-term health problems. Better health care, coupled with lower infant mortality rates, has led to longer lifespans, and has also led to an unprecedented increase in population with negative environmental quality.

Concern on Environmental and health

Five children die every minute from malaria and diarrhea in developing countries. 100 children die every hour from indoor solid fuel fumes. Nearly 3,000 people die every day in road accidents in low- and middle-income countries. Every month in developing countries he kills nearly 19,000 people from accidental poisoning. It is often the result of exposure to toxic chemicals and pesticides in the workplace or home environment. Environmental disasters and related diseases kill millions of people worldwide each year (Smith et al., 1999; Fletcher, 2003-2004; The World Health Report 2002). But while victims share a common destiny, their problems are not necessarily relevant to today's political agendas and to the minds and actions of decision-makers. Many are attributed to several important risks. These include unsafe water and sanitation, vector-borne diseases, indoor solid fuel fumes, toxic hazards, global environmental change, and air pollution, traffic damage, and other forms of urban environmental degradation that contribute to environmental degradation. including unsustainable development patterns that In addition to human suffering, developing countries bear the economic costs of lost productivity, strain on the health sector, resource degradation, and long-term social consequences (Jha and Whalley, 1999). . Faced with these harsh realities, policymakers in developing countries are grappling with rapid modernization and change. We face important development

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decisions that require careful consideration of environmental and health impacts.

Concern on Public Health

Public health addresses threats to the general health of local populations. In general, it focuses on monitoring and controlling infectious diseases and promoting healthy behavior. Public health has ancient roots but is in many ways a modern concept. Governments needed some understanding of the causes of disease in order to develop public health policies and programs. It was recognized early on that contaminated water and poor waste management contribute to the spread of vector-borne diseases. In Roman times it was well known that proper disposal of human waste was a necessary public health principle in urban areas (DFID/EC/UNDP/World Bank, 2002; World Health Report 2003).

Concern on Eco-values

Human behavior affects the flora and fauna of a particular region. In addition to its value as a resource for production and consumption, nature has its own value. If an animal of a particular species were to emerge in a particular area, this would not only be sad, but would have serious consequences for other animal populations. Under these conditions, flora and fauna reproduce. However, when yields exceed carrying capacity, it affects reproductive capacity and population size. This allows you to distinguish between specific species. Similarly, nature has the ability to transform waste into useful materials for use in the recycling process. Consider making compost that nourishes the soil and plants. However, when the composition and quantity of waste exceeds nature's transformative capacity, waste accumulates and nature becomes a waste belt (The World Health Report 2003).

Human physiology can adapt to weather changes within a certain range. However, short-term extreme weather fluctuations can lead to serious health problems. Heat waves cause heat-related illness and death. Older people and those with pre-existing heart or respiratory conditions are more susceptible. The 1998 Indian heat wave caused many deaths. Climate plays an important role in infectious diseases carried by insects such as mosquitoes. These pathogens are sensitive to direct climatic effects such as temperature, rainfall patterns and wind. Climate affects their distribution and abundance through its effects on host plants and animals. Malaria transmission is particularly sensitive to weather and climate. Extreme weather conditions, such as heavy rainfall, can greatly increase mosquito populations and cause epidemics in desert and highland edges of malaria regions, where malaria transmission is erratic and populations rely on their inherent defenses. Lacks immunity.Thus, when weather conditions (rainfall and temperature) favor contagion. Serious epidemics occur in such areas. Malaria variability throughout the year is also associated with changes in precipitation associated with the El Niño cycle (Bharucha, 2005; Dora and Phillips, 2000).

Infectious diseases

Many infectious diseases are raging and recurring. As a result of the loss of effective control over diseases such as malaria and tuberculosis, these diseases have relapsed after decades of tight control. Other diseases hitherto unknown to science seem to have swept through our health and lives in recent decades. acute immunosuppressive syndrome (AIDS) and severe acute respiratory syndrome (SARS). Although these cannot be directly linked to environmental changes, they do affect the environment in which we live by forcing changes in lifestyles and behavioral patterns. For example, the SARS outbreak prevented people in some countries from traveling to other countries for several months, severely impacting economies, airlines, and the tourism industry (Pruss-Ustun et al. 2003-2005).

Globalization and infectious disease

Globalization is a worldwide process involving communication, trade, and the internationalization of economic organizations. It is accompanied by parallel changes such as rapid social, economic and political adjustments. Globalization can improve the lives and standards of living of specific population groups for the poor and marginalized population groups in both the informal and formal economic sectors of developing countries, but global

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Industrialization increases economic inequality in industry (Pruss-Ustun et al., 2003) - 2005). Tuberculosis (TB) kills about 2 million people each year. In India, the disease is recurring and becoming more difficult to treat. In 1993, WHO declared tuberculosis a global emergency. Between 2002 and 2020, it is estimated that about 1 billion people will be newly infected, more than 150 million will develop TB, and 36 million will die from TB (FAO/UNEP/WHO, 2004). Tuberculosis is an airborne contagious disease. Only those who suffer from airborne pneumonia. Tuberculosis bacteria are released into the air when an infected person coughs, sneezes, talks, or spit. If a healthy person inhales these, they will get sick. Symptoms include persistent fever, coughing attacks, and weight loss. It is estimated that each person with active TB, if left untreated, will infect an average of 10-15 people per year. However, people with tuberculosis do not always get sick. The immune system has been dormant for years. A person with a weakened immune system is more likely to contract active tuberculosis (FAO/UNEP/WHO).

Conclusion

Environmental issues that affect our health are one of the main triggers to raise awareness of the need for better environmental stewardship. This development has caused several long-term health problems. Five children die every minute from malaria and diarrhea in developing countries. Much of the burden of environmental disease stems from several important risks. Bathing in the river does not jeopardize the use of the river as a source of drinking water if only a few people live along the river. Public health addresses threats to the general health of local populations. Nature is a great resource for our production and consumption patterns. Human behavior affects the flora and fauna of a particular region. Depending on the half-life of waste components, environmental and natural production values can be lost for very long periods of time. Environmental health, as defined by WHO, encompasses aspects of human health, including quality of life, determined by physical, chemical, biological, social and psychosocial factors in the environment.

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THE FUTURE OF CRYPTOCURRENCY IN INDIA

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Abstract

Recently in the Union budget 2022-23, Indian Finance minister Nirmala Sitharaman announced that Indian government will put the highest tax slab i.e., 30% tax on income generated from cryptocurrencies. Cryptocurrency - a blockchain technology based, virtual currency which has no physical form of existence. Any individual or group or corporate entity can own this currency as there is no restriction in the ownership. Often cryptocurrency is called a decentralised currency as there is no authority to regulate or control its flow. The process through which one can earn a cryptocurrency is called mining. This paper brings out the future of cryptocurrency in India.

Keywords: *Cryptocurrency, Blockchain, Mining.*

Introduction

The fast paced advancements in the technological and digital world has transposed the business environment. Every process in the society has faced a paradigm shift towards digital platforms. The currency that is being used to exchange goods has also taken a digital form known as Cryptocurrency. The history of crypto currency dates back to the 80's. The history of digital currency tracks back to a cryptographer, David Chaum. He was the first person to unfold the first brand of digital currency. For this purpose he developed transaction systems called eCash and DigiCash.

An open source software named "Bitcoin 0.1" was propagated by Satoshi Nakamoto in the year 2009 commencing the trading in bitcoins marking the beginning of a decentralised means of payment. Over the years trading in cryptocurrency has boomed and currently the global value of crypto markets surpass over $3 trillion. Block chain mechanism is the mainstay of the concept of cryptocurrency. This mechanism aids in perpetuating and maintaining the list of transactions of a particular cryptocurrency. These records are maintained in a digital ledger. Blockchain also guides in minting the required cryptocurrency on the basis of a few predetermined mathematical rules. Cryptocurrencies do not have any central body that regulates it therefore every transaction happens impeccably on the digital ledger.

Advantages of Cryptocurrencies:

1. There is no central body that regulates cryptocurrencies i.e., they do not have a centralized structure.
2. Blockchain Mechanism has been specially designed promoting anonymity. The traders in the digital platform do not know each other unless and otherwise they decide to keep their accounts private. Secrecy of transactions is maintained at all costs.
3. Cryptocurrencies are gaining popularity due to their ease of use. Traders need not go through tough procedures to trade in crypto currencies.
4. An added advantage of trading in cryptocurrency is that it does not involve any transaction charges.
5. Since there is no third party interference in these transactions, taxes cannot be charged on them.

Disadvantages of Cryptocurrencies:

1. The absence of a regulatory body also poses as a threat. Incidents are there where people started trading in the black market and got duped with money.
2. Being digital form of money, cryptocurrency lack scalability.
3. The value of cryptocurrency fluctuates with the market trends and therefore ate prone to volatility.
4. A major drawback of cryptocurrency is that if there is a loss of data, it leads to financial loss of the traders as there is no regulatory body that safeguards the user information and transaction data.

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Union Budget 2022-23 on Cryptocurrencies in India

1. The finance minister Nirmala Sitharaman, has clearly announced in union budget 2022-23 that-any transfer of virtual currency will be subject to 30% tax,
2. Any form of loss incurred in the transaction will not be permitted to be carried forward,
3. Gift received in the form of cryptocurrencies shall be taxable in the hands of the receiver,
4. RBI, by using the concept of Blockchain a, Central Bank Digital Currency (CBDC) will be issued by the year 2023.

Mining

Cryptography – solving codes to generate a key is what cryptocurrency is made up of. Only through a key, the currency hidden behind the encryption can be seen. And this process of generating key is called mining. Mining is complex process as the person generating the key may need a stable high internet connection, hard labour and knowledge of coding.

Future of cryptocurrency

In a recent survey it was found that India is the fastest growing and quickest developing market for cryptocurrency in the world. The rate of development has been dramatic and higher than that of some other countries. As per the expert's prediction India will forge ahead and play a major role in the cryptocurrency market.The reason for the brilliant fate of cryptocurrency might be because of the dynamic local area and the decisions made by Government. As for cryptocurrency Indian Government is a active player. Indian tech avility is assumed to be a significant part in the development of the cryptocurrency industry.

Conclusion

India has moved from barter system to rupees and from physical transactions to online money transactions. There has been an upgrade in the form of money and in the form of interface of their transactions, on which the businesses are being carried on. As they say change is the only constant thing in human life, it is now time for cryptocurrency as it is seen as a safe transaction method and a promising investment.

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NATURE AND EXTENT OF PROBLEMS FACED BY ACADEMIC COLLEGE LIBRARIANS WHILE UNDERTAKING LIBRARY AUTOMATION PROCESS

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Abstract

Today, the library automation is needed like never before. This is precisely due to the fact that the current era is totally information dependent and the faster information dissipation can only be expected through the library automation. The library resources management has become more scientific, accurate, efficient and effective after implementing the automation process in respective libraries. Many studies and interaction with the librarians working in the academic colleges affiliated to Sant Gadge Baba Amravati University, Amravati have revealed in many conferences and seminars that they face a lot of problems while undertaking the library automation process. Hence, a systematic study was conducted to understand the nature and extent of problems faced by these librarians with respect to above mentioned problems. For this purpose primary data in view of the study objectives was collected using a short questionnaire and though online and offline survey method. The collected data was statistically analysed and the results showed that the librarians faced high problems with respect to finance, infrastructure and manpower related problems, while the extent of technical problems was moderate and personal problems were low.

Introduction

The application of computer technology in library resources management as well as the services marks the progress and development of an era. With advanced science and technology in place of part of human labor, the library resources management becomes more scientific, accurate, efficient and effective to reduce problems of service quality caused by human errors in the process of library resources management. Thus, the library automation is here to stay and needs to be supported on wider scale as the technologies of information management are changing very fast. However, it is also important to realize practical problems encountered by the librarians and other stakeholders while undertaking library automation. Thus, by studying the application of computer technology through integrating theory with practice, the small cracks can be further refined to better serve the public and society, and additionally, achieve more comprehensive benefits.

In order to solve the information management related aspects, managing a library with traditional methods could no longer satisfy public demands for quick, convenient and simple inquiry services. Besides, with so much literature addition the, librarians are becoming less and less productive and the library automation appears to be the solution. Thus, library automation helps in more flexible management of library resources and simplified process, which ensures that all the library resources can be fully taken use of and well protected. For example, encoding and storing books and materials by means of computers can make it easier to add and delete book entries. Since, a well-equipped and well-maintained library is the foundation of modern education structure, the efficacy of the librarians can be expected to increase through the library automation. In view of the above, this study was conducted to determine the nature and extent of problems faced by librarians of academic colleges while undertaking library computerization process. Moreover, the libraries of academic colleges

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affiliated to Sant Gadge Baba Amravati University, Amravati need to be automated for effective use of library facilities by college faculties and students.

Rational of the study

Library automation refers to the process which uses computer to perform library housekeeping duties such as acquisition, circulation control, cataloguing, and reference as well as serials control. One of the major applications of information and communications technology is the automation of major library activities such as circulations, acquisitions, serial control and cataloguing. Since, the pace of library automation is not very high, a systematic study to understand the nature and extent of problems faced by the librarians of academic colleges is needed. Despite of the outstanding significance of library automation many academic college libraries are still not yet automated their services for easy provision of library services to users and hence, this study was very much needed to speed up the library automation process.

Objectives of the study

1. To study the nature of problems faced by the librarians during library automation
2. To study the extent of problems faced by the librarians during library automation

Hypotheses of the study

1. The academic college librarians face multiple problems during library automation
2. There is difference in the extent of problems faced by librarians during library automation

Methodology (Containing method, research design, sampling & tool)

Study Area

The study is delimited to the jurisdiction of Sant Gadge Baba Amravati University, Amravati i.e. Colleges situated in Amravati, Akola, Washim, Buldana and Yawatmal districts will be selected.

Design of Study and Sample Selection

The study is carried out by using a combination of descriptive and exploratory research design, where the librarians of colleges of study region were selected randomly. In this study, data was collected from 300 librarians working in the academic colleges affiliated to Sant Gadge Baba Amravati University, Amravati.

Primary data collection

In this study, all the data generation was done by using standard procedures. Data was collected by using a structured questionnaire (research instrument) and by following survey method.

Secondary data collection

Secondary data collection was carried out from the general publications, scientific journals, publications of educational institutions and associations, various Government organizations, internet resources, research institutes and books from National and International authors.

Statistical Analysis of Data

Analysis of data was done with the help of various statistical tests. The descriptive statistics, such as frequency and percentage were determined from the collected data. The inferential statistics such as 'Chi-Square' test was used to analyze the data. All statistical analysis of the data was carried out with the aid of Statistical Package for Social Sciences (SPSS) 18.0 software. The significance level was chosen to be 0.05.

Analysis of the data and results

Working Experience of the librarian

Table 1: Working Experience of the librarian

Experience (yrs.)	**Nos.**	**Percentage**
< 5 years	26	8.7
5 to 10 yrs.	40	13.3
10 to 15 yrs.	60	20.0
More than 15 yrs.	174	58.0
Total	**300**	**100.0**

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Above Table 1 presents information pertaining to working experience of the librarians working in academic Colleges of SGBAU. 8.7% librarians have less than 5 years working experience while 13.3% librarians have 5 to 10 years working experience. In addition to this 20.0% librarians have 10 to 15 years working experience however 58.0% librarians have working experience of more than 15 years.

Extent of problems faced during computerization of library

Financial problems

Table 2.1: Extent of financial problems faced by the librarian

Extent of problems faced	Nos.	Percentage
High	204	68.0
Moderate	80	26.7
Low	16	5.3
Total	**300**	**100.0**

$\chi^2_{calculated}$: 182.72; df: 2; $\chi^2_{critical}$: 5.99 ; $p<0.05$

Above Table 2.1 presents information pertaining to extent of financial problems faced by the librarians during computerization of the college library. 68.0% librarians highly faced financial problems during computerization of library while financial problems faced by 26.7% librarians were of moderate level. In addition to this 5.3% librarians faced less financial problems during computerization of the library.

Technical problems

Table 2.2: Extent of technical problems faced by the librarian

Extent of problems faced	Nos.	Percentage
High	87	29.0
Moderate	186	62.0
Low	27	9.0
Total	**300**	**100.0**

$\chi^2_{calculated}$: 128.94; df: 2; $\chi^2_{critical}$: 5.99 ; $p<0.05$

Above Table 2.2 presents information pertaining to extent of technical problems faced by the librarians during computerization of the college library. 29.0% librarians highly faced technical problems during computerization of library while for 62.0% librarians it was moderate. In addition to this 9.0% librarians faced less technical problems during computerization of the library.

Personal problems

Table 2.3: Extent of personal problems faced by the librarian

Extent of problems faced	Nos.	Percentage
High	39	13.0
Moderate	67	22.3
Low	194	64.7
Total	**300**	**100.0**

$\chi^2_{calculated}$: 136.46; df: 2; $\chi^2_{critical}$: 5.99 ; $p<0.05$

Above Table 2.3 presents information pertaining to extent of personal problems faced by the librarians during computerization of the college library. 13.0% librarians highly faced personal problems during computerization of library while for 22.3% librarians it was moderate. In addition to this 64.7% librarians faced less personal problems during computerization of the library.

Infrastructure related problems

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Table 2.4: Extent of infrastructure related problems faced by the librarian

Extent of problems faced	Nos.	Percentage
High	169	56.3
Moderate	77	25.7
Low	54	18.0
Total	**300**	**100.0**

$\chi^2_{calculated}$: 74.06; $\chi^2_{critical}$: 5.99 ; $p<0.05$

Above Table 2.4 presents information pertaining to extent of infrastructure related problems faced by the librarians during computerization of the college library. 56.3% librarians highly faced infrastructure related problems during computerization of library while for 25.7% librarians it was moderate. In addition to this 18.0% librarians faced less infrastructure related problems during computerization of the library.

Manpower related problems

Table 2.5: Extent of manpower related problems faced by the librarian

Extent of problems faced	Nos.	Percentage
High	203	67.7
Moderate	65	21.7
Low	32	10.7
Total	**300**	**100.0**

$\chi^2_{calculated}$: 164.58; df: 2; $\chi^2_{critical}$: 5.99 ; $p<0.05$

Above Table 2.4 presents information pertaining to extent of manpower related problems faced by the librarians during computerization of the college library. 67.7% librarians highly faced manpower related problems during computerization of library while for 21.7% librarians it was moderate. In addition to this 10.7% librarians faced less manpower related problems during computerization of the library.

Conclusions

Extent of financial problems faced by the librarian

On the basis of the study results it is evident that the extent of financial problems faced by most ($p<0.05$) of the librarians (during library automation) working in academic colleges of SGBAU was high.

Extent of technical problems faced by the librarian

On the basis of the study results it is evident that most ($p<0.05$) of the librarians working in academic colleges of SGBAU faced moderate level of technical problems during library automation process.

Extent of personal problems faced by the librarian

On the basis of the study results it is evident that most ($p<0.05$) of the librarians working in academic colleges of SGBAU faced low level of personal problems during library automation.

Extent of infrastructure related problems faced by the librarian

On the basis of the study results it is evident that most ($p<0.05$) of the librarians working in academic colleges of SGBAU faced high level of infrastructure related problems during library automation.

Extent of manpower related problems faced by the librarian

On the basis of the study results it is evident that most ($p<0.05$) of the librarians working in academic colleges of SGBAU faced high level of manpower related problems during computerization of library.

Hypotheses Testing

The academic college librarians face multiple problems during library automation

From the study results it is evident that the librarians working in the academic colleges face multiple problems such as finance, infrastructure, manpower related problem while undertaking library automation process. Hence the hypothesis which states that, *"The academic college librarians face multiple problems during library automation"* is **accepted**.

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There is difference in the extent of problems faced by librarians during library automation In the backdrop of study results it is evident that the extent of problem faced by the librarians working in the academic colleges is different. Hence the hypothesis which states that, *"There is difference in the extent of problems faced by librarians during library automation"* is **accepted**.

Recommendations

1. Study finding shows that librarians of the academic colleges highly face financial, technical, infrastructure and manpower related problems hence the college management should provide funds for the acquisition of computer systems, installation of software, and for infrastructure of the library.
2. Proper training should be provided to the library staff and if required appointment of new ICT literate staff should be done.
3. The complaints and suggestions given by the librarians should be considered during and after library automation to render services effectively and to meet the needs of the users.

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A PANORAMIC VIEW OF POWER OF LANGUAGE, POPULAR CULTURE AND CULTURAL DISTORTIONS IN THE POST-RACIAL AMERICA OF PAUL BEATTY

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Abstract

The focus of this research article is to explore the power of language, cultural fabrications, and modern racism in the novels of Paul Beatty. The mutation of human's social life due to the advent of popular culture draws the special attention. The indispensable influence of media and high technology produce meaning, status and prestige. Therefore, this article explores the cultural distortions and sudden wreck of the mass in African society. Beatty's various characters pave way to exhibit the subtleties of racism in the post-racial America. The emotional abuse acts as the hindrance for the upliftment of young artists and sports men in the novels. Beatty's satirical use of language provides a vivid picture on the prevalence of power structure. The perpetuation of color-blindness among the American's remain as disguise. Thus, this research paper delves in exploring the cultural and social frictions among the blacks in their own community.

Introduction

The White Boy Shuffle, Slumberland, Tuff and *The Sellout* are the four novels of Paul Beatty. As an African descendant, Beatty transports his knowledge on the prevalence of power structure and modern racism. The research traces the footprints of monolithic racism, power of language, culture and arts. Postmodernity extends itself in every community people of Beatty's novels. The younger generation thrives to uplift their social status in each arena is notable. They march forward despite of discriminations and remarkable scars of the past and present in the so called post-racial America. Beatty also throws light on the American's use of language towards blacks.

Popular culture makes its gradual entry from academic literature into popular consciousness of everyday lifestyles. This culture has set a trend in the lifestyle of majority of people. Popular culture erases the boundaries of elite and low culture. This article also scrutinizes the root of human's experience of consumption rather than production. Paul Beatty as a writer living in this era of Postmodernity reflects the contemporary social identity. The roots of personal, collective and cultural identities among the people are to excavate the radical shift in the nature of relationship. An expansion in the number of texts and technologies form the postmodern cultural life. The contemporaries overwhelming need for novelty in performance, styles and manners brings the cultural turn. The postmodern traditions of popular entertainments help in the recycling of culture. The popular culture is a breakdown to distinguish the elite art from popular arts. The high culture gets undermined because of the commercial exploitation of mass taste. As a consequence, popular and elite cultures enjoy the equal value.

Postmodernism blurs the distinction between the different levels of culture. This new movement allows people to accept popular culture as a common one. The postmodern condition relates itself to the dissolution of traditional class and status groupings. The advent of machine and mass culture questions the harmonious and close personal relationships. The commercial values triumph over human ones. The pursuit of wealth gains priority more than the personal well-being.

Themes of this research article:

Paul Beatty's transmission of the satirical notions on the present America with a comparison of Germany sets the plots for his novels.) Colorblindness is a half-measure to prevent racism but it remains only as a

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myth. This ideology is also an operation of racism. Colorblindness denies the negative racial experiences, ignores their cultural heritage, and invalidates their unique perspectives of blacks in *The Sellout* "I find myself colorizing things" (8). In Beatty's *Slumberland* "The Negro is now officially human. Everyone, even the British, says so. It doesn't matter whether anyone truly believes it; we are as mediocre and mundane as the rest of the species. The restless souls of our dead are now free… (33).Beatty ironically puts forth in *Slumberland* thus, "Blackness is passé" (4). The color blind thinking paves the way to exercise power over the blacks. The special treatments of blacks or minorities generate inequality among others. Beatty writes in *The Sellout*,

…blackness has officially been declared passé. Finally, us colored folk will be looked upon blithe indifference, not erotized pity or the disgust of Freudian projection. It's what we've claimed we always wanted, isn't it? To be judged 'not by the color of our skins, but by the content of our character?' Dude, but what we threw down was the content not of character, but out of character. It just happened to be of indeterminate blackness… (16)

The vivid portrayal of injustice and stereotypical views draw the attention of the readers. The controlling images of blacks divest human qualities and the capacities. The explicit settings like academia and the work place deprive the possibility of cultivating individuality, self- determination and social domination. Therefore, in *The White Boy Shuffle,* "we black men are afraid of many things, among them the police, water and the math section of the Scholastic Aptitude test" (18) The stimulation of fear of accusation brings down the young black men in the society. The powerful stigmas like blacks are an "unapprehended habitual offender" and they are sole responsible of any crimes in the society. The usage of pejorative terms to address the blacks as "niggers" shows the imprints of supremacy of whites. The struggle of an individual to mingle with others explicated thus, "My inability to walk the walk or talk the talk led to a series of almost daily drubbings. In a world where body and spoken language were currency, I was broke as hell." (52)

The novels of Paul Beatty culls out the exercise the wide spread of mass culture in *Slumberland*, "Unified as only an invisible people without a proximate community to turn one's back on can be. Human muesli, they're multilingual and multikulti, exceedingly well mannered and groomed…" (178) The celebration of ethnic diversity irrespective of color, creed, religion, ethnicity, caste and culture are the unifying forces to transform Germany into a paradise for the blacks. The multiculturalism implies freedom to the people of different communities. It also fosters socio-cultural harmony, mutual tolerance and respect to different ethnic groups and their distinctive cultures. Popular culture enables the formation of youth culture and it also enters into all walks of their lives. It offers variety to the 'marginal' groups. The postmodern popular culture is keen in celebrating consumerism, hedonism and style with the help of media and technology. It endorses the idea of difference and heterogeneity. It also tends to erode the collective and personal identities. Thus, the self centered individualism disrupts the stable identities. Language, social institutions and cultural forms produce the subjectivity. As Frederic Jameson rightly states that "everything in social life can be said to have become cultural" Hence, the society receives its call to rethink the aesthetic aspect of everyday life.

The experience of loneliness and rootlessness in the life of Gunnar is an indication of disharmony within himself. In Beatty's *The White Boy Shuffle* "pacifying myself with thoughts of possible acceptance into their world" (57) the young blacks attempt to find himself among others where the language, culture, and identity are not their own. The middle classes and the educated drift their attention from high culture to popular culture.

Conclusion

The ultimate aim of any art is to contribute for the growth of human development. It requires building a harmonious community in the commercial age. The media saturates and distorts the reality rather than reflecting the real. The

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superficial pleasures and satisfaction of the postmodern society destroys an authentic and unified culture. It portrays itself as synthetic and divided one. The musical tradition identifies itself with hybridity, the mixture of fusions of styles. According to Frederic Jameson that in the postmodern society it is impossible to generate new styles but only to imitate the dead ones.

The young black intellectual's turmoil to get into Jazz and the blues like armors with the combination of zeal. The young artists battle which is misunderstood by both the black worlds and the white. The Africans struggle among the large chunks of the American art worlds. The culture of blacks gets commoditized in the postmodern world of consumerism. The blacks perform in order to exhibit their culture to create an empire for themselves. The African American aesthetics need to be embraced in order to demote the racial bias which elevates hegemony. The reinforcing stereotypical images of blacks as savages, primitive and grotesque dissuade in the postmodern cultural world.

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ETHION INDUCED CHANGES IN THE PROTEIN METABOLISM OF ALBINO RAT

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Abstract
*Ethion[(*O,O,O′,O′*-tetraethyl* S,S′*-methylene bis(phosphorodithioate))] an organophosphorous (OP) insecticide was introduced seven decades ago for use on plants and animals as an insecticide, acaricide and ovicide. The aim of present study was to investigate the sublethal effects of ethion induced alterations in protein metabolism in the liver of Albino rats. Adult male Albino rats of Wistar strain were orally administered Ethion (1/5th of LD_{50} i.e. 42mg/kg body weight) for 30 days with an interval of 48h. Animals were randomly divided into four groups. The first group served as control. Second group of animals was treated with ethion for 10 days, third and fourth groups of animals were administered for 20 days and 30 days respectively. Total proteins decreased in ethion administered groups while all the parameters studied in the present investigation showed an increase and this increase was more in 30 days when compared to 20 days and 10 days administered groups. All the parameters studied in the present investigation were severely altered in Ethion exposed Albino rats. The present study has revealed significant alterations in all the important metabolites and enzymes of protein metabolism in different tissues of Ethion exposed Albino rats. The physiological and biochemical activities in the Albino rats were completely disturbed after the oral administration of Ethion. The present study suggests that Ethion exerts its toxic effect by altering all the parameters of protein metabolism in all the vital tissues of Albino rats.*

Key Words: *Albino rats, Ethion, LD_{50}, Protein Metabolism.*

Introduction

Organophosphorus (OP) compounds have been widely used for a few decades in agriculture for crop protection and pest control, thousands of these compounds have been screened and over one hundred of them have been marketed for these purposes (Mogda *et al.*,2009). OP pesticides are often used indiscriminately resulting in detrimental exposure to humans and other nontarget species. Currently OP compounds are the most frequently used pesticides worldwide (Heudorf *et al.*, 2006). All vital organs like liver, kidney, heart, nervous and reproductive systems are seriously impaired under OP exposure (FerahSayim, 2007). Ethion [(*O,O,O′,O′*-tetraethyl *S,S′*-methylene bis(phosphorodithioate))] an OP compound was introduced in 1956 for use on plants and animals as an insecticide, acaricide and ovicide. Ethion, is a major environmental contaminant in many parts of the world and poses a significant threat to environmental and public health. Among many OP compounds Ethion is one of the substances that were approved for use in agricultural crops. Ethion is an insecticide that is used in a variety of forms and in several oil solutions and combinations with other chemicals. As a result, the acute toxicity values vary considerably. Ethion poisoning has been reported in workers harvesting grapes and peaches. Hence, in the present study, we have examined various constituents and enzymes related to protein metabolism in the liver of Ethion exposed *Albino rats*. Bhatti *et al.* (2011) reported that *in vivo* administration of Ethion results in oxidative damage to erythrocyte membranes in the rats. The present study clearly indicates that Ethion exposure seriously impairs protein metabolism in the liver of *Albino rats*.

materials and methods

Test Chemical

Ethion (92.5%) pure in crystalline form was obtained from Hyderabad chemical limited, Hyderabad, A.P. India.

Animal and Experimental Design

The protocol was approved by the Institutional Animal Ethics Committee, S.V.

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University (Regd. NO. 438/01c/CPCSEA). Male adult *Albino rats* of 7 weeks old and aged 200 ± 20g. was obtained from Indian Institute of Science (I.I.Sc.), Bengaluru. They were housed in an ambient temperature 28 ± 2°C in a 12 h light/dark cycle and a minimum humidity of 40%.The animals had free access to commercial pellet diet supplied by SaiDurga Feeds and Foods, Bengaluru, India and water *ad libitum*. All the male healthy adult male *Albino rats* were randomly divided into four groups having six rats per group. The first group animals were considered as control animals. Second group of animals was treated with ethion via oral gavage ($1/5^{th}$ of LD_{50} *i.e.* 42mg/kg body weight) for 10 days, third and fourth groups of animals were administered for 20 and 30 days with an interval of 48h respectively.

Biochemical estimations

The total protein content was estimated by the method of Lowry *et al.* (1951). Free amino acid content was estimated by the method described by Colowick and Kaplan (1957). Protease activity was estimated by the method of Moore and Stein (1954) considering the amount of free amino acids liberated from the protein substances as a measure of proteolytic activity. The activity of aspartate aminotransferase (AST) was assayed by the method described by Bergmeyer and Bernt (1965). The activity of alanine amino transferase (ALAT) was assayed by the method described by Bergmeyer and Bernt (1965). The activity of glutamate dehydrogenase (GDH) was assayed by the method of Lee and Lardy (1965). Ammonia was estimated by the method of Bergmeyer (1965). Urea was estimated by the diacetylmonoxime method as described by Natelson (1971).

Histopathological studies

For light microscopic examination, samples of liver from the control and Ethion administered rats were fixed in Buoin's fluid. After a routine processing, paraffin – embedded tissue samples were sectioned at 3 – 5µm thickness and stained with Mayer's haematoxylin and eosin.

Statistical treatment

The data were subjected to One way Analysis of Variance (ANOVA) and post ANOVA tests (S-N-K test) using SPSS (ver. 21) in the personal computer and $p < 0.01$ was considered as statistically significant.

Results

Biochemical changes

The results are presented in the Table 1. Ethion exposed *Albino rats* showed a decrease in the protein content. All the enzymes studied in the present investigation and ammonia and urea content in the liver of Ethion exposed rats showed an increase when compared to the control. The increase was more in 30 days exposed *Albino rats* when compared to 20 days and 10 days.

Histopathological changes

Histopathological studies of ethion exposed animals reveal marked pathological changes in liver which include moderate to severe infiltration of inflammatory cells, mild congestion, dilated sinusoids, Nuclear Degenerative Change (NDC), sinusoidal Hemorrhage (SH), Focal Necrotic Areas (FNA), Amyloid Precipitation (AP) and other degenerative changes in hepatocytes.

Table 1: Biochemical and enzymatic changes in the liver of Ethion intoxicated *Albino rats*

Liver	Control	10 days	20 days	30 days	F value
Total Proteins (mg/g. wet wt. of tissue)	167.665 18.207	133.291 9.262 (-20.50)	119.952 12.378 (-28.46)	95.611 11.139 (-42.98)	26.583*
Free amino acids (µmoles of tyrosine/g. wet wt. of tissue)	72.863 6.377	82.965 7.284 (13.86)	95.381 7.792 (30.90)	104.118 10.526 (42.89)	11.374*
Protease (µmoles of tyrosine/mg protein/h)	1.612 0.173	1.812 0.155 (12.41)	2.069 0.122 (28.35)	2.225 0.177 (38.03)	12.187*
Aspartate Amino transferase (µmoles of pyruvate/mg protein/h)	1.457 0.137	1.633 0.130 (12.08)	1.800 0.124 (23.54)	1.941 0.149 (37.28)	10.414*

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Alanine Amino transferase (µmoles of pyruvate/mg protein/h)	8.137 0.469	9.086 0.439 (11.66)	10.053 0.757 (23.54)	12.001 0.739 (47.48)	34.167*
Glutamate dehydrogenase (µmoles of formazon/mg protein/h)	0.678 0.086	0.805 0.124 (18.73)	0.864 0.085 (27.43)	0.930 0.076 (37.17)	7.080*
Ammonia (µmoles of ammonia/g. wet weight of tissue)	9.251 0.471	10101 0.287 (9.19)	11.033 0.997 (19.26)	12.023 0.666 (29.96)	21.437*
Urea (µmoles of urea/g. wet weight of tissue)	3.875 0.267	4.555 0.344 (17.55)	4.978 0.384 (28.46)	5.740 .0.200 (48.13)	31.854*

Values are expressed in Mean ± SD of six individual observations. Values in parenthesis indicate % change cover control.

Mean values with the same superscript do not significantly differ among themselves through S-N-K test. *P < 0.01

Discussion

Exposure to sublethal doses of ethion induced typical signs of OP toxicity. All the parameters studied in the present investigation were significantly altered under OP stress. The effect of ethion was time dependent and 30 days exposed rats showed more effect when compared to 20 and 10 days exposed animals. During the last three decades, extensive use of OP compounds in agriculture has led to drastic effects on non-target animals. Majority of these chemicals are unfortunately not highly selective and therefore have been proved highly toxic to man and other desirable forms of life that co-inhabits the environment. Improper application of these pesticides, therefore, poses serious illness and death. When the membranes of any organs are damaged, majority of the enzymes like AST, ALAT and alkaline phosphatase are secreted into the blood (Ncibi *et al.,* 2008). The serum enzymes are markers of organ damage (Eraslan *et al.,* 2009). Safi *et al.* (2010) and Ben Amara *et al.* (2011) reported that OP raises ALT and AST levels in rats.

This is inconsistent with the results obtained in the present investigation. Yahya *et al.* (2012) reported that the morphology of the various organs is damaged under OP toxicity. Proteins are the source of energy during chronic period of stress. During these stress conditions the animal requires more energy to detoxify the toxicants and to overcome stress. In the present investigation an increase in the amino acids was observed indicating that it is the result of the breakdown of protein for energy requirement and impairment of amino acid synthesis (Singh *et al.,* 1996). It is well known that stress conditions induce elevation in the transamination pathway. Any abnormality or stress in the amino acid metabolism has its own consequences by elevating the catabolic products like ammonia and urea. This causes a serious disruption in the normal metabolism.

Pesticides and their metabolites are detoxified mainly by the liver. Marked elevation in the free amino acid content was noticed in the liver of Ethion exposed *Albino rats*. The rapid rise in the free amino acid contents is attributed to stepped up proteolysis or increased synthesis of free amino acids by transaminase action. The increase in the free amino acid pool may also be useful to the rats to overcome stress under Ethion exposure. The GDH activity in the Ethion exposed *Albino rats* showed a significant increase which indicates an increased oxidation of glutamate. GDH catalyzes the key reactions which provide substrates for either protein synthesis or carbohydrate metabolism. The increased GDH activity in the present investigation might have led to an increased oxidation of glutamate with a consequent production of ammonia. This is augmented by the changes in the transaminase activity. An increase in the GDH activity may also be due to the mitochondrial permeability or lysosomal damage and since GDH is a mitochondrial enzyme, any alteration in the organization of mitochondria may lead to the alteration in

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the enzyme activity. AAT and ALAT activities showed a significant increase in Ethion exposed rats. Transaminase activity is reported to increase during pathological conditions. In the present investigation it can be suggested that liver has been significantly damaged under Ethion exposure. Ammonia and urea are waste products of protein metabolism that need to be excreted by the liver. Therefore, marked increase in ammonia and urea indicates functional damage to the liver. An increase in the urea and creatinine was also observed in OP exposed animals (Garba *et al.*, 2007).Bhatti *et al.* (2010) studied the hepatoxicity in ethion exposed rats. They reported that ethion toxicity leads to a significant increase in the activities of superoxide dismutase, catalase and glutathione peroxidase and glutathione reductase in the liver. They also reported that ethion causes damage to the liver tissue. In addition, the decrease in GR activity was observed in ethion administered rats compared to control.

To understand the toxicological effects of pesticide it is essential to study the histology of the tissue. The extent of the severity of the damage to the liver is a consequence of the concentration of the toxicant and is also time dependent. The severity of the damage also depends on the toxic potentiality of a particular compound or pesticide accumulated in the tissue. Liver is the major detoxification centre and this organ is frequently susceptible to toxic effects. In the light microscopic examinations, histopathological changes were observed in the liver of ethion exposed *Albino rats*. The histological observations of the liver in the Ethion exposed *Albino rats* reveal central vein congestion (CVC),Dilated sinusoids(DS), Nuclear Degenerative Change(NDC), sinusoidal Hemorrhage (SH), Focal Necrotic Areas(FNA) and Amyloid Precipitation(AP). The results of the present study suggest that Ethion adversely affects liver functions leading to its physiological impairment. Ethion might have affected protein metabolism and detoxification system in the liver. The present study suggests that Ethion exerts its toxic effect by altering all the parameters of protein metabolism in the liver of the *Albino rats*.

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SYNTHESIS, STRUCTURAL, TEXTURAL, OPTICAL, PHOTOLUMINESCENCE AND MAGNETIC PROPERTIES OF HEMATITE (A-FE_2O_3) NANOPARTICLES. EVALUATION OF *IN-VITRO* ANTIOXIDANT AND CYTOTOXICITY ASSAYS

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Abstract

We fabricated Hematite (α-Fe_2O_3) nanoparticles from thermal decomposition iron(III)malonatedihydrazinate ([$Fe_2(C_3H_4O_4)_3.2N_2H_4$]) inorganic precursor which was prepared by the co-precipitation method and characterized through EDS, ICP-AES, FT-IR and TG-DTA analysis. To characterize the composition, structural phase, chemical state, morphological, textural, optical, photoluminescence and magnetic properties of fabricated Hematite (α-Fe_2O_3) nanoparticles techniques such as EDS, ICP-AES, XRD, FT-IR, Raman, XPS, SEM, TEM, BET, UV-DRS, PL and VSM were used. In addition, the in-vitro antioxidant activity of Hematite (α-Fe_2O_3) nanoparticles was assessed by DPPH free radical assay and calculated IC50 value found to be 44.52µg/ml. Also, we found the half maximal Inhibitory Concentration (IC50) value of Hematite (α-Fe_2O_3) nanoparticles against MCF-7 cell lines (in-vitro) was found to be 97.6652µg/ml.

Keywords: *Hematite, malonate, hydrazinate, co-precipitation, DPPH, MCF-7.*

Introduction

Hematite (α-Fe_2O_3) nanoparticles are scrutinizing as valuable materials due to their novel characteristics, optical[1], magnetic[2] and electrical properties[3]. Thus, because of these properties among past decades, hematite nanoparticles exhibit spacious applications in various fields like photocatalysis[4], lithium batteries [5], gas sensors[6], solar cells[7], pigments[8], magnetic data storage devices, ferro-fluid technology[9], drug carriers for magnetically guided drug delivery[10] and magnetic resonance imaging (MRI)[11]. According to previous works, to synthesize hematite nanoparticles different methods were used which includes sol gel[12-13], hydrothermal[14-16], electrodeposition[17], Microwave assisted[18-19], electrospinning[20-22], pulsed laser deposition[23-24] and co-precipitation[25-27]. Among these methods, particularly the co-precipitation method paid intensive attention due to its ease of preparation at low temperature and inexpensive nature. Hence, in this work, we used the co-precipitation method to synthesize Hematite (α-Fe_2O_3) nanoparticles from iron(III)adipatedihydrazinate inorganic precursor. From hydrazine derivatives, α-Fe_2O_3 and γ-Fe_2O_3 nanoparticles were prepared earlier[28-29] but there is no information on the iron(III)adipatedihydrazinate inorganic precursor used for synthesizing hematite nanoparticles. Also, herein we report the synthesis of Hematite (α-Fe_2O_3) nanoparticles from thermal decomposition of iron(III)malonatedihydrazinate inorganic precursor prepared via co-precipitation method and then their composition, structural phase, chemical state, morphological, textural, optical, photoluminescence and magnetic properties through their characterization techniques EDS, ICP-AES, IR, Raman, XRD, XPS, SEM, TEM, BET, UV-DRS, PL and VSM. Further, we evaluated *in-vitro* antioxidant and cytotoxicity assay for as-synthesized Hematite (α-Fe_2O_3) nanoparticles.

Experimental

2.1 Synthesis of iron(III)malonatedihydrazinate precursor

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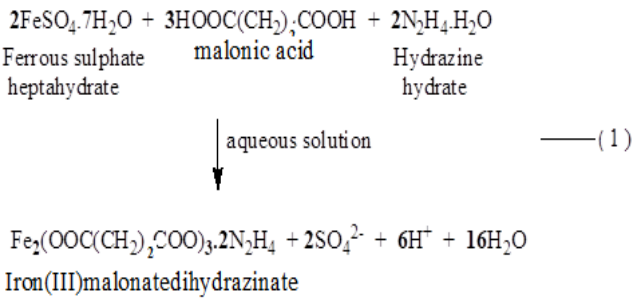
The analytical grade reagents malonic acid, hydrazine hydrate(99.9% pure and density-1.032 g/ml), ferrous sulphate heptahydrate, concentrated hydrochloric acid, carbon tetrachloride, ethanol and diethyl ether were used. Double distilled water was used throughout in this work. Iron(III)malonatedihydrazinate precursor ($[Fe_2(C_3H_4O_4)_3.2N_2H_4]$) was prepared by the addition of an aqueous solution (50 mL) of hydrazine hydrate (2.0 mL, 0.0399 mol) and malonic acid(3.0g, 0.0212 mol) to the corresponding aqueous solution (50 mL) of ferrous sulphate heptahydrate(2.0g, 0.0071 mol) dropwise with constant stirring. A yellowish brown precipitate formed in a few minutes. The obtained reaction mixture was kept aside for one hour, then filtered, washed with water and ethanol followed by diethyl ether to remove adsorbed impurities and then dried at room temperature. Yield: 6.4 g (90.67%). The general equation for the formation of the iron(III)malonatedihydrazinate precursor may be written as follows :



2.2 Synthesis of Hematite (α-Fe_2O_3) nanoparticles

This method involves transferring of the dried iron(III)malonatedihydrazinate inorganic precursor to a silica crucible and calcining in a muffle furnace at 350˚C for 30 minutes resulting in the formation of fine red Hematite (α-Fe_2O_3) nanoparticles (as prepared). The heating source was then removed, the product was allowed to cool to room temperature and then stored in airtight containers.

Characterization techniques

The hydrazine content in the precursor was determined by titration using KIO_3 as titrant under Andrew's conditions[30]. Elemental analysis was performed on an Elementar Vario EL III CHN analyser at digestion temperature in the range of 950-1200˚C. The FT-IR spectra of the solid sample were recorded on an FT-IR spectrophotometer (Shimadzu Prestige-21series) in the spectral range of 4000-400 cm^{-1} using KBr pellets. Differential scanning calorimetry (DSC) measurement of finely powdered sample was performed using a Mettler Toledo DSC 822e. DSC calorimeter at a heating rate of 20°C min^{-1} in the temperature range RT-700 °C. Thermogravimetric (TGA) experiment was carried out using a Perkin Elmer, STA-6000, at a heating rate of 20 °C min^{-1} in the temperature range RT-700 °C. Platinum cups were used as sample holders and alumina as a reference.

ICP-AES of the solid sample was recorded by atomic emission spectrometer (Thermo Electron IRIS INTREPID II XSP DUO). X-ray diffraction (XRD) pattern of the oxide sample was recorded using Schimadzu XRD 6000 diffractometer at room temperature, with the mean Cukα radiation (λ = 1.5418 Å) at a voltage of 40.0 (kV) and a current of 30.0 (mA), between 10° (2θ) and 90°(2θ) with a sampling pitch of 1° in a continuous scan mode and a speed of 10°/min. Raman spectra were recorded by using Bruker RFS 27 with laser source is Nd: YAG 1064 nm. X-ray photoelectron spectroscopy measurement of a product was conducted by using an Omicron ESCA probe spectrometer with monochromatized Al Kα X-rays (1486.6eV). The TEM micrograph of oxide sample was taken using Jeol/JEM 2100 electron microscope at an accelerating voltage of

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200kV. Scanning electron microscopy (SEM) was performed with a Hitachi Model S-3000H by focusing on nanoparticles to study morphology. BET surface area was performed on Quantachrome autosorb automated gas sorption system. An optical analysis was performed with UV-Vis spectrophotometer (Varian, Cary 5000, spectral range 175-800 nm). Photoluminescence characterization of the oxide sample was carried out by Fluromax-4 spectrometer in which Xenon is used as the source. The magnetic measurement of the oxide sample was performed at room temperature by vibrating sample magnetometer (Lakeshore VSM 7410).

Biological activities

4.1 Appraisement of the in-vitro DPPH activity

The hydrogen donating ability of Hematite (α-Fe_2O_3) nanoparticles was examined in the presence of DPPH stable radical[31]. In the present work, by using some modification in DPPH method[32], we assessed the antioxidant activity of Hematite (α-Fe_2O_3) nanoparticles. 1 mL of 0.3mM DPPH methanol solution was added to 1 mL of different concentration of α-Fe_2O_3 nanoparticles (10, 20 40, 60 80 100µg/mL). The mixture was allowed for sonication to enhance the reaction between insoluble Hematite (α-Fe_2O_3) nanoparticles and the DDPH reagent and kept in the dark at room temperature for 30 minutes and centrifuged, the supernatant was collected and the absorbance values were measured at 517 nm. The methanol solution was used as a blank and DPPH solution (1 mL, 0.3mM) with 1mL methanol served as negative control. Ascorbic acid was taken as the positive control. A control reaction was carried without the test sample. The mean values were obtained from the triplicate analysis. The percentage of inhibition was calculated by comparing the absorbance values of the control and test samples. The capability to scavenge the DPPH radical was calculated using the followed equation.

$$\text{DPPH scavenging activity (\%)} = \left[A_C - A_{\text{test sample}}/A_C\right] \times 100 \quad \text{——(2)}$$

Where A_C was the absorbance of the control reaction and $A_{\text{test sample}}$ was the absorbance in the presence of a test sample. For determining IC_{50} (the amount of samples required to scavenge 50% of DPPH) a similar procedure is adopted with 10, 20, 40, 60, 80, and 100µg/mL of the Hematite (α-Fe_2O_3) nanoparticles and absorbances were recorded after 30 minutes.

4.2 Appraisement of the in-vitro assay for cytotoxicity activity (MTT assay)

The human breast cancer cells (MCF-7) were obtained from National Centre for Cell Science (NCCS), Pune and grown in Eagles Minimum Essential Medium containing 10% fetal bovine serum (FBS). The cell was maintained at 37˚C, 5% CO2, 95% air and 100% relative humidity. Maintenance cultures were passaged weekly, and the culture medium was changed twice a week. The monolayer cells were detached with trypsin-ethylenediaminetetraacetic acid (EDTA) to make single cell suspensions and viable cells were counted using a hemocytometer and diluted with medium containing 5% FBS to give a final density of $1x10^5$ cells/ml. One hundred microliters per well of cell suspension were seeded into 96-well plates at a plating density of 10,000 cells/well and incubated to allow for cell attachment at 37˚C, 5% CO_2, 95% air and 100% relative humidity. After 24 h the cells were treated with serial concentrations of the test samples. They were initially dispersed in phosphate buffered saline by sonication and an aliquot of the sample solution was diluted to twice the desired final maximum test concentration with serum-free medium. Additional four serial dilutions were made to provide a total of five sample concentrations. Aliquots of 100 µl of these different sample dilutions were added to the appropriate wells already containing 100 µl of the medium, resulting in the required final sample concentrations. Following sample addition, the plates were incubated for an additional

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48 h at 37˚C, 5% CO_2, 95% air and 100% relative humidity. The medium containing without samples were served as control and triplicate were maintained for all concentrations. After 48 h of incubation, 15µl of MTT (5mg/ml) in phosphate buffered saline (PBS) was added to each well and incubated at 37⁰C for 4h. The medium with MTT was then flicked off and the formed formazan crystals were solubilized in 100µl of DMSO and then measured the absorbance at 570 nm using microplate reader. The % cell inhibition was determined using the following formula.

$$\% \text{ Cell inhibition} = \left[100 - Abs_{sample}/Abs_{control}\right] \times 100 \quad \text{——(3)}$$

Nonlinear regression graph was plotted between % Cell inhibition and Log concentration and IC_{50} was determined using GraphPad Prism software[33,34].

Results and discussion

5.1 Characterization of the precursor

5.1.1 Analytical data

The analytical data of iron(III)malonatedihydrazinate inorganic precursor was given in Table 1. The hydrazine content in the precursor was determined by titration using KIO_3 as titrant under Andrew's conditions[30]. The percentage of elements (C, H, N) and metal (Fe) present in the inorganic precursor were analysed by using Elemental analysis (CHN), EDS and ICP-AES techniques. The analytical data of the precursor is found to be good agreement with the proposed composition of the iron(III)malonatedihydrazinate ($[Fe_2(C_6H_8O_4)_3.2N_2H_4]$) inorganic precursor.

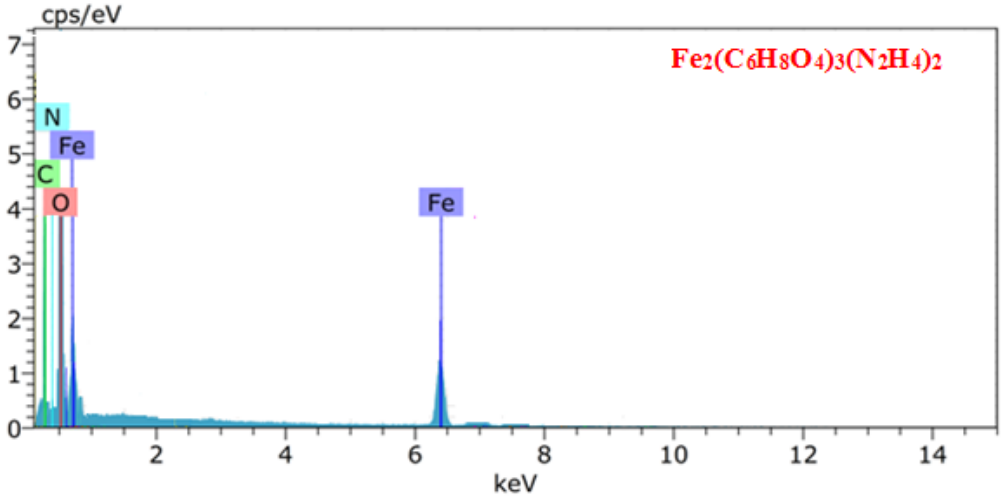

Figure S1. EDS spectra of $[Fe_2(C_6H_8O_4)_3.2N_2H_4]$ precursor.

5.1.2 FT-IR analysis

Investigation of FT-IR spectra of iron(III)malonatedihydrazinate inorganic precursor shows the occurrence of N-H stretching frequency at 3302 cm^{-1}. From the FT-IR spectra, the asymmetric and symmetric carbonyl stretching frequencies at 1612-1550 and1411-1319 cm^{-1} shown by this precursor with an average separation of ($\Delta v = v_{asym} - v_{sym}$) of in the range of 201-231cm^{-1} suggests the unidentate coordination of carboxylate ions to the metal ions. Thus, the adipate dianion coordinates to the metal as the unidentate ligand in the precursor[35]. The N-N stretching frequency appears in the region at 972 cm^{-1} attributes to bridging bidentate nature of hydrazine moieties[36].

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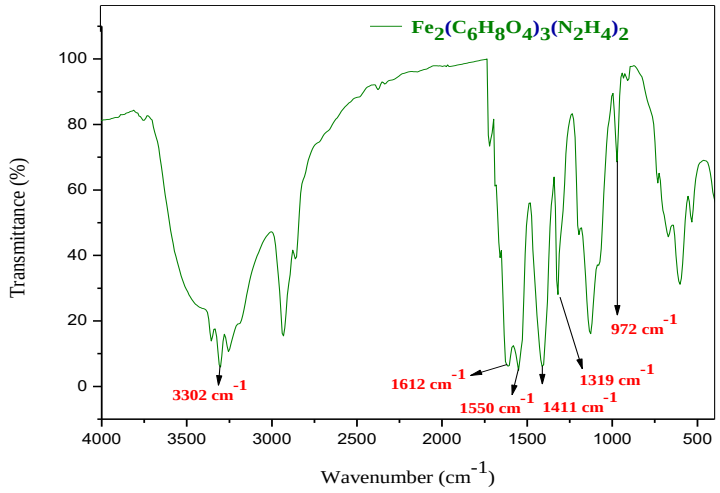

Figure S2. IR spectra of $[Fe_2(C_6H_8O_4)_3.2N_2H_4]$ precursor.

5.1.3 TG-DTA analysis

From TG-DTA, the inorganic precursor $[Fe_2(C_6H_8O_4)_3.2N_2H_4]$ undergoes total weight loss in a single step. The total weight loss of about 80% on the TG curve indicates that the precursor undergoes simultaneous dehydrazination and decarboxylation in a single step observed in the temperature range 300-400°C corresponding DTA peak show the sharp endotherm at 314°C to give fine powders of metal oxide as final residue. Thus, to analyse the products obtained from thermal decomposition of $[Fe_2(C_6H_8O_4)_3.2N_2H_4]$ inorganic precursor by FT-IR, Raman, XRD and XPS analysis, this sample was heated up to 350°C in a muffle furnace in the air atmosphere for 30 minutes.

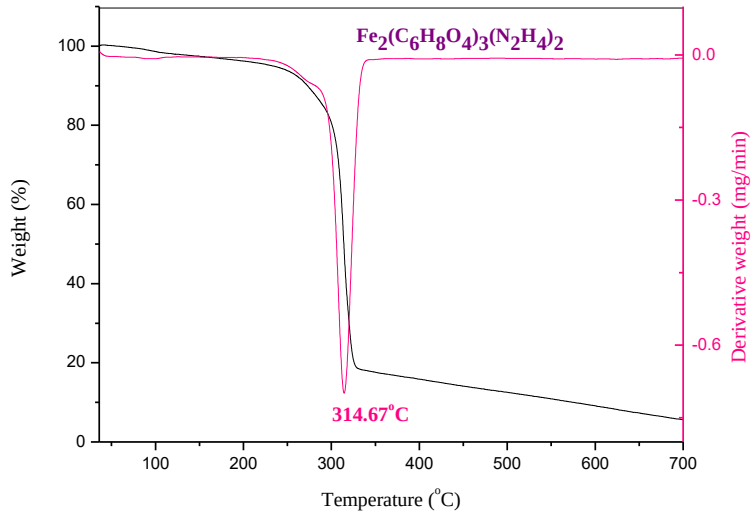

Figure S3. TG-DTA of $[Fe_2(C_6H_8O_4)_3.2N_2H_4]$ precursor.

5.2 Characterization of Hematite (α-Fe_2O_3) nanoparticles

5.2.1 Elemental composition analysis

The presence of elements such as Fe and O in hematite (α-Fe_2O_3) nanoparticles has been analysed by EDS and their compositions have been identified by using ICP-AES analysis. From these findings, no contamination element was detected.

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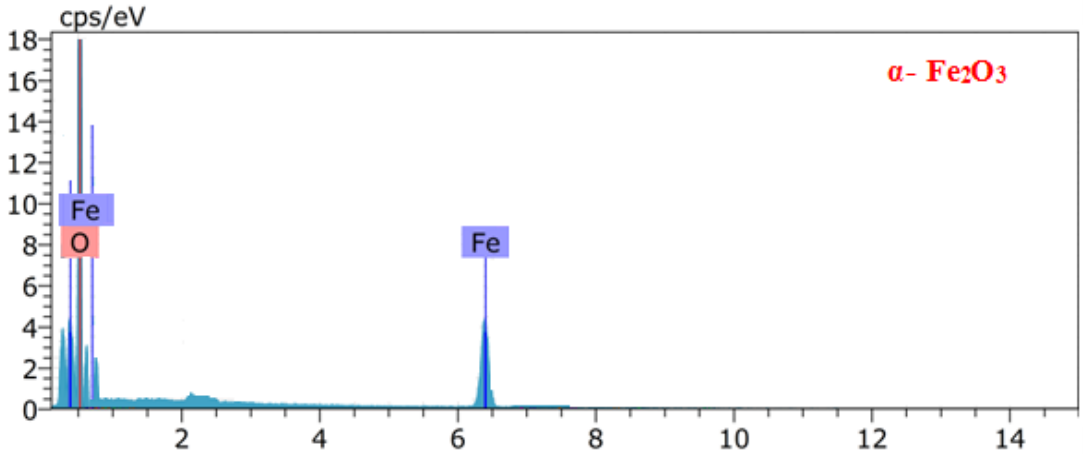

Figure S4. EDS spectra of Hematite (α-Fe_2O_3) nanoparticles.

5.2.2 Structural analysis by X-ray diffraction

Figure 1 shows, the powder X-ray diffraction pattern of α-Fe_2O_3 nanoparticles recorded at room temperature. The XRD pattern of Hematite (α-Fe_2O_3) nanoparticles contains characteristic peaks at 2θ = 24.09°, 33.19°, 35.57°, 40.90°, 43.22°, 49.63°, 54.09°, 57.25°, 62.66°, 64.09°, 72.09° and 75.46° corresponding to the plane orientation (012), (104), (110), (113), (202), (024), (116), (122), (214), (300), (119) and (220) perfectly, matched with the standard reference material JCPDS card number (86-0550). Thus, it can be noticed from the Figure, the XRD pattern of Hematite (α-Fe_2O_3) nanoparticles was indexed to the rhombohedral (hexagonal) structure having $R\bar{3}c$ space group as we expected. By using the Debye-Scherrer formula, $D = K\lambda/\beta\cos\theta$, where θ is Bragg diffraction angle, K is Blank's constant, λ is the wavelength of X-ray radiation (1.54), and β is the full width at half maximum (FWHM) of the peaks at the diffracting angle θ, the average crystallite size calculated was about 23 nm[37].

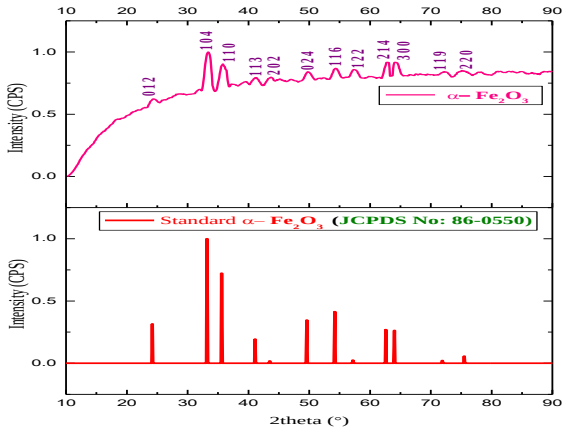

Figure 1. XRD patterns of standard and Hematite (α-Fe_2O_3) nanoparticles.

5.2.3 FT-IR and Raman analysis

FT-IR spectra of Hematite (α-Fe_2O_3) nanoparticles portrays (Figure 2), the occurrence of two absorption bands at 476 and 565 cm^{-1}, implies the formation of Fe-O bond[38,39]. Also, the Hematite (α-Fe_2O_3) nanoparticles were investigated by Raman spectra to identify the phases in it. Figure 3 represents, the peaks at 265.6 and 498.3 cm^{-1} are assigned to A_{1g} phonon modes whereas, the peaks at 245.2, 293.7, 409.1 and 611.4 cm^{-1} are related to E_g phonon modes, which are analogous to earlier reports[40]. In addition, no other iron oxides such as Fe_3O_4 and γ-Fe_2O_3 were detected indicating the purity of the sample. So, the

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results obtained from XRD, FT-IR and Raman analysis, we confirm the calcined product obtained from iron(III)adipatedihydrazinate precursor is Hematite (α-Fe_2O_3).

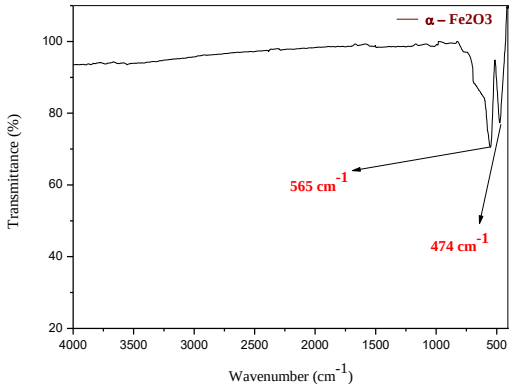

Figure 2. FT-IR spectra of Hematite (α-Fe_2O_3) nanoparticles.

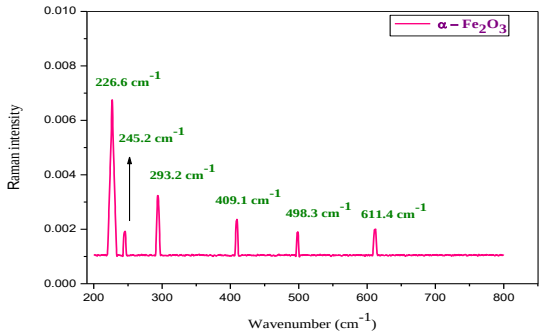

Figure 3. Raman spectra of Hematite (α-Fe_2O_3) nanoparticles.

5.2.4 XPS analysis

To obtain further information about the chemical state and binding energy of Hematite (α-Fe_2O_3) nanoparticles, XPS analysis was performed. Figure 4a-4b depicts, the presence of Fe and O elements. Fe 2p core-level spectra (Figure 4a) states, the two main peaks are located at 711.1 and 724.2 eV, attributed to Fe $2p_{3/2}$ and Fe $2p_{1/2}$ respectively, which are specifically connected with the +3 ionic state of Fe. Along with the two main peaks, two satellite peaks are observed at higher binding energy side (718.2 and 732.7 eV) at about ~8 eV this confirms the presence of only α-Fe_2O_3[13,41] because according to earlier reports Fe_3O_4 does not have satellite peak[42]. Also, the occurrence of Fe^{+3} cations (711.1 eV) rather than Fe^{+2} cations (709 eV) implies the presence of the Fe_2O_3 phase[43]. In addition, previous reports said that XPS spectra for $2p_{3/2}$ of α-Fe_2O_3 have higher binding energy than γ-Fe_2O_3. Thus, in this work, we found that the binding energy of $2p_{3/2}$ of α-Fe_2O_3(711.1 eV) is slightly higher than the binding energy of $2p_{3/2}$ of γ -Fe_2O_3(710.7 eV). Figure 4b demonstrates, one O 1s peak of binding energy at 529.4 eV, which can be ascribed to O^{2-} ions of the lattice oxygen (Fe-O)[13].

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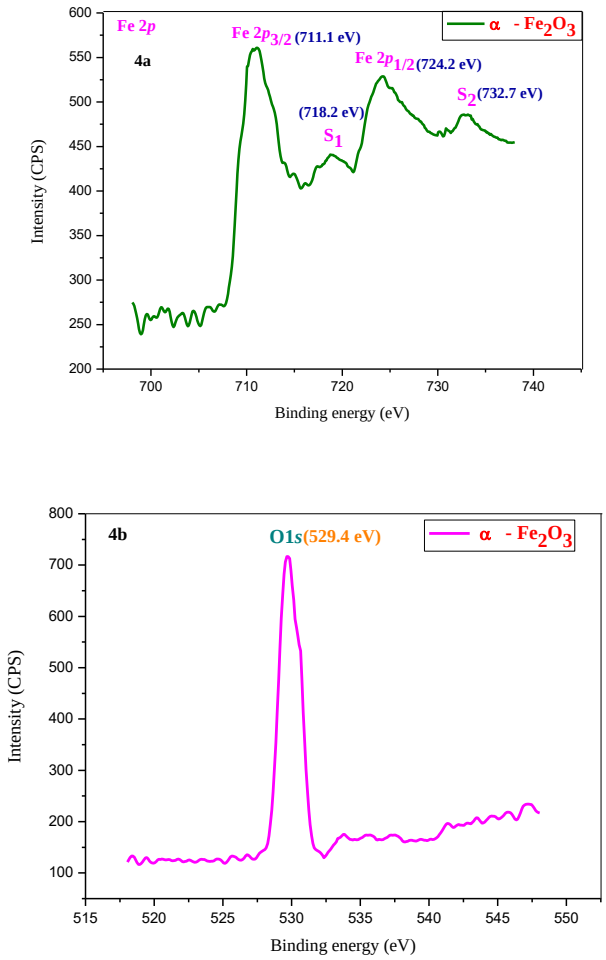

Figure 4. XPS spectra (4a) Fe2*p* and (4b) O1*s* of Hematite (α-Fe_2O_3) nanoparticles.

5.2.5 SEM analysis

SEM picture in Figure 5 of Hematite (α-Fe_2O_3) nanoparticles, clearly showed that the presence of agglomeration in the nanoparticles exhibits irregular spherical-like morphology.

5.2.6 TEM analysis

The TEM micrograph of Hematite (α-Fe_2O_3) nanoparticles is shown in Figure 6, which shows that particles are of spherical shape nanoparticles with the presence of agglomeration. The average particle size was found to be 20-50 nm, which confirms good consistency with the values obtained from XRD.

e2*p* and (4b) O1*s* of Hematite (α-Fe_2O_3) nanoparticles.

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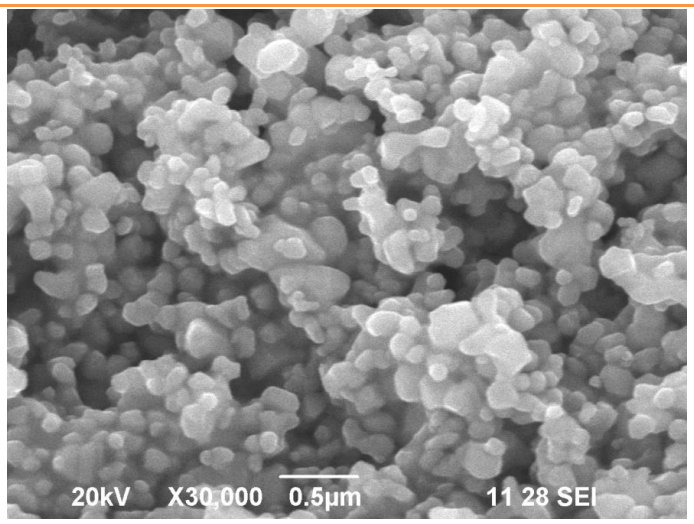

Figure 5. SEM image of Hematite (α-Fe_2O_3) nanoparticles.

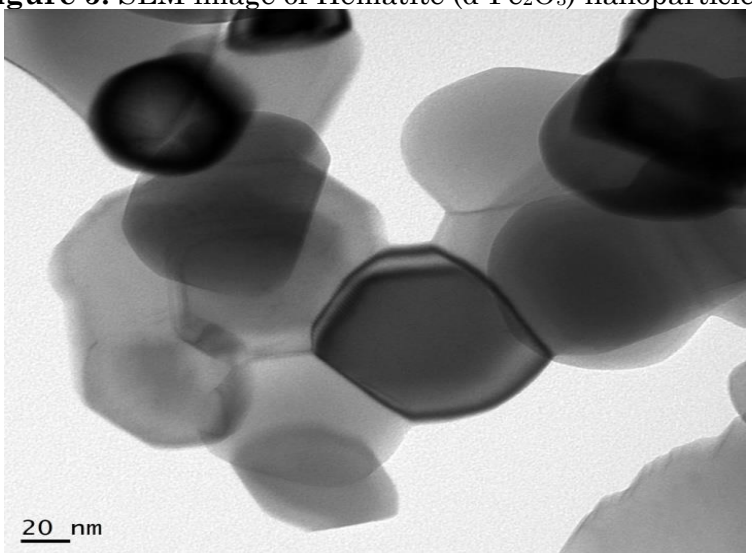

Figure 6. TEM image of Hematite (α-Fe_2O_3) nanoparticles.

5.2.7 Textural analysis

The N_2 adsorption and desorption measurements were performed to estimate the texture properties of Hematite (α-Fe_2O_3) nanoparticles. The isotherm of the samples shown in Figure 7a is not only classified the type IV isotherm with the H3 hysteretic loop in the range of (0.4-1.0)P/P_o but also revealed the presence of aggregated nanoparticles.

The specific surface area for Hematite (α-Fe_2O_3) nanoparticles have been calculated by using the multi-point Brunauer-Emmett-Teller (BET) equation, is 46.818 m^2/g. The approximate average particle size is found to be about 24.4 nm, which is calculated based on the specific surface using the equation, $D_{BET}=6000/(\rho_{\alpha\text{-}Fe2O3}\times S_{BET})$ (in nm), where S_{BET} = specific surface area (m^2/g) and ρ= theoretical density of α-Fe_2O_3 (ρ=5.24 g/cm^3)[45].

From Barrett-Joyner-Halenda (BJH) method, Pore Size Distribution curve (PSD) shown in Figure 7b has been drawn. The PSD curve shows that the pore size at the maximum position is centred at 25.6 nm for Hematite (α-Fe_2O_3) nanoparticles. From the BJH method, the average pore diameter of Hematite (α-Fe_2O_3) nanoparticles is found to be 4.5 nm is calculated by using the relation, $D_p=4V_{BJH}/S_{BJH}$, where V_{BJH}= pore volume (cm^3/g) and S_{BJH} = surface area of pores(m^2/g)[46]. From the above results, there is good consistency with the values observed by XRD, TEM and BET.

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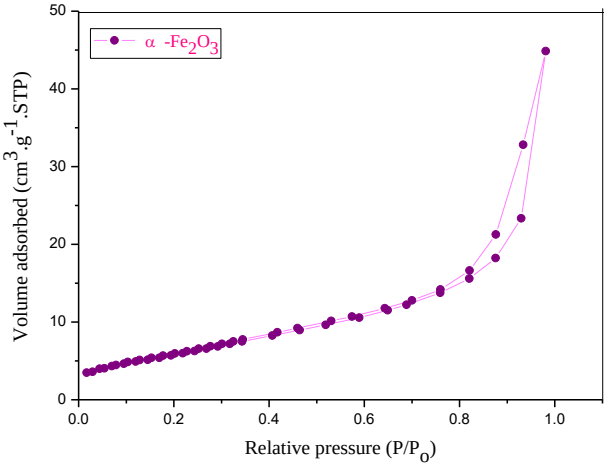

Figure 7a. N_2 adsorption-desorption isotherm of Hematite (α-Fe_2O_3) nanoparticles.

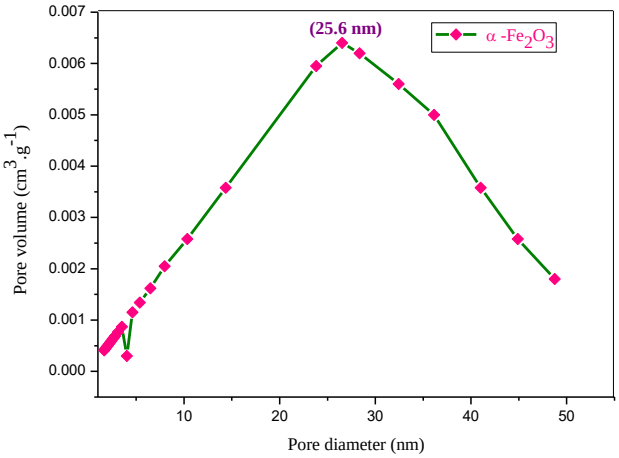

Figure 7b. BJH pore size distribution curve of Hematite (α-Fe_2O_3) nanoparticles.

Optical properties

The UV-Diffuse Reflectance Spectra of absorbance and reflectance (Figure 8a-8b) helps to understand the optical properties of Hematite (α-Fe_2O_3) nanoparticles. As in Figure 8a, Hematite (α-Fe_2O_3) nanoparticles exhibit wide absorption from 250 to 700 nm with maximum absorption in the visible region centred at 434 nm. In Figure 8a, it can be seen that from 250 to 700 nm, Hematite (α-Fe_2O_3) nanoparticles show a very low reflectance which corresponds to high absorbance. Similarly, the region between 700 to 800 nm with low absorbance, shows very high reflectance. By using the following equation, $E_g = 1240/\lambda_{cutt\text{-}off}$, the band gap energy about 1.74 eV was estimated. This value was lesser than the value reported previously[47-48] for Hematite (α-Fe_2O_3) nanoparticles which is due to the quantum confinement effects by the nanosized particles.

Photoluminescence (PL) spectra

The PL emission spectra of the Hematite (α-Fe_2O_3) nanoparticles were measured at room temperature with an excitation wavelength of 434 nm, as shown in Figure 9. It exhibits an intense green emission band centred at 516 nm in the visible region can be observed. Here, this observed green emission results from defects such as oxygen vacancies (based on discussed above XPS O1s spectra of Hematite (α-Fe_2O_3) nanoparticles)[13].

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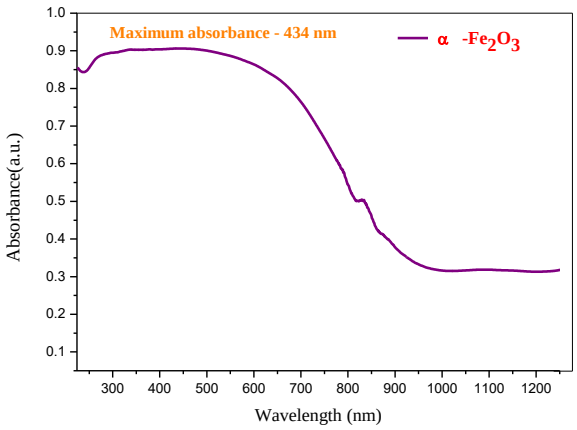

Figure 8a. UV-DRS spectra for absorbance of Hematite (α-Fe_2O_3) nanoparticles.

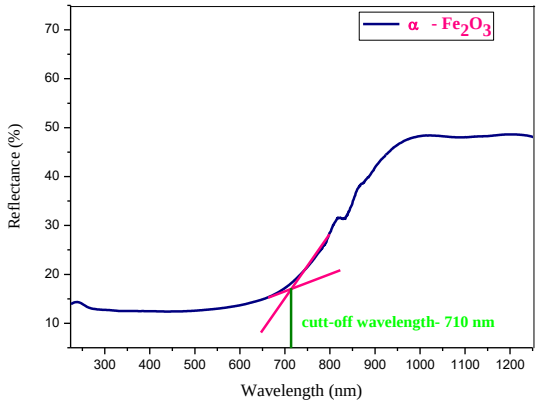

Figure 8b. UV-DRS spectra for Refectance of Hematite (α-Fe_2O_3) nanoparticles.

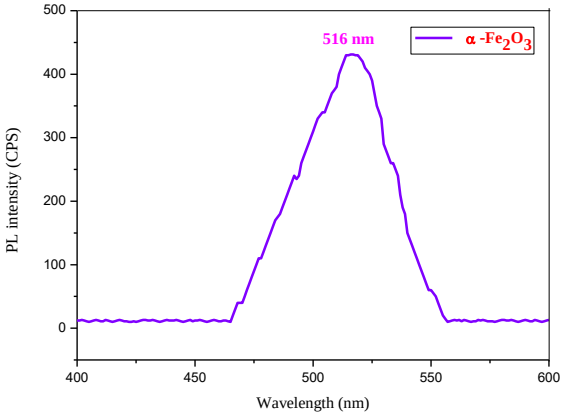

Figure 9. PL spectra of Hematite (α-Fe_2O_3) nanoparticles.

Magnetic Properties

Figure 10 portrays magnetic hysteresis (M-H) loop taken at room temperature with an applied magnetic field in the range of ±20,000 Oe. The magnetic parameters such as saturation magnetization (M_s-1.6942x10^{-3} emu.g^{-1}), retentivity magnetization (M_r-25.828x10^{-6} emu.g^{-1}) coercivity (H_c-81.718 Oe) and squareness (M_r/M_s-0.0152) were observed. Also, the values of anisotropy constant (K_a) of Hematite (α-Fe_2O_3) nanoparticles was calculated as (K_a-0.1412), by using the relation, $K_a=H_cM_s/0.98$, where H_c= coercivity and

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M_s=saturated magnetization[49]. Similarly, the magnetic moment (μ_m) per unit formula in Bohr magnetron of Hematite (α-Fe_2O_3) nanoparticles was also evaluated as (μ_m-4.844x10^{-5}), by using the relation, $\mu_m=M_sM_w/5585$, where M_s= saturated magnetization, M_w= molecular weight of the sample and 5585= $\beta \times N$ [β is Conversion factor (9.27 × 10−21); N is Avogadro's number][49] . From the above results, the observed low values for magnetic parameters such as M_s, H_c, M_r, M_r/M_s, K_a and μ_m reveals the occurrence of weak ferromagnetism in Hematite (α-Fe_2O_3) nanoparticles.

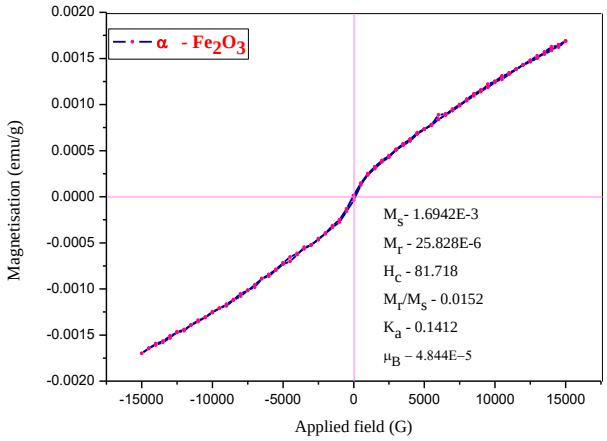

Figure 10. Magnetization(M) *vs* applied field (H) plot of Hematite (α-Fe_2O_3) nanoparticles.

5.3 Biological activities

5.3.1 In-vitro antioxidant activity of Hematite (α-Fe_2O_3) nanoparticles

Figure 11 displays, the DPPH free radical scavenging ability of Hematite (α-Fe_2O_3) nanoparticles with ascorbic acid as standard. The percentage of antioxidant activity of Hematite (α-Fe_2O_3) nanoparticles was assessed by DPPH free radical assay in a dose-dependent manner, because, as the concentration of Hematite (α-Fe_2O_3) nanoparticles increases, the DPPH scavenging activity also increased (Figure 11). But, on comparing the DPPH scavenging activity with standard ascorbic acid, the Hematite (α-Fe_2O_3) nanoparticles exhibit lower scavenging activity but higher than previously reported works[50]. Also, the calculated IC50 value for Hematite (α-Fe_2O_3) nanoparticles (44.52µg/ml) was higher than standard ascorbic acid (24.10µg/ml) but lower than previous works[50]. This result suggests that the Hematite (α-Fe_2O_3) nanoparticles have a very good antioxidant potential which can be used in cytotoxicity and hence in medical treatment.

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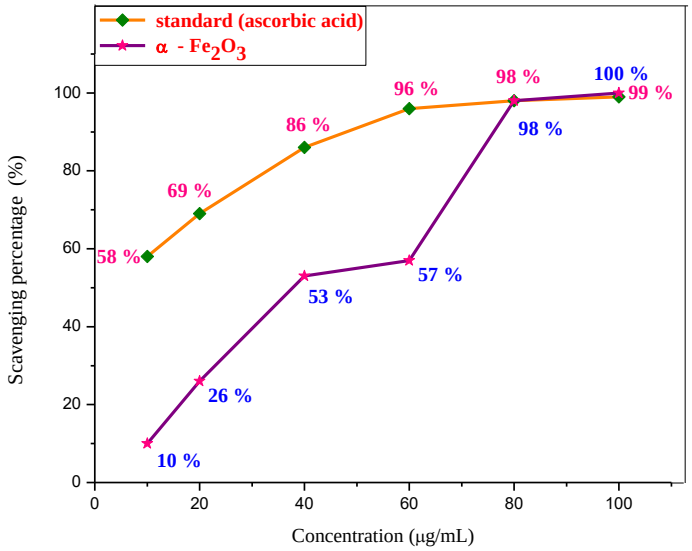

Figure 11. The DPPH scavenging activity of Hematite (α-Fe_2O_3) nanoparticles.

5.3.2 In-vitro cytotoxicity assay of hematite (α -Fe_2O_3) nanoparticles

The cytotoxicity of the Hematite (α-Fe_2O_3) nanoparticles has been investigated against MCF-7 cells via MTT assay. Figure 12 depicts the relative cell viability of cells after they are being treated for 24 h with Hematite (α-Fe_2O_3) nanoparticles with different concentrations ranging from (0.7µg/m-2µg/ml). Controlled samples i.e. untreated samples are also provided for comparison. It has been observed from Figure 12, that the Hematite (α-Fe_2O_3) nanoparticles have inhibited the cancerous cell viability of about 51% at 2µg/ml concentration. Thus, Hematite (α-Fe_2O_3) nanoparticles induced cytotoxicity on MCF-7 cells was found to be increasing with an increase in concentration from 0.7µg/m-2µg/ml. The 50% viability happens at the concentration of 97.66µg/ml which is the half maximal Inhibitory Concentration (IC50). This behaviour of Hematite (α-Fe_2O_3) nanoparticles reveals their dosage-dependent manner like as said in previous reports[51-52]

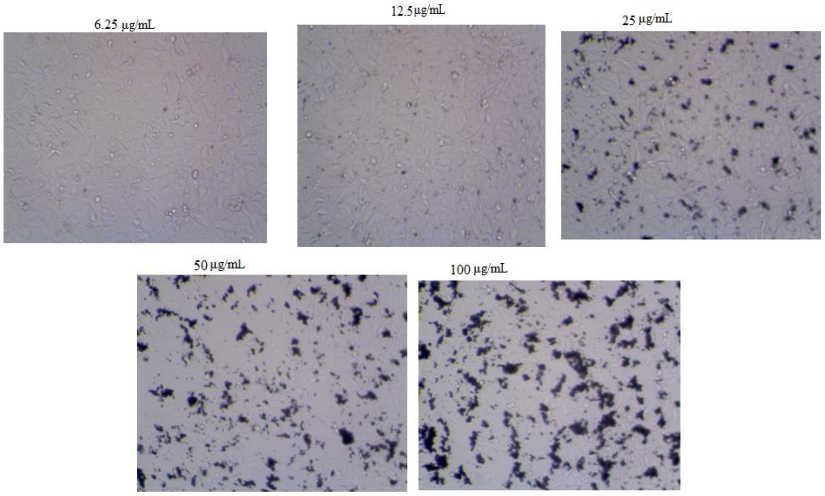

Figure S6. Images of control and different concentrations of Hematite (α-Fe_2O_3) nanoparticles with cells.

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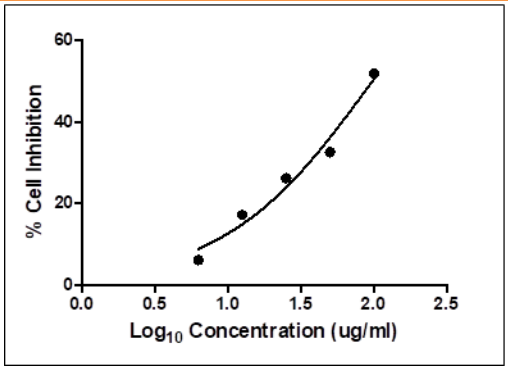

Figure 12. The cytotoxicity of Hematite (α-Fe_2O_3) nanoparticles against MCF-7 cancer cells.

Conclusion

In summary, we have successfully fabricated Hematite (α-Fe_2O_3) nanoparticles via thermal decomposition of an inorganic precursor, Iron(III) malonate dihydrazinate precursor ([$Fe_2(C_6H_8O_4)_3.2N_2H_4$]) which was obtained by a facile co-precipitation method. The inorganic precursor was characterized by EDS, ICP-AES, FT-IR and TG-DTA analysis. The formation of the rhombohedral (hexagonal) structure and purity of Hematite (α-Fe_2O_3) nanoparticles were confirmed by XRD, FT-IR, Raman, EDS and ICP-AES analysis. The oxidation state and binding energy of Hematite (α-Fe_2O_3) nanoparticles were confirmed from XPS analysis. The average particle size of Hematite (α-Fe_2O_3) nanoparticles from XRD is 23 nm which exactly coincides with the results obtained from TEM micrograph.

The SEM image indicated the formation agglomerated Hematite (α-Fe_2O_3) nanoparticles. The specific surface area and pore size distribution of Hematite (α-Fe_2O_3) nanoparticles were estimated from BET and BJH analysis. The optical band gap about 1.74 eV of Hematite (α-Fe_2O_3) nanoparticles was estimated from UV-DRS analysis. PL spectra of Hematite (α-Fe_2O_3) nanoparticles at room temperature revealed emission peak exhibit green emission in the visible region. The weak ferromagnetic behaviour of Hematite (α-Fe_2O_3) nanoparticles was obtained from VSM analysis at room temperature. The in vitro antioxidant and cytotoxicity assays demonstrated that Hematite (α-Fe_2O_3) nanoparticles exhibited significant dose-dependent manner.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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VICIOUS CIRCLE OF CLIMATE CHANGE: A CHALLENGE TO FOOD SECURITY IN DEVELOPING COUNTRIES

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Abstract

Climate changes are expected to exacerbate the environmental problems in the world and there-by pose a very real and direct threat to food security. It negatively affects the agricultural production, productivity and has detrimental effects on the food security. Though all countries are affected by climate change there are some regional disparities in its effect. The rich countries have enough economic resources and they will take adaptive and preventive measures against the climate change. While the less developed countries with their deficit economic resources will fail to cope with climatic change depicting further chances for underdevelopment which will in-turn widen the development gap. Climate changes have adverse impact on agriculture sector leaving the agriculturalists and consumers of less developed countries to endure the negative impacts. There are more intense and extreme events like droughts, flood, cyclones, landslides etc. in developing countries. There is a lot of uncertainty regarding its occurrences, magnitude and frequency but there is cent percent certainty that it poses threat to agriculture sector and intensifies food security challenges in developing countries. From the analysis it has been found that climate change has detrimental effects on India's agriculture production, yield inducing pressure on food availability, nutritional status of people and posing threat to food security. The mitigation measures taken by the Governments are short sighted and the article emphasizes the need for long term measures. It also suggests that there is a need for a paradigm change in the myopic policies adopted by the Governments of developing countries for achieving the sustainable development of agriculture.

Introduction

Climate is the sum total of weather conditions in a region including temperature, rainfall, wind etc... Human influence on ecosystem resulted in warming of the atmosphere and oceans resulting in rising global mean temperature, sea level, changes in water cycle, melting of polar ice and changes in climate conditions. A detailed study on the climatic conditions of past 150 years revealed a rise in overall temperature of earth and recorded the past 25 years as the warmest years. The major effects include flood, hurricanes, droughts etc…affecting food production and yield leading to food crisis and nutritional problems in the world. This study intends to analyze the regional impacts of climate change an its effect on food and nutritional status of people in different regions of the world.

Objectives

The main objectives of the study are:

1. To examine the impact of climate change in different regions of the world
2. To analyze the impact of climate change on food and nutrition crisis in the world

Methodology

The present study is formulated mainly on the basis of secondary data. The required secondary data have been collected from various government, non-government, international agencies reports, journals, etc.

Climate Change And Widening Of Development Gap Between Countries: A Catalyst Of Food And Nutrition Crisis In The World

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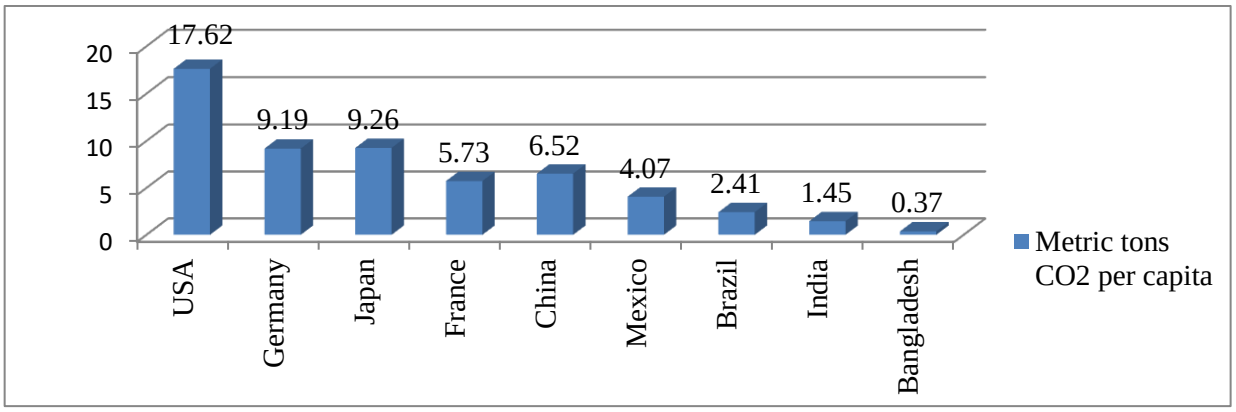
Developing nations are heavily affected by the clutches of climate change compared to developed countries and it is substantiated in the following heads.

Direct impact of climate change:

The IPCC report has confirmed that the main cause climate change is the concentration of Green House Gases as a result of an excessive emission of carbon into atmosphere. Earth can absorb 5 million metric tons of carbon dioxide or equivalent per year but the global emission is over 27 million metric tons per year. Atmosphere being a common property is exploited by all nations. This suicidal tendency of modern world is evidenced from their carbon emission rates.

Figure: 1: Per-Capita Emission of Carbon Dioxide by Country



Source: U.S. Energy Information Administration

The graph 1 clearly depicts the per-capita carbon emission by different countries of the world. United States of America tops the list with 17.62% emission followed by Japan with 9.2% and China 6.52%. India the second most populated state accounts for 1.45 % and many of the African countries emitting only meager amount. Some of the Asian countries like Bhutan are carbon negative countries. They act as carbon sink of the world. Even though Asian and African countries emit small percentage of carbon compared to developed world the negative impacts of climate change are terribly hitting these countries.

Even though climate change affects all parts of the world the adverse effect of the climatic change heavily falls upon the poor and developing countries. The study conducted by IPCC predicts that the regions like Africa would mostly face food crisis and water shortage while most countries in South and South-East Asia will be threatened by the risk of flood. Latin America will experience a dry climate due to the loss of forest cover while South America will meet with water scarcity due to the disappearance of glaciers. The table given below clearly depicts the regional disparities in the effects of climatic change. Table 1 shows the regional-scale impacts of climate change by 2080.

Table: 1: Regional-scale impact of climatic change by 2080 (millions of people)

Region	Population living in watersheds with increase in water resources stress	Increase in average number of coastal flood victims	Additional population at risk of hunger (figures in parentheses assume maximum CO2 enrichment effect)
Europe	382-493	0.3	0
Asia	892-1197	14.7	266 (-21)
North America	110-145	0.1	0
South America	430-469	0.4	85 (-4)
Africa	691-909	12.8	200 (-2)

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Source: adapted from IPCC, 2007b

Table 1 reveals that climate change is expected to affect heavily on Asia and Africa which comprises majority of less developed countries. Even though climate change exerts negative impacts on developed countries, with their abundant economic resources they will take necessary preventive measures and adapt with the changing climate. The developing countries with their scarce resources are forced to spend a good share of their economic resources on mitigation measures. This has a high opportunity cost as these resources could be otherwise utilized for development purpose revealing a possibility of widening the development gap between countries. An economist Stern estimated the cost of climatic change as 10% of GDP per year in a poor country while a much less percentage of 3 in rich countries. This estimate also spots on the possibility that developed countries moves to further development whereas under developed countries or developing countries moves towards further under development

Impact of climate change on food security

Climate change has direct impact on food production, yield and indirect impact on food accessibility and nutrition status of population which in-turn threatens food security. The FAO defines food security as 'a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.' Thus, food security has different components like sufficient availability of food, availability of safe food and availability of nutritious food.

Impact of climate and food availability:

Climate changes have serious impact on agricultural production and productivity and thereby on food availability. The global weather conditions are expected to become more variable with frequent cyclones, floods, hailstorms and draughts. These uncertain events will affect agricultural production through its effect on availability of water, impact on soil, biological health of soil and plant, soil organic matter, erosion, growth of pest, weeds, temperature, humidity, monsoon etc… FAO (2016) estimated a reduction in the global agricultural production rate by 2030-50. The table given below shows the agricultural production rate of different regions of the world.

Table: 2: Agricultural production growth rates (percentage p.a)

	1961- 2007	1987- 2007	1997- 2007	2005/2007- 2030	2030- 2050
World	2.2	2.2	2.2	1.3	0.8
Developing countries	3.3	3.5	3.1	1.6	0.9
idem, excl. China and India	2.9	3.0	3.3	1.8	1.2
Sub-Saharan Africa	2.6	3.2	3.1	2.5	2.1
Latin America and the Caribbean	2.9	3.3	3.8	1.7	0.8
Near East / North Africa	3.0	2.7	2.6	1.6	1.2
South Asia	2.9	2.7	2.4	1.9	1.3
East Asia	4.0	4.2	3.3	1.3	0.5
Developed countries	0.9	0.2	0.5	0.7	0.3
44 countries with over 2700 kcal/person/day in 2005/2007*	2.6	2.9	2.0	1.1	0.5

* Accounting for 57 percent of the world population in 2005/2007.

Sources: "*World agriculture towards 2030/2050 the 2012 revision*", working paper no: 12-03, June 2012, FAO of UN.

This table clearly depicts that the agricultural production rates are declining throughout the world. But the rate of decline in production rate is high for developing countries (73%) compared to developed countries (66%). According to some economists this reduction is due to the fall in population growth and resultant

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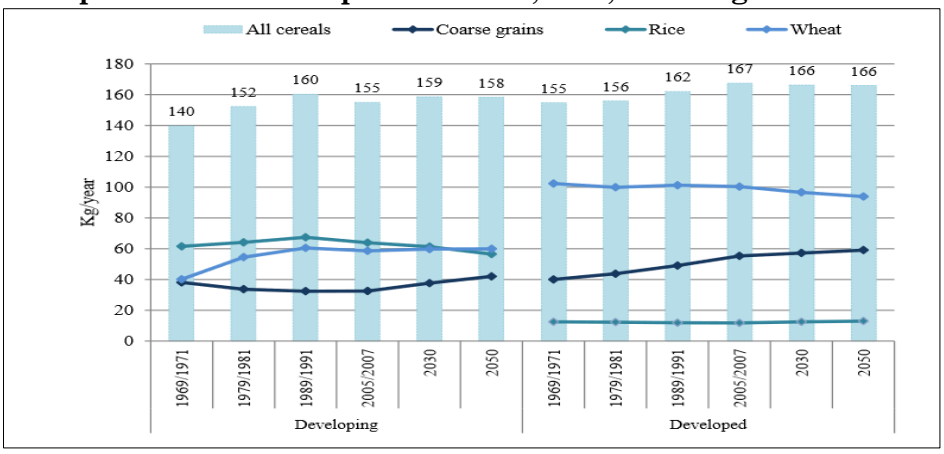
fall in demand. But this is questionable when we take projected per-capita food consumption into consideration. The per-capita consumption of wheat, rice, coarse grains and all cereals of developed and developing countries are given below.

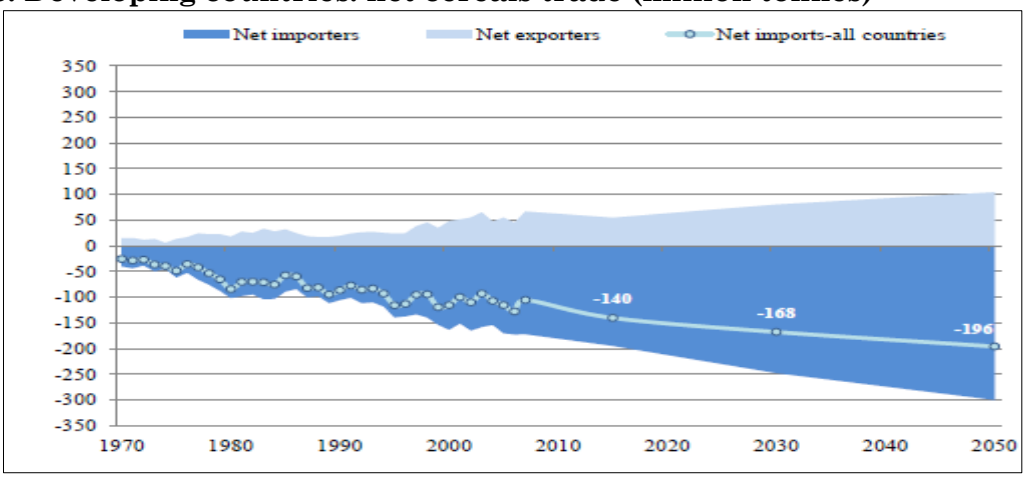
Figure: 2: per capita food consumption: wheat, rice, coarse grains and all cereals



Sources: "*World agriculture towards 2030/2050 the 2012 revision*", working paper no: 12-03, June 2012, FAO of UN.

Graph 2 clearly shows that the per-capita consumption in developing countries declined after 1991 whereas per-capita consumption of developed countries has increased after 1991. This clearly proves that decline in production rate is not due to low future demand but it is due to low agricultural production due to climate changes. FAO (2016) also provides the estimate of net importers and exporters which again prove the disadvantaged position of developing countries. It is depicted in the graph below.

Figure: 3: Developing countries: net cereals trade (million tonnes)



Sources: "*World agriculture towards 2030/2050 the 2012 revision*", working paper no: 12-03, June 2012, FAO of UN.

The graph reveals possibility of many developing countries to move from food exporters to food importers by 2030-50. On account of high population and deficit economic resources the decline in agricultural production results in low per-capita food consumption in the country which will affect heavily on developing countries compared to its developed counter parts. This further shows the possibility of widening of the development gap between countries.

Impact of climate change on availability of safe food: Climate change exerts pressure on food availability leading to food crisis posing pressure on farmers to increase agricultural production and yield. On one hand due to low food availability and increasing food demand people will be ready to take low quality and low nutrition

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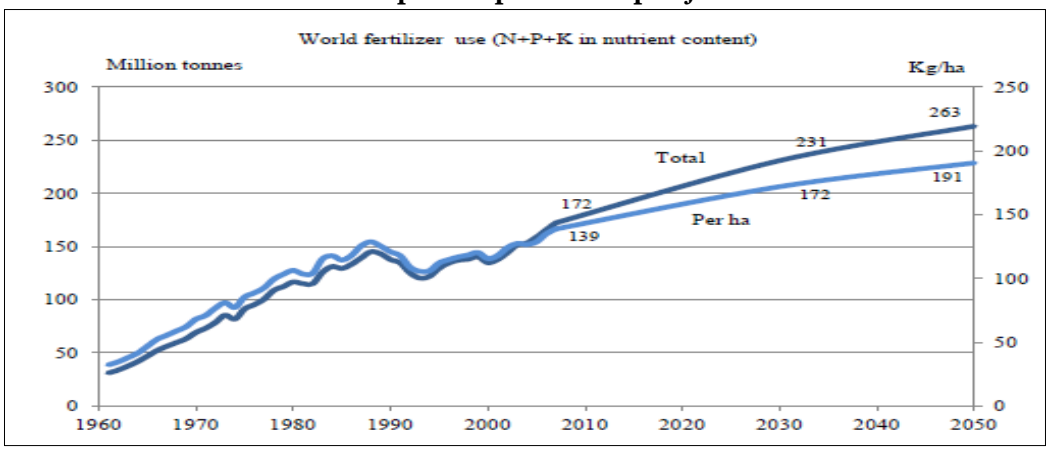
food and on the other hand agriculturalist will try to increase the food production and productivity using more fertilizers, pesticides, modern technology etc… The use of more fertilizers, pesticides etc… are harmful to human health and in-turn threatens food quality and safety. The tendency of using fertilizers, pesticides etc… are increasing in the developing world and it is clearly displayed in the below graph.

Figure: 4: world fertilizer consumption: past and projected



Sources: "*World agriculture towards 2030/2050 the 2012 revision*", working paper no: 12-03, June 2012, FAO of UN.

Impact of climate change on availability of nutritional food

We have already discussed impact of climate change on food availability and availability of safe food. Now we have to deal with nutrition status. This can be assessed using time series data of undernourishment among the world population. FAO statistical book 2015 defines undernourishment as "a state, lasting for at least one year, of inability to acquire enough food, defined as a level of food intake insufficient to meet dietary energy requirements. It is estimated that about one in every nine people in the world lacks active and healthy life (793 million people). Prevalence of undernourishment and its regional differences are revealed by the table given below.

Table: 3: Prevalence of undernourishment (in percentage)

	1990-92	2014-16
World	18.6	10.8
Developed countries	<5.0	<5.0
Developing countries	23.3	12.9
Africa	27.6	19.8
Asia	23.6	12.1
Latin America and the Caribbean	14.7	5.5
Oceania	15.7	14.2

Sources: FAO statistical book 2015

The table shows that the developed countries and developing countries have done better in 2014-16 compared to 90-91. But the major concern is that the developing countries are far behind developed countries posing a threat of food security in the midst of uncertain climatic conditions.

The Model: Vicious Circle Of Climate Change

The impact of climate change is experienced by all the regions of the world irrespective of their contribution to this phenomenon. But the burden of climate change falls brutally on developing countries due to its heavy dependence on

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agriculture, huge poor population and deficit economic resources which make them unable to adapt with climate change. The above data reveals a circular causation of climate change and its impact in the developing countries.

Assumptions:

1. Country under consideration is a developing country or less developed country characterised by huge population.
2. Country is highly dependent on agriculture.
3. The country usually takes myopic policies for the development of agriculture

Working of the model:

Let the developing country under consideration be country A. The climate change primarily creates direct impacts on the country A. The frequency and magnitude of uncertain events like flood, drought, cyclone and other natural hazards increases which directly affects its agricultural sector. The climate change thus reduces agricultural production and productivity inducing stress on country's agricultural export which is the major source of foreign exchange. The uncertain climate change in the later years will increase the stress on domestic food availability and threaten food security in the country transforming it in to a food importer. The export of food items becomes only a meagre percentage of the total exports whereas the imports of agricultural products in total imports increases drastically. The developing country thus loses foreign exchange due to the rise in agricultural imports which was once its potential earner of foreign exchange.

The country will now deviate from its growth trajectory and is about to slip ever so slightly to the dead centres of underdevelopment. The country will then implement myopic polices to improve its agriculture sector as a trial to get back in to the track of development. They will try to address symptoms and fail to address real long-term issues. The developed countries with sufficient resources to undertake necessary long-term measures will move on the path of development while the developing countries get it trapped in the vicious circle of climate change. This discloses the possibility of widening of the development gap between countries in the future.

This increase in development gap will induce more pressure on the country and it will instigate short sighted measures like use of more fertilizers, pesticides, weedicides, change in cropping pattern, intensity, giving subsides etc…to improve its agricultural production. These measures will exploit natural resources and generates environmental degradation. The stress on natural resources and its over exploitation will further intensifies climate change and its impact will again fall severely on (developing country) the country gliding it into under development. The model is similar to vicious circle of poverty and is depicted in the following figure 5.

Figure: 5: Vicious circle of climate change

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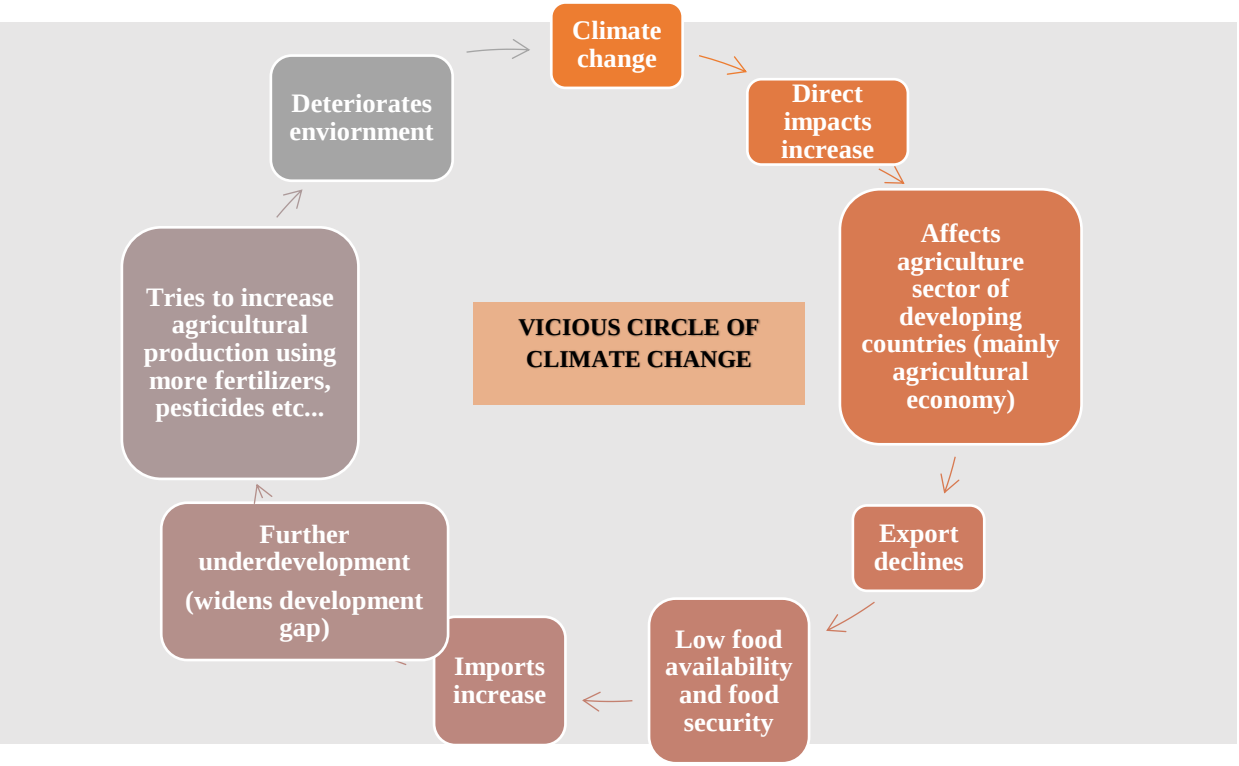

Climate change induces direct impact on agriculture sector and this will reduce its production and productivity. This will reduce the agriculture exports, food availability in the country and threatens food security indirectly. The domestic food crisis transforms the country into food importer and derails it from development track. The country tries to get back to its growth trajectory by myopic measures stimulating stress on natural resources. This will deteriorate the environment and further increases uncertainties in climate change. This is like a circular loop and it continues.

Findings:

1. The unsustainable carbon emissions of developed countries are the main cause of climate change which induced detrimental effects on all regions of the world irrespective of their emission. The direct impacts of climate change fall heavily on developing countries as they only have less resource to spend on mitigation measures showing a possibility for widening of the development gap between countries.
2. Climate change brings about rise in uncertainties in the form of flood, drought, cyclone etc… affecting agricultural production, yield and food availability inducing food crisis and in-turn affecting food security.
3. Every developing country with high population and high dependency on agriculture sector will experience a vicious circle of climate change.

Suggestions

1. Climate change demands an international response and developing countries should initiate this. Countries should reduce carbon emissions and should fix suitable targets. Nations which emit more carbon into atmosphere must give compensation to countries which acts as carbon sink. Developed countries must give financial assistance to carbon negative and carbon neutral countries to respond to overcome climate related disasters and to maintain their carbon neutral status.
2. Government of India should make a paradigm shift from its myopic agricultural policies like increasing MSP, providing subsidies etc… to long term policies like building capital assets, increasing irrigation, power, rural infrastructure, credit facilities,

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spending more on researches etc… Long term measures will reduce the threat of climate change on agriculture and thereby on food security.

3. Government of India should take necessary mitigation measures to cope with climate change like improvement in forecasting and early warning system, establishing hazards and vulnerability mapping, augmenting public awareness, increasing forest cover, creating community-based forest management and afforestation projects.

Conclusion

There exists a vicious circle of climate change in developing countries characterized by high population and high dependence on agriculture. It has been found that developing countries like India will be in the clutches of this vicious circle posing threat to its agriculture sector and food security in-turn reducing its overall development**.** Unless the developing countries take necessary mitigation measures and long-term agricultural policy it will be trapped in under development with a dark future ahead.

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INFLUENCE OF SOCIAL MEDIA ON MENTAL WELL-BEING OF CHILDREN

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Abstract

Everyday human activities have recently been entwined with social media; many of them spend hours each day on Messenger, Instagram, Facebook, and other prominent social media platforms. As a result, numerous academics and experts investigate the impact of technology and apps on many parts of people's life. Without a doubt, social media has become a significant aspect of many 's relationships. Although new networking has many great and pleasant aspects, it may also result in mental health issues. Stress is among the most common mental health issues today. Everyone nowadays is impervious to the digital networking atmosphere. Some youngsters develop anxiety as a result of social media, which prompts them to strive to react to and check all of their friends' texts and comments on a constant schedule. Cyber-bullying in its aggressive form has a negative influence on young people's mental health and well-being. Repeated online tormenting may be a painful experience for an adolescent, causing despair, stress, social phobia, isolation, low self-esteem, and, unfortunately, suicide ideation. With the growth of social platforms, the amount of time children and teenagers spend face-to-face with computer displays have grown substantially. This has resulted in a further decrease in the intensity of interpersonal communication, both inside the family and in the larger social context. Although social networks allow users to communicate with a vast number of people, these encounters are brief and cannot fully replace face-to-face conversation. Social networking has significantly altered how individuals communicate and connect. The purpose of this article is to discuss social media, children's mental health, and the good and bad influence of social media on youngsters.

Keywords: *social media, children, interaction, mental well-being, privacy….*

Introduction

Social media is a continuously changing platform for young people to engage with one another, express themselves, and exchange a wide range of information. It has created an entirely new normative framework that pushes technology and companies while altering people's interactions. Digital networks are a breakthrough online tool that has radically altered people's perceptions of the outside world and has emerged as a vital component of our society. As technology evolves and expands, digital networks are becoming an essential tool for daily socializing. Digital networks are a two-edged sword as a tool. While it has significant advantages, it can also have a negative impact on children. Social media provides a venue for individuals to exchange information and raise awareness about a variety of concerns, including mental health difficulties. Previous research revealed that persons suffering from mental illnesses improved from media platforms. However, social media use is also connected with an increase in sadness, mood, and anxiety problems among teenagers. Browsing social media before bed is no longer simply distracting you from sleep, but also it can literally stop you from being sleepy at all (Holzman, 2010).

Furthermore, it was shown that medical students had a significant frequency of poor mental health. With this context in mind, this study was undertaken to add to the limited literature on the influence of social media on children's mental health. In this day and age of ever evolving trends, social media has risen to one of the most powerful places in a given situation. Nowadays, social digital media has taken the globe by storm; individuals of all ages utilise it. We employ social media sites such as Facebook, Instagram, and Snapchat to share and connect with one another, and these platforms are also very beneficial for looking for data and are an important part of our lives. This has progressed to the point that even a day without one's smartphone is no longer noticeable. Teenagers are huge fans of

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social networking sites like Facebook, Twitter, Instagram, and Snapchat. Frequent usage of these sites has a negative influence on the psychological well-being of young adults, and as a result, mental disorders have grown more prevalent among the whole age group. Teenagers are huge fans of social networking sites like Facebook, Twitter, Instagram, and Snapchat. The frequent usage of these sites has a negative impact on children's mental health. Nowadays, kids are so addicted to social media that they forego vital sleep. Sleep deprivation has been related to serious mental health concerns including sadness and anxiety.

Social media

Today, social media has taken on a distinct role in our lives. It has become an integral part of our lives. In general, social media refers to a group of platforms or programs that allow us to quickly share our views, opinions, moments, and various information. The usage of social media is critical to globalisation, and it has driven about significant changes in the sphere of communication. However, social media has both pros and downsides. Many individuals think that the internet is a benefit for mankind, while others believe that it is a plague on human society in the guise of technological growth. Without a doubt, because to the growth of social media, we can now be unified in a very limited timeframe and acquire other people's opinions on an issue with a click of the mouse, however, we have also experienced many anti-social acts that are driven by social media. As a result, the discussion as to whether new networking is positive or negative for us will continue indefinitely.

We live in an era where information is only a button press away. We are influenced by the information that surrounds us. We millennials want to study, read, comprehend, and then express ourselves. This is where new networking comes in. We cannot disregard social media as one of the most important aspects of our lives. Social media refers to a variety of websites, apps, and many other platforms that allow us to share or generate content as well as engage in social interaction. Social media is more than just blogging and sharing photographs; it also provides a variety of powerful tools. This is due to the enormous and far-reaching effect of social media. It has the power to make or ruin an image.

However, digital networks are a contentious issue today; many see it as an advantage, while the majority see it as a scourge. Most individuals believe that social media is rapidly destroying personal connections and altering current social communication. “These envious feelings may lead to a sense of self-inferiority and depression over time” (Lin et al., 2016). Others, however, believe that it is a godsend that has interconnected us to every corner of the globe, that we may meet our loved ones who are far away, that we can promote awareness through it, that we can send security alerts, and so on. Social media has a lot of potentials. However, it is undeniable that the advent of digital networking has made our lives more comfortable, simpler, and faster.

Social media and Mental Well-being of child

The constant use of online social media can lead to many negative or even dangerous outcomes for adolescents (O’Reilly, et al., 2018). Seeking acceptance from others is an essential aspect of a young person's existence. Negative internet encounters may be damaging to relationships and cause severe depression. Social media exposure can lead to antisocial traits such as bullying, which has a severe influence on the mental health of young people. Cyber bullying can trigger overwhelming psychosocial outcomes including depression, abuse, anxiety, severe isolation, and tragically suicide (O’Keefe, Clarke-Pearson, & Council on Communications, 2011).

Adolescents are particularly prone to 'internet addiction,' since the allure of the social networking site may be immensely seductive. There are several factors that contribute to social media addiction and its negative impact on mental health. Research studies test the role of personality characteristics and levels of self-esteem in adolescents and analyze their level of addictive tendencies toward social media use (Wilson, Fornasier & White, 2010). Analysts are precise in their assertions, attributing

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blame to the popularity of social media possessing damaging consequences on troubled teens though the constituents of depressive episodes, online bullying, and internet addiction, which have been responsible for explaining why young people under the age of twenty-five are in the midst of a psychotic episode.

The positive impact of social media on the mental well-being of a child

Digital networks is a rapidly growing medium that has altered the way people interact and connect. Most youngsters are drawn to these networking platforms because they are simple to use and fun. As a result, it is critical to discuss the implications of online internet on youngsters. Social media, when used responsibly, is a great place to socialize, learn, engage, and have fun; however, when abused or overused, it may lead to cyber-bullying, anxiety, and
health concerns. So, before enabling children to use online networking, we should be informed of its features, privacy, and age restrictions. Social media allows you to connect with individuals from all around the world. Social media has a good impact on children in the following ways:

1. Facilitates communication with distant family and acquaintances
2. Aids in the development of new ideas on numerous topics
3. Allows individuals to discover new things, share ideas, and improve their networking abilities.
4. Provides an excellent platform for increasing your child's education
5. Fosters youngsters to participate in humanitarian activities and campaigns
6. Motivates children to improve their communication skills and incentivizes freedom of speech
7. Allows your kid to interact with academics and facilitators from all over the world.
8. Provides emotional support through tough times; and
9. Encourages the development of technical knowledge and a practical understanding of technologies in your child.

Negative impact of social media on mental health of the child

Young brains can be shaped, and social media may influence how your kid thinks and behaves. They are young and unable to distinguish between good and evil. Some typical side effects include:

Because social media is such a broad platform, it is impossible to manage the quantity of information available. As a result, youngsters may come across unsuitable or dangerous information that may influence their thinking.

1. Cyber-bullying is becoming more widespread on social networks and chat services. It instills fear and humiliation in individuals and may have negative consequences for children.
2. Makes youngsters less productive since most of the time is wasted doing nothing constructive, and they get hooked. These addictions may have a negative impact on their physical health.
3. Overuse of social media use might also have an impact on your child's capacity to form interpersonal bonds.

Strategies to make Children be Safe on Social Media

Because social media has significant negative consequences, parents must be attentive about their children's safety. The following suggestions may help keep youngsters safe on social networking sites:

1. Explain to the youngster that their participation in social media exchanges is not about violating their privacy, but about guaranteeing their safety.
2. Inform the youngster that they must maintain appropriate behaviour on social media networks. They should also notify authorities' right once if they are subjected to harassment or cyber-bullying.
3. Make certain that your child does not engage with strangers or provide too much private content on social media.
4. Conduct research on popular applications that the kids may be using and understand its features so that you may understand how it impacts them.
5. Ensure that the youngster reports anything inappropriate received from online viewers to the site administration.

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6. Encourage the youngster not to discuss intercourse or lovemaking on social media with anybody.
7. Make them aware of internet frauds.
8. Attempting to block and report people they do not recognize or people who post disheartening feedback or content
9. Not going to click on pop-ups - some pop-ups that appear protected can lead to pornographic material sites or ask for a confidential or financial implementation strategy.
10. Accepting connection requests only from individuals whose identities they know

Conclusion

In the subject of education, social media has shown to be a useful resource. Many youngsters publish their difficulties on social media platforms and receive immediate assistance or remedies. The impact of the internet in everyone's life is significant. Children may quickly receive information, fetch, or recover information, and communicate with their instructors, friends, family, and classmates with the use of social media. Students may effortlessly connect with others and get knowledge and information with its assistance. Many individuals have condemned social media since many children squander precious cash and time on the platform. However, because it is frequently faster and easier to acquire information, share information, and connects via social media, it provides a lot of possibilities and lots of alternatives for engagement and acquiring information and can expand their knowledge. Excessive time spent on social media might have a bad impact on one's mental health.

It is not often the number of time youngsters spend on social networks that affects their mood, but how they use it. Seeing the number of "followers" others have and photographs of them having fun, for example, might make youngsters feel horrible about themselves or that they do not live up to the expectations to their peers. Furthermore, youngsters who lurk in the side of a conversation are frequently grumpier than kids who aggressively participate and receive texts to peers. It is now critical to monitor what youngsters do online. Snooping, on the other hand, might alienate them and undermine the trust they've created together. The goal is to be active in such a manner that youngsters realise that you regard their privacy while yet ensuring their safety. Additionally, it is essential to encourage young people to use social networking sites in a good way that benefits their well-being, as well as raise awareness of any harmful impacts of social media use and strive toward prevention.

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CONSERVATION OF WETLANDS FOR ECOSYSTEM DEVELOPMENT

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Abstract-

Wetlands are habitats for rich species which performs valuable ecosystem services such as maintaining biodiversity, managing drought, and controlling pollution, developing agriculture, desalination of wastewater from different sources i.e., enhancing quality of water, food, and carbon sequestration. The wetlands are important to enhance the biodiversity of the area by providing ecological, social, and economic values. Wetland supports huge biological diversity and wide array of ecosystem goods and services. The ecosystem provides food, wood, water, purified air and soil. Wetlands have progressed and reformed to natural fluxes in the hydrological cycle containing droughts, floods, and 'normal' conditions though wetland ecosystems may change during droughts. Wetlands normally recover to pre-drought situations when re-wetted and helps in maintaining healthy and active ecosystems *can purify our water and air, maintain the level of fertility of our soil, and regulate the climate. Wetland help us to make climate change and the consequences for renewal will be recognized differently on a regional and mega watershed level, it's become necessary to identified hat reformation and making proper plan to monitoring by habitat. The most important and powerful advantage of wetlands to desalination water it also help to treat domestic waste water and to generate bioenergy.*

Keywords- *Ecosystem, biodiversity, climate change, wastewater etc.*

Introduction-

Recently people facing various problems due to waste water but this problem may reduce with the help of wetlands to desalination of water. Now we people having responsibility to conserve our ecosystem by developments of wetlands for that purpose we need to create awareness about important of wetlands in all urban and rural areas from local authority, policy making and forming local bodies for implementation, more focus on protecting resources of wetlands. Conservation to wetlands need for collaborative works from different sectors to restoring and rehabilitated purposes.

Importance of Wetlands as follows-

Conservation of Biodiversity

Wetlands are important in supporting species diversity as with any other natural habitat for entire life cycle some vertebrates and invertebrates depend on wetlands, while during particular stages of their life others only associate with these areas [1]. The recycling of nutrients can take place where wetlands provide an environment because photosynthesis can occur, play a sing significant role in the support of food chains [2]. Mainly through modifying the hydrological and sedimentation regimes, Urbanization exerts significant influences on the surface and function of wetlands and the dynamics of nutrients and chemical pollutants on natural water bodies in the cities impact of urbanization is equally alarming [3-4].

Minimization of Pollution

Pollution control to reduce the pollution from the water wetlands areas are helpful Through multiple free water surface flow which is constructed wetlands technique around the world in 1950 [5-6] some studies have mentioned that wetlands have generally used as wastewater treatment plant water waste treatment plant function as the multiple free water surface flow constructed wetlands technique are man-made ponds or tanks for impounding run-off. In underdeveloped rural areas have designed for sewage treatment in remote [7]. As water purifier people have used the wetlands. In the Studies has been reported pollution control and water quality enhancement are one of the most important functions of the wetlands [8-9].

Managing Drought

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To reduce the risk of slow-onset drought events use wetland infrastructure. In the national drought management policies the conservation of wetlands and the maintain tenance or restoration of their ecological character are crucial in coping with drought should be accounted. The indicators by other MEAS linking wetlands, biodiversity and climate change these policies should incorporate guidance [10]. Encourage integrated water resources management and take action against across a range of government sectors to prevent wetland loss. Periodic updates on the ecological character of ramsar sites; national wetland inventories, indicators of wetland extent and earth observation tools, use wetland monitoring tools to warn of slow onset drought events 11]. The ecosystem services provided by wetlands maintain and restore incentivize sustainable agricultural practices." Instead of converting wetlands for agriculture preserve biodiversity and counter climate change by restoring abandoned farmland [12].

.Development of Agriculture and Allied field-

In several types of wetlands Agriculture hoy been carried out for milenia, and the major exams are Crop fields on river floodplain soils and rice fields [13]. Because of the oxidation and subsidence of the pet soils, intensive agriculture use of drained/reclaimed petlands has been shown to lead to major problem Results in low-lying land which needs to be protected against flooding lead to severe carbon dioxide emissions [14].

Balancing Climate change -

The future efforts to restore and manage wetlands more complex can be caused by change in climate. To changes in quantity and quality of water supply wetland systems are vulnerable and through alternations in hydrological regimes with great global variability it is expected that climate change will have a pronounced effect wetlands [15]. A regional and mega-watershed level making it important to recognize that specified restoration and management plans will require examination by habitat, wetland habitat response to climate change and the implications for restoration will be realized differently stressors management and restoration technique are needed with different stressors floodplains mangroves, seagrasses, saltmarshes, arctic peatlands, freshwater marshes and forests are very diverse habitants [16].

Improvising water quality-

Drinking water from urban and agricultural lands many pollutants are washed by rainfall and are carried overland to water bodies soil particles, fertilizers, pesticides, grease and oil from cars and trucks, and road salts [17-18]. By removing pollutant from Surface waters wetlands can improve water quality. Sediment trapping, nutrient removal and chemical detoxification are particularly three important pollutant removal processes provided by wetlands [19-20].

Conclusion-

For regional ecosystem conservation wetland plays a key role such as the controlling climatic condition, to control environmental pollution and balancing atmospheric condition. Wetlands are biggest productive system in the world it formed strong bonding between land and water. Wetland gives us variety of applications for sustainable development it shows very significant applications in conservation of biodiversity, help to enhancing crop yields in agriculture and allied field's development.

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THE IMPACT OF COVID-19 PANDEMIC ON THE MENTAL HEALTH AND EDUCATION OF STUDENTS FROM SECONDARY SCHOOL.

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Abstract
All over the world Covid 19 pedemic and lockdown has brought about a sense of fear, stress and anxiety. This research has lead to short term as well as long term physiosocial and mental health implications for students of secondary schools. The objectives of the study were to find out the impact of covid 19 pedemic on students after opening of the schools. And to check the mental health and awareness about study .For this research method student joined from 10th class form the population. Data Collection method is used. This Research focused on adverse effect on students as they face uncertainty and anxiety.It's result in a routine boredom and lack of innovative ideas for not being able to play outdoors, not meeting friends, not engaging in the in- person school activities.

Introduction

Student well-being has become a concern for many schools and universities globally as they acknowledge the importance of a balance between psychological, social, emotional, and physical aspects of student lives . Student's mental health,well-being includes concepts of motivation, identity, self-esteem, self-efficacy, and self-regulation in the context of learning and matriculating through the program and competencies and reduce their burn-out, stress, frustration, dissatisfaction, and withdrawal from active learning . This unfortunate state of well-being among students undoubtedly has been devastated by the pandemic that has brought suffering, frustration, discomfort, fear, loss, and other negative emotions and experiences.

Theoretical Background and Hypotheses Development

The CoR theory is relevant to better understand the impacts of Covid-19 on students' mental health and education as, they are forced to reduce the social activities to the minimum level, and they should try to manage daily life in the new normal. Simultaneously, Covid-19 remains an international threat to both life and education resulting in widespread public nervousness This continuing global pandemic concurrent with the changes in secondary student's life .

Applying the CoR theory to the current situation this study found that individual reaction and subsequent response to the crisis varies. Some students can bounce back easily and shortly . while some students will develop the symptoms such as depression or other psychiatric disorders. Some students who are able to optimize the resource gains, cope with changes in daily life, and manage their emotions are more likely to perceive the crisis positively. This in turn not only shows their current level of resilience but additionally enables them to develop their resilience capability. Within this dynamic process, their resilience has served to reduce the stress , while students are balancing the resource gain and resource loss they show different levels of resilience and which affect their capability to maintain well-being.

During their program completion under the impacts of COVID-19, students face numerous challenges, demands, and turbulences that influence their mental health. For example, they experience diverse social and economic pressures, have to balance their education, family,, and encounter social isolation, discrimination, language barriers, and cross-cultural differences To successfully address these demands and succeed in their pursuit of education , students at all levels of education and across all disciplines have to have timely and adequate resources These resources help to address students' needs and, hence, reduce their burn-out and stress and increase their engagement in learning activities, meaning making, and life satisfaction We, therefore, predict that COVID-19 lead to students' negative well-being because students may

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experience more stress related to uncertainties in their academic success, negative economic impact, and lack of perceived support Meanwhile, students now feel the need to deploy more time and energy to protect themselves against and recover from resource loss in order to avoid putting their life at risk.

Methodology

Sample and Procedure

The present study is the example of educational research the researcher has used the following design of research methodology for the present study for this research survey or discriptive method is used the researchers collected the data by using different Data Collection tools and came to conclusion that there is really a dress of or impact of covid-19 pen demic over students so there is really need of dress free education for them

The sample was collected from shri Nursinha Vidyalaya,Chas students in India . For this research Questionnaires were collected.

Data Collection tool the researcher has used primary data and secondary data researcher has to use certain techniques and tools to collect both kinds of data anything that becomes a means of collecting information for case study is called researchers tool use of questionnai and interview researchers used for sets of question arrange consisting general and Exeter test of the students where the knowledge no importance of education positive statements and negative statements interviews are a mayor personalize form of Data Collection method than question arrive researchers has been servicing he did proper observation of the students how they we have react in class and other classes significant for the researchers to do the qualitative analysis of the data collected

Population and sample for the presence study of research De target population is the 10th secondary level students belonging to the Srinivasa Vidyalay Chas the reason of this population what chosen is that the resar relates to check the test of students on impact of comedy 1998 includes both male and female students from 10th standards the total number of students in the class are 68 students. The researcher selected sample 40 students out of this 68 by the method of Simple Random Sampling .These samplings are of 14 15 and 16 years old so their mean age is 15.

From the student perspective, universities should be aware of the students' changing emotional responses from positive to negative during the COVID-19 pandemic. Given that the impact of COVID-19 would probably induce more negative emotional states, schools should offer more support for emotional management. This should encourage students to talk about their concerns, worries, and anxiety and to help them destigmatize the fear of COVID-19 on their studies and future. This support should not be a one-time-event, but ongoing. With positive emotions, students are more capable to counterbalance the perceived negative impact of COVID-19 on their mental health and present studies by effectively using different resources to reduce resource loss.

Introduction

The impact of COVID-19 on student's mental health and education' and highlights the adverse impacts of the pandemic on the secondary students. It is estimated that, the Covid-19 pandemic has battered education systems around the world, affecting the students's mental health and education.

Objectives:

1. To find out the impact of covid 19 on student's edcational performance.
2. To check the adverse effects of COVID-19 pandemic on student's health and well-being .
3. To collect the data to check the impact and adverse effect of covid-19 on students mental health and study.

Data collection

Materials and Methods

Questionnaire Design

The questionnaire was designed and an initial test was done on 68 participants to ensure that the draft questionnaire was understandable. The aim and uses of data of the questionnaire were briefly explained at the beginning of the questionnaire. The written questionnaire (Supplementary File 1) was given to the 50 students. The final questionnaire for this study consisted of 18 questions (12 closed-ended and 6 open-ended) divided into two sections as follow: The first section included 8 questions about the

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mental health . The second section evaluated the effect of covid 19 pandemic on the study. This section consisted of ten questions as follow: three single-choice questions, three multiple-choice questions, one Likert-scale question, and three questions with free text answer.

Data Collection

Sample size was calculated to be 68 participants as a minimum number of participants (22). Data collection was done using a spreadsheet linked to the online google form questionnaire. Data collection was done during the period from 20 June 2022 to 30 August 2022

Statistical Analysis

Data were exported and analyzed using SPSS version 21.0 (IBM Corporation). Descriptive statistics were presented as counts and percentages to summarize the collected data. To measure the effect of COVID-19 lockdown on the mental health and education of l students, 5-Point Likert Scale was used. Answers were converted into numeric values as follow (greatly affected = 5 points; considerably affected = 4 points; moderately affected = 3 points; slightly affected = 2 points; not affected = 1 point) (23). To evaluate the impact on student's study ,10-Point Likert Scale was used. Participants were asked to evaluate the given activities with peer to peer and in person (1 was the lowest evaluation and 10 was the highest evaluation).

Questionnaire

General Anxiety Test

Name of the student:-----
Age :-
Male/ Female
Date: 17August 2022
Total score of response code:----
Score analysis:---
Select appropriate response code from the list given below honestly for each of the following questions.
Response code A) not at all-0
B) Rarely -1
C) Sometimes -2
D) Often -3
Sr.No
Items /Questions---Anxiety Feeling
Response Code
1Do you feel anxious?
2Do you feel indifferent to the atmosphere around you or to anything?
3Do you have any incidences or sales that cause you feel fearful?
4Do you feel something ominous or bad will happen?
5Do you feel tress over your mind?
6Do you feel fatigue?
7Do you feel muscle pain in your legs and hands?
8Do you became blank or friend due to fear?
9Do you feel problem of concentration of mind?
10Do you feel fast heart beating?

Analysing data by the technique of PSS:

The first method of the analysis is percieved stress scale developed by S.Cohen (1983) .This method indicate the level of stress as per following formula. As Anixiety leads to increase the stress this method of stress level calculation is used.

Sr.No.
Stress /Anxiety type
Percentage Range of Score
1. Low Stress
0%to 34.00%
2. Moderate Stress
35.00% to 65%
3. High/Severe Stress
66.00% to 100%

Table: Formula of calculating stress.

Findings

1. The impact of covid 19 pandemic and lockdown has adverse effects on student's performance.
2. Covid-19 pandemic has battered education systems .
3. Impacts of covidi 19 pandemic been clearly identified on student's mental health and education.

Conclusion

This research highlight the negative effects on students' mental health and education, This study highlight the negative impact of the increase the risk of school dropouts.Covid 19 poses an even higher risk to girls' education and well-being, as girls are more likely to drop out of school ,also more vulnerable to violence and face child marriage and adolescent fertility. Also, they face difficulties in following instructions, and doing their own work independently.. Finally, it is important to note that the mental

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health, well-being is essential in order to support the student's education. Therefore, propose different support activities to promote student learning, academic performance, and future job opportunities, they should also put in place a variety of resources to support their mental health.. Pedagogy training, emotionall support, offline well-ness programs, high quality information related to Covid-19, peer learning, appreciation attitude, and positive thinking should be promoted.

Recommendations.

1. The present research study like to suggest following remedies over the stres free education among students.
2. Remedial education and socio-emotional support should be given to help students;
3. Restructuring the academic calendar, to adjust for lost school days due to the pandemic;
4. Adapting the curriculum, to prioritize foundational learning (including social-emotional learning) accounting for the lost time;
5. Preparing and supporting school management, to develop and implement plans that ensure health and safety conditions for students.
6. Encouraging re-enrolment, with special emphasis on at-risk of dropouts.

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AN UNDERSTANDING OF THE PROBLEMS AND DIFFICULTIES IN ADAPTING TO CONTEMPORARY TRENDS IN PHOTOJOURNALISM

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Abstract
The world has become a global village that has and continues to witness technology and innovation as its driving force. This has proven to be true in many sectors such as journalism, medicine, engineering, aerospace, business, photojournalism, etc. The field of photojournalism is an important visual medium of journalism that has proven to be a key section of the effectiveness of journalism, as a medium of communication. An important characteristic of photojournalism is that this field uses a visual medium to translate unspoken words. A professional expert in the field of photojournalism is known as a photojournalist. Photojournalism plays an especially important role in visually narrating news events and stories successfully. Over the past decade, this virtual medium has witnessed immense evolution and changed those results to be a trend. Through this paper, the researcher aims to understand the hardships and problems faced by photojournalists in the process of inculcating new methods and technologies in their everyday work life.

Introduction

Citizens across the globe are residents of a world that are driven by technological advancements and are exposed to novelties every day. What was new yesterday becomes outdated overnight. A new generation of citizen and amateur image makers has evolved because of the digital revolution's transformation of the audience into producers and the technology's increasing power and decreasing cost (Franklin, B,2014). The concept of evolution, trend, and change are a part of this society that is defined by the internet, technology, and gadget. These changes have made life easier and have altered the lives of every individual. Comfort has become the new theme of existence to mankind. Modernity and technology are mutually defining. Each one necessarily and fundamentally implies the other (Barbara Adam, 1992). The concept of adapting to emerging trends has always been a tedious task for everyone across the globe. While we live in a society that undergoes immense change, it is also vital to understand the difficulties of adapting to such change. Change and novel trends occur in numerous fields, to name a few of the fields of medicine, aerospace, education, journalism, business, etc. Adapting to these changes has its own set of advantages and disadvantages. Overcoming these advantages and disadvantages has become a real barrier to mankind.

Photojournalism

The concept of photojournalism emerged during the World war aiming to educate and inform ordinary people about the horrors and impacts of the war. This field, driven by visuals, has become a vital aspect of journalism. Photojournalism aims to communicate with common people through images and photographs. A picture flood has been described as the increasing usage of images in news reporting and daily life (Zillman D, Bryant J, 1985). There are no barriers to this field; hence, this medium reaches out to a wide range of heterogeneous audiences.

New technology, platforms, and techniques of visual content are putting a variety of pressures and impacts on photojournalists, requiring them to change and react in novel ways (Adrian Hadland,2015). This is an effective way to communicate with people when words fail to express themselves. In exceptional cases, reporters fail to introduce the situation. An expert in the field of photojournalism is called a photojournalist. A photojournalist should have a creative vision, be fast to evaluate the entire event and be able to take a photograph that can serve as a summary quickly. He should primarily be passionate about his work since only then can he thrive

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in a cutthroat environment. Basic needs include always being prepared with everything needed in advance so that, in the case of an event, he can respond promptly. Images have a strong impact on readers; editors utilize them to shape public agendas because they know that news with pictures will be successful with readers, who will form opinions about those problems and deem them significant (Knobloch S, Hastall M, ZillMann D, Callison C, 2003).

Contemporary Trends in Photojournalism

There have been several developments in photojournalism throughout the past that are now regarded as trends. The process of adjusting to these changes has both advantages and disadvantages. Photojournalism's understanding of time has been transformed by the concept of immediacy, which refers to the requirement to broadcast photos and films as soon as anything significant occurs (Jenni Maenpaa 2014). One of the most popular and widely available trends in photojournalism is mobile journalism. Photojournalists have benefited greatly from mobile journalism, which has helped them in times of need and capture true moments that can never be duplicated. This is sometimes referred to as emergency gear. When it comes to the matter of trends primarily, we discuss mobile photography later on to click long shots and high angle photographs they used drones to fulfill their needs, drone made complicated assignments easy.

Editors employ images to create social priorities when they understand that information with images will be popular with consumers, who will form views about such concerns and find them relevant (Nyirubugara,2008). The invention of digital era SD cards is also thrown away in the darkroom process. Before hours together photojournalists should work on their negative films to get the best output in a dark room. This comes to an end due to digitization. Along with this before we must think to click photographs, but nowadays that had been changed. Unlimited photographs can be captured in the digital era. Digital photography is a one-time investment process, but it is quite expensive, and it's not easy to afford all the journalists. If it is provided by the organizational end, it's well and good. Technology applied in the photography field is an addition of a GPS unit on digital cameras. GPS units are able to automatically register locations where your photographs are taken, complete with the longitude, latitude, and altitude data as well as time. Overall digital photography is a boon for everyone who is struggling in day-to-day life in many ways.

Objectives of the Study:

The objectives of the study:

1. To understand the numerous trends in photojournalism.
2. To analyse the adaptation methods of contemporary trends in photojournalism
3. To comprehend the problems and difficulties in the process of adapting contemporary trends.

Methodology

The main focus of this study is to understand the problematic issues faced by working photojournalists in the process of adapting emerging trends in photojournalism. To get an understanding of emerging and the problems in adapting to the trends of photojournalism, the researcher has adopted the interview method to gather data. The researcher gathered information from imminent working photojournalists from established and leading newspaper organizations such as Deccan Herald, Times of India, Vijayavani, and Vijaya Karnataka. In order to gain a broader overview, the researcher thoroughly evaluated the works of certain other researchers who had studied a similar issue.

Data Analysis:

Through the gathered information it was understood that numerous trends and novel techniques were adapted by various organizations over the past decade. The main purpose of adapting to new technologies is to communicate and narrate news events and news stories effectively. From the collected data it was seen that the changing trends have led photojournalists to believe that each trend has its own set of advantages as well as disadvantages. Some of the employees believed that although learning and adapting to novel trends come as a part of their job, it is important to have prior knowledge and conventional training was necessary. However, most professionals argued that

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they did not receive any form of training and were self-reliant in terms of adapting to the introduced technique. Some of the senior photojournalists had trouble in learning. However, a large portion of the interviewees argued that although the new methods of gathering information in the field of photojournalism is expensive, it was worth the money as contemporary trends produced supreme quality photographs and videos and, they were able to reach out to the target audience at a faster pace, effectively.

Findings of the Study:

The findings of the study included:

1. Prior knowledge and conventional training were absolutely necessary.
2. Adapting to changing trends is rather difficult for senior photojournalists to adapt.
3. Contemporary trends produced supreme quality photographs and videos.
4. Novel methods and techniques are rather expensive.
5. New trends and technology resulted in increasing effectiveness.

Conclusion:

We live in a society that is mutually benefitted and detrimental by technology and novel innovations. It becomes extremely vital to understand and embrace the positives or the advantages of the novelties and overcome and bridle the disadvantages to adjust to the way of the society. It is no new information that change is constant and part of society, however, it is extremely important to understand that the pace in which change is adopted to, is essential. The primary focus of the study focused on understanding the difficulties and problems a photojournalist experiences when a novel technique or trend is introduced. From the gathered information it was abundantly clear that new technologies and methods such as Mojo, Drone Photography etc. were effective and qualitative in nature. However, there were numerous problems such as lack of knowledge, no proper training provided by the institution. Once the experts of this particular field overcame such laborious barriers they found that these methods were in fact, productive in their own specific way.

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SOCIAL FACTORS CONTRIBUTING TO INFANT FATALITY

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Abstract

The focus of this paper is to highlight the social factors contributing to infant fatality. Infant mortality is described as the risk of a live-born infant dying before attaining the age of one. The death rate of infants is regarded as a leading indicator of a nation's overall health. The expansion of infant mortality rate (IMR) is ascribed to unsatisfied hygienic standards; and unfavourable environmental variables, economic situations, environmental sanitation and medical care. This reflects the apparent relationship between the causes of infant mortality and other factors that are likely to influence the health status of entire populations, such as economic development, general living situations, social well-being, disease rates, and environmental quality. This empirical literature review examines and synthesizes national as well as international literature related to social factors contributing to mortality among infants. The research findings revealed that malnutrition, poverty, ignorance, lack of drinking water systems, improper sewage disposal as a cause of illness, child die at home due to financial problems, mother's education, rural urban disparities, communication and transportation routes, traditional medicine agents, and mothers obedient to the decisions of the mother-in-law were found to be social factors affecting infant deaths.

Keywords: *Social Factors, Infant Fatality, Ignorance, Poverty*

Introduction

Infant mortality is described as the risk of a live-born infant dying before attaining the age of one. It is recognized as one of the most sensitive and often recognized measures of a population's social and economic growth (Abuqamar et al. 2011 & Hargreaves, 2007). It takes into account not only the severity of conditions like diarrhoea, respiratory infections, and malnutrition that are directly linked to infant mortality, but also the overall impact of a wide range of other elements like the care provided to the mother and baby during pregnancy and afterward, as well as the environment the infant is exposed to. There are many different and varying causes of neonatal death (Mahadevan, 1986). Meanwhile, the key reasons of newborn fatalities are demographic, socioeconomic, environmental, cleanliness and hygienic factors, nutrition availability, and medical care factors. Furthermore, the relative significance of these characteristics in regard to infants varies according to a society's level of social and economic well-being (Jain and Visaria, 1988). Social determinants include socioeconomic status (SES), race/ethnicity, residential segregation, sexual orientation, and social capital/cohesion at the individual and regional levels. Social determinants also include the material living and working status, social environmental conditions in which people are born, live, work, and age, as well as the structural drivers of these conditions (Muntaner et al. 2012). However, among the socioeconomic variables of infant mortality, housing conditions, road improvement, availability and quality of health care, and several mother characteristics (extreme ages, poor education, multi-parity, and malnutrition) have been predicted (Flores et.al. 2013).

Literature Review

Gomez et al. (2015) investigated the social factors of infant mortality in Mexico's socioeconomically disadvantaged rural communities. Malnutrition, poverty,

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ignorance, lack of drinking water systems, improper sewage disposal as a cause of illness, child die at home due to financial problems, communication and transportation routes, traditional medicine agents, and mothers obedient to the decisions of the mother-in-law were found to be social determinants affecting infant deaths.

Quansah et al. (2016) conducted research on the social determinants impacting children's health in Ghana. According to the findings, the most important socioeconomic determinants influencing child health are mother's education, rural urban disparities (place of residence), and family income (wealth\poverty\and high dependency). These variables, such as children's nutritional condition, vaccination programs, health seeking status, and hygiene habits, are linked to child mortality.

Jinadu et al. (1991) investigated childhood diarrhea in rural Nigeria. According to the study's findings, environmental and social factors such as dirty feeding bottles and utensils, improper disposal of feces and household waste, and insufficient drinking water storage were shown to be substantially associated with the high prevalence of illnesses. The study also found that the infection incidence was highest among infants aged 0 to 11 months, with boys slightly outnumbering girls. Rathod et al. (2011) investigated the socio-demographic characteristics of newborn mortality by urban verbal autopsy. The study discovered that the highest chances of child fatalities in (early neonatal period) were primarily within 1 hour, with significant male infant mortality in early neonatal period. However, the majority of fatalities occurred in lower socioeconomic strata and in first gravida parity with birth spacing of less than two years. According to the findings, poor living conditions, poor sanitation, low mother education, child marriages, and abortion are the leading causes of infant death.

Mondal et al. (2009) conducted study on variables impacting infant and child mortality in Bangladesh's Rajshahi District. The study found that a variety of socioeconomic, demographic, and health-related variables influence newborn and child mortality. The research indicates that vaccination, breastfeeding, maternal age at delivery, and birth period are all significant predictors of post-neonatal or infant death rates. The chance of child death is lower (78.20 percent) in inoculated children than in unvaccinated children, and the risk of neonatal mortality is lower (57.70 percent) after a birth time of 36 months or more than 18 months. The study also found that males had higher rates of neonatal, post-natal, and infant death than females, while females have a higher infant mortality rate than males.

Ghosh et al. (1997) conducted a research on rural mothers' risk behavioral habits as factors of childhood diarrhea. The study discovered five risk behaviors: bottle feeding, not using soap to clean feeding containers, storing water in a large container for months, using pond water, and disposing of infant feces improperly. These five risk behaviors were accountable for higher incidence of diarrhea. Islam et al. (2013) conducted research on the socio-demographic influences on child mortality in Bangladesh. The analysis revealed that mother's education, income index, breastfeeding status, birth order, pre-birth, and viewing TV all have an impact on infant mortality. Mohammad and Tabassum (2016) investigated the influence of socio-economic or demographic characteristics on under-five child mortality in Bangladesh. The study discovered that a mother's education, regions, income index, and media exposure had a substantial connection with under-five child mortality.

Godson and Nnamdi (2012) analyzed the environmental factors that contribute to childhood mortality in Nigeria. The findings revealed that household environmental factors have a significant effect on mortality, with lower death rates in families with access to immunization, sanitary conditions, strong roofing and flooring materials, appropriate refuse and solid waste disposal facilities, and families using low polluting fuels as their primary source of cooking. Rahman (2013) studied gender inequality in household health care spending and women's access to resources in Bangladesh. According to the survey, female children's health-care

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spending is much lower than male children's. The research also analyzes some of the primary causes of gender inequality against women, such as ignorance of female children at birth, a lack of educational chances, patriarchal family settings, inequality among women, and a lack of investment in women's health care in the household. Herlihy et al. (2013) conducted a qualitative study in Zambia's southern region to investigate local views, cultural beliefs, and behaviors that affect umbilical cord care. The findings revealed a wide range of umbilical cord care behaviors and attitudes. Furthermore, the study finds that for non-institutional births, non-sterile razor blades or natural grass were used to cut the umbilical stump, and as advised by the WHO at the time of research, dry cord care is not widely performed in Zambia's southern area. Reddaiah and Kapoor (1992) explored socio-biological factors in rural fatalities involving children under the age of five. According to the research, around 23% of the deaths occurred in babies, with 90% occurring within the first three years of life. According to the findings, the majority of deaths occurred in the community owing to a lack of immunization facilities, inadequate medical treatment, birth order, uneducated mothers, poor socioeconomic situations, early sibling death, and a lack of transportation.

Khan (1993) presented his findings from a research on the cultural factors of newborn mortality in India. The study discovered that the socio-cultural characteristics associated with persistently high infant mortality were pervasive poverty and its effects, severe malnourished health, and early marriage age. Other variables impacting infant mortality were women's subservient status, reproductive patterns, nursing, and weaning practices. Tawiah (1989) investigated the demographic and socioeconomic differences in newborn and early childhood mortality in Ghana. The study indicated that a mother's employment position was a major predictor of her children's death at an early age (0-5). The findings also show that when a woman works outside the house, she is unable to provide the best care for her child, which directly impacts the child's odds of survival. However, the education of the mother and husband, followed by the occupations of the mother and husband, has the greatest impact on infant mortality.

Adlakha and Suchindran (1985) explored variables influencing infant and child fatality. The study found that females had a greater rate of child death than males. Furthermore, children born to adolescent women, with a short prior birth gap, higher birth orders, and a previous infant who died had a greater mortality risk. The educational status of the mother and rural – urban living were discovered to have an influence on infant survival among the socioeconomic variables. According to the study, only birth interval had a significant impact on infant mortality. Hobscraft et al. (1984) explored the social and economic factors that contribute to infant and child mortality. The study discovered that the parental education, employment position, and place of living were all related to the child's endurance. The study's findings also suggest that individuals living in rural areas do not have access to healthcare facilities where they can cure their sick children, and that due to insufficient infrastructure in rural cultures, children are more vulnerable to unnecessary temperature and infections.

Conclusion

Infant mortality is regarded as one of the most sensitive and widely accepted indicators of a population's social and economic development. Malnutrition, poverty, ignorance, lack of drinking water systems, improper sewage disposal as a cause of illness, child die at home due to financial problems, mother's education, rural urban disparities, communication and transportation routes, traditional medicine agents, and mothers obedient to the decisions of the mother-in-law were found to be social determinants affecting infant deaths. Furthermore, some of the fundamental reasons of gender inequality against women, such as female child ignorance at birth, a lack of educational opportunities, patriarchal family settings, inequality among women, and a lack of household investment in women's health care. According to the findings, the majority of deaths occurred in the community as a result of a lack of

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immunization facilities, poor socioeconomic situations, fertility rate, national income, women in labour force, health care spending, and female literacy rates, all of which had an impact on infant mortality rates and the quality of living index. Furthermore, services provided to women and children in the community revealed that, at full coverage, accessible interventions such as tetanus toxoid vaccination for mothers, hygienic and skilled care at delivery, newborn resuscitation, hypothermia prevention, exclusive breastfeeding, clean umbilical cord treatment, pneumonia and sepsis management, could prevent 41% to 72% of infant deaths.

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VEHICLE POWERED BY SOLAR ENERGY

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Abstract:
This Paper discusses how solar power is used in electric cars. Battery charging for MPPT. Regardless of the PV panel's current humidity, temperature, and irradiance conditions, the P&O algorithm is employed to operate the circuit MPPT. In order to obtain the energy needed for an EV, the battery is used to store solar energy. One of the main environmental problems is the greater rate of increase in greenhouse gas emissions from transportation. So this issue can be resolved by using solar electricity for transportation. Consider a scenario in which we could use solar energy to charge an electric vehicle, which also has solar panels built in. The goal of the suggested effort is to contribute a technology that promotes green energy; however, the next question is if it is practical during the rainy season. Inbuilt solar panel charging is challenging during the rainy season. SPEV is the answer. The built-in features of electric vehicles include a security system, drive guiding system, route detection, support for Android apps, Wi-Fi, and battery updates. Hence Transportation with solar-powered electric vehicles (SPEV) is less polluting.

Keywords:-*Solar PV System,SOC ,MPPT.*

I.Introduction

According to a number of reports, the supply of fossil fuels including coal, natural gas, and oil is constrained. Fossil fuel energy has a negligible impact on the global climate. Energy demand is increasing along with global propulsion and economic expansion in many developed and developing nations. Alternative energy sources or renewable energy should be actively pursued sooner rather than later in comparison to fossil fuels. The electric vehicle (EV) is battery-powered, very economical, and produces fewer pollution. are a fun, enjoyable, efficient, and easy way to ride that are an enticing alternative to both traditional motorbikes and ordinary automobiles. Electric vehicles (EV) are propelled by a battery that is connected to an electric motor. Solar energy, for example, is a long-term solution to combating climate change it. It harms human lives and pollutes the environment. Utilizing solar power for EV battery charging reduces this kind of issue. Solar energy-based MPPT battery charging is among the most effective methods for mitigating the harm that CO2 emissions cause to the environment.

Internal combustion engine (ICE) powered vehicles dominate worldwide transportation technologies, posing a serious danger to greenhouse gas emissions. Even if hybrid fuels and battery-powered vehicles are now a component of the global transportation technology. Because of their price and compatibility, these technological advancements are not appealing to the entire world's population. Our goal is to create a low-cost solar-powered electric car that satisfies demand from customers around the world. SPEV comprises of inbuilt solar panels (500watt) to charge the vehicle. "Solar grids play a significant role in the generation of a lot of the world's electricity. The idea of storing energy arose as a result of its absence at night. As a result, algorithms for battery charging were developed to ensure the availability of energy when the sun is not shining. In order to extract all of the power from a solar source, such as a PV panel, maximum power point tracking algorithms were developed.

II. Module for Solar-Powered Electric Vehicle

The 500Watt polycrystalline solar panels, MPPT, Lead Acid Batteries (Batteries 1 and

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2), Motor Driver, and BLDC Motor make up the SPEV charging module. The block diagram for the SPEV charging module is shown in figure.1. This module is in charge of using the solar panel to charge the battery.

1) Solar Panel: Because polycrystalline solar panels are easier to manufacture and more affordable, they are used. When compared to monocrystalline solar panels, polycrystalline solar panels have a lower heat tolerance. The solar panel projection view is shown in Fig. 2. The solar panel on the side view of the car is 80 watts, the one in the front is 20 watts, and the one on top is 400 watts. As a result, 500watts worth of solar panels were installed in SPEV. The solar panels for the top view are positioned horizontally, while the other panels are angled at a 30 degree angle.

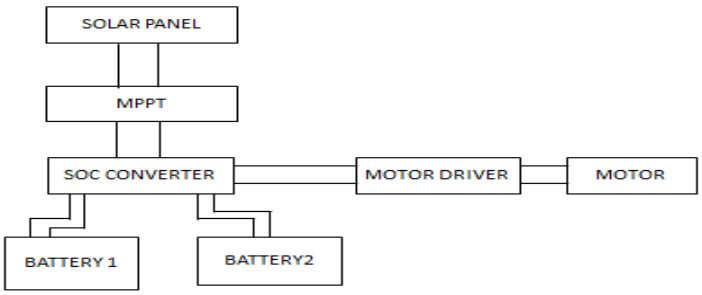

Fig. 1. Charging module block diagram

In direct sunlight, the vehicle's built-in solar panels provide 500watts of power. The 500 watt panel combinations in the SPEV concept are shown in a projection view in Figure 2 . Thus, a 500 watt polycrystalline solar panel is in charge of capturing the energy from the sun. Based on the gathering of SOC data, two batteries are being connected to this panel.

Maximum Power Point Tracking (MPPT):

Maximum Power Point Tracking, or MPPT To extract the most amount of electricity possible from the panel, MPPT monitors voltage and current. MPPT and PWM charge controllers are the two main varieties of solar charge controllers. The following factors led to the selection of MPPT. High power systems are better suited for MPPT charge controllers since they are more effective and have a higher current capacity. When temperatures are low, MPPT generates high Vmp values. It is inexpensively efficient and easy to execute. The best amount of power that a solar panel can output to charge its related battery is determined by an electrical converter. In order to compare the output of the panels to the battery voltage, the charge controller does this. Consequently, a greater DC output voltage is reduced to a smaller voltage that is needed to charge the corresponding battery. To obtain the most ampere into the battery, the best power is taken and converted to voltage. The majority of contemporary MPPTs have conversion efficiencies of 93–97%. In the winter, you normally gain 20 to 45% more power, and in the summer, 10-15% more.

2) State of charging (SOC):

It is a crucial factor that is taken into account in electric vehicles. Given that the SOC condition affects both charging and discharging of the battery.

To calculate the SOC of the battery, we employed the open circuit voltage approach, which is significantly easier and more precise for lead acid batteries. Battery SOC1-SOC 1. Battery SOC2-SOC 2. SOC1 and SOC2 measurements made using the voltage-based SOC Detector technique. When comparing the SOC levels of the two batteries, the built-in microcontroller's SOC Comparator activates the appropriate relay based on the SOC level. When a battery has a higher SOC, it is connected to a load by a load relay, whereas a battery with a lower SOC is connected to a solar panel via a PV relay. At regular intervals, the SOC data is acquired,

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and the respective battery SOC is compared [3]. Figure 3 shows the process flow for gathering SOC data and comparing it to battery performance.

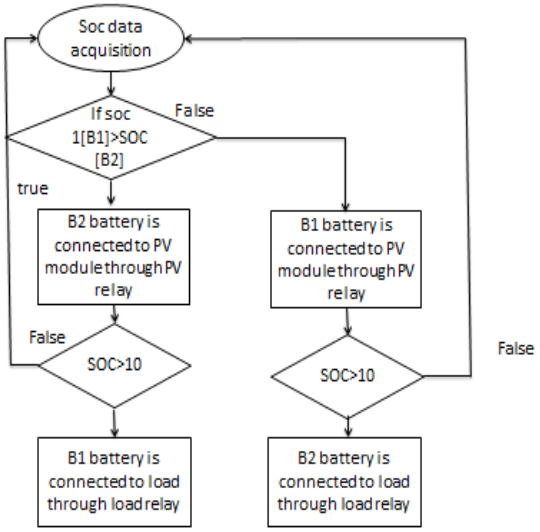

Fig. 2. Acquisition process flow diagram for SOC data

4) 24 volt battery Because they are less expensive, 25Ah Lead Acid batteries are used. The overall capacity will be 600 Watt hours because the vehicle must run for six hours. The lead acid batteries are shown in figure 1 as battery B1 and B2. It has a strong nature and is dependable.

5) Motor: Brushless DC Motor (BLDC) motor is chosen due to the higher efficiency (greater than 75%) and higher life time compared to Brushed DC motors . As a result, a traditional motor driver operates the BLDC in accordance with the supply from a lead acid battery. The initial current of the BLDC motor is 8Amps.

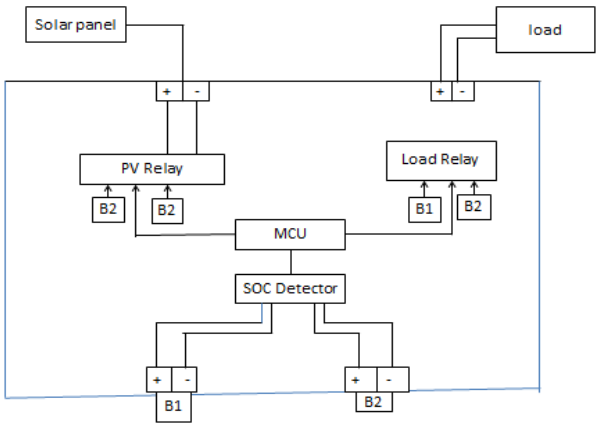

Fig. 3. Architecture for charging modules.

In terms of PV modules and load, it has two relays. The SOC Detector periodically detects and examines SOC data gathering. The microcontroller receives the SOC detector's output. As a result, the microcontroller operates the PV and load relay based on the output of the SOC detector. The charging module architecture is shown in Figure 3.

Conclusion

SPEV offers pollution-free transportation and uses unconventional energy sources. The SPEV would profit from end users like businesses, campuses of universities, and amusement parks. The concept of autonomous driving would benefit physically handicapped persons. The goal of the study, namely the development of an efficient and optimised system, has been accomplished thanks to the technology utilized in SPEV.

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AN EVALUATION OF EFFECT OF COAL INDUSTRIES ON WATER QUALITY AND HUMAN HEALTH: A CASE STUDY OF DAMODAR RIVER

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Abstract:
The present study evaluates the impact of coal mines and coal fired Power plants Operational by BCCL and TATA Co on Damodar River. The water of Damodar River is supplied to the local people for drinking and domestic use which is degrading their health day by day. The study is based on evaluation of health loss and cost on health Externalities due to drinking polluted water for this cost of illness (COI) method has been use the data has been collected from the region near coal mining and Damodar river total 60 household have been surveyed from three villages near Damodar river whose source of water supply is only Damodar river and forty (40) household surveyed from two control areas whose water source underground water. The study is based on field observations, discussion with the doctors and villagers, interviewing villages, collection of primary as well as secondary data. After collecting various evidence from documents and reports, responses from doctors and villagers, mining officials it was found that villages near coal mine region of BCCL where Damodar River is supplied for Drinking are suffering from various health hazards as compared to the non-mining region villagers whom drinking need is based on underground water.

Key words: *Coal mining, power plant, Damodar River, Water pollution, Health Hazards, Cost of Illness.*

Introduction:

Water is lifeline for our daily life. without water we can't imagine a life. But today our growing Industrial economy is degrading natural resources specially water resource. Water Quality Index is degrading continuously near Industries. The waste of these Industries mixes up with Damodar River and degrades the quality of water. The same tragedy is happening with Damodar River. The waste water and chemical effluents of coal mines, thermal and steel plants of Dhanbad, Bokaro and Hazaribagh is released in Damodar River. Data provided by state Govt. states that there are 10 coal-fired Power plants near the Bank of Damodar River. These Power plants produces huge amount of fly ash. A report by International Journal of Advanced Engineering and Research Development (2018) states that in between 2016-2018 total 169.25 million tons of fly ash were produced in which only 107.10 million tons were used and 63 million tons of fly ash were left to get dissolved in water and air.

Rational of Study:

The Damodar River Basin is a rich storehouse of mineral resources. The Industrial set-up in the bank of Damodar River is degrading the water quality Index continuously. The local people living near Damodar Valley and these mining areas are totally dependent on Damodar for their water resource. People are forced to use the polluted Damodar water for their drinking and daily domestic use. They are suffering with various water borne diseases like liver and kidney infections, skin problems, eye allergy, hair fall etc. due to consumption of polluted Damodar river water. They are compelled to spend a large proportion of their income on their health. Their life is getting miserable day-by-day. This problem is not only a problem of people living near Damodar but a global problem.

Objectives:

1. To evaluate the impact of polluted water of Damodar River on human health.
2. To evaluate the cost of illness due to water borne diseases on local peoples.

Methodology:

Sampling:

The present study is mainly focused in the mining area and villages near Damodar River. For this 60 household from villages near Damodar River connecting with JCF

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has been selected, 20 household from each village. These villages are Amlabad Basti, Kendulia and Borabandh from Jharia, C.D Block, Dhanbad, Jharkhand and 40 households have been collected from controlled areas Amarghata and Amarpur from Govindpur Block, Dhanbad. 20 households have been selected from both the villages.

Study tool:

Cross-sectional study has been carried out between effected villages and controlled villages to access the health status and health cost of the Individuals related to water borne diseases. Cost of Illness (COI) techniques also has been used to access actual cost on health of the individuals in effected villages and controlled villages.

Research Design

Total 100 households have been surveyed with the help of pre-designed and pre-tested schedule. Schedule was designed to get the information about their everyday life usage of water, their hygiene habits and diseases with which they or their family members are suffering. Their expenses on treatment like doctors' fees, frequency of doctor visits, expenses on lab tests, medicine and dietary items, hospital admit charges etc.

Districts	Block	Sample Villages (Near Damodar River)	Surveyed Household	Total Surveyed People
Dhanbad	Jharia C.D Block	Amlabad	20	113
		Kendulia	20	86
		Borabandh	20	93
Controlled Villages				
	Govindpur Block	Amarghata	20	104
		Amarpur	20	76
Total			**100**	**482**

Analysis and Data Analysis:

During Field work it was found that the coal mine waste water was getting mixed in Damodar River. coal mine waste water contains organic and inorganic pollutants. (Qiao-ma.et.al.2015).

The process of coal combustion, excavation and transportation generates several pollutants like carbon dioxide, Sulphur dioxide, nitrous oxide, PM 2.5 and PM 10 and heavy particulate matter like lead arsenic mercury etc. (M.A Munawer, 2018). M.A Ekbal & Ramtake (2015) has also assessed the water quality index of Damodar River near coalmine regions of Dhanbad & Bokaro by using physio-chemical data of surface water and found that the WQI of Damodar River was found highly polluted and not suitable for drinking and human use as per WHO guidelines. Another Assessment on Water Quality Index of Damodar River by Diptangshu Mukherjee et.al. (2012) also states that the water quality at Tenughat Dam was good but at Mohalbani Ghat and Domgarh Ghat Water Quality Index was very poor. World Health organization states that 80% of diseases in human being are caused by polluted water. In the study area it was found that people are suffering with several diseases due to consumption of polluted water. An age-wise categorization is done in the table below about surveyed people and total number of disease found.

Table: Diseases due to polluted water near Damodar Valley

Diseases	Age of surveyed people				Total
	(0-20)	(20-40)	(40-60)	60+	
Diarrhea	15	8	13	2	38
Jaundice	7	11	8	4	30
Arthritis	9	2	3	7	21
Typhoid	18	17	11	13	59
Dysentery	11	7	6	9	33
Skin Allergies	112	13	18	22	65
Eye Allergies	06	14	17	26	63

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Total	**309**

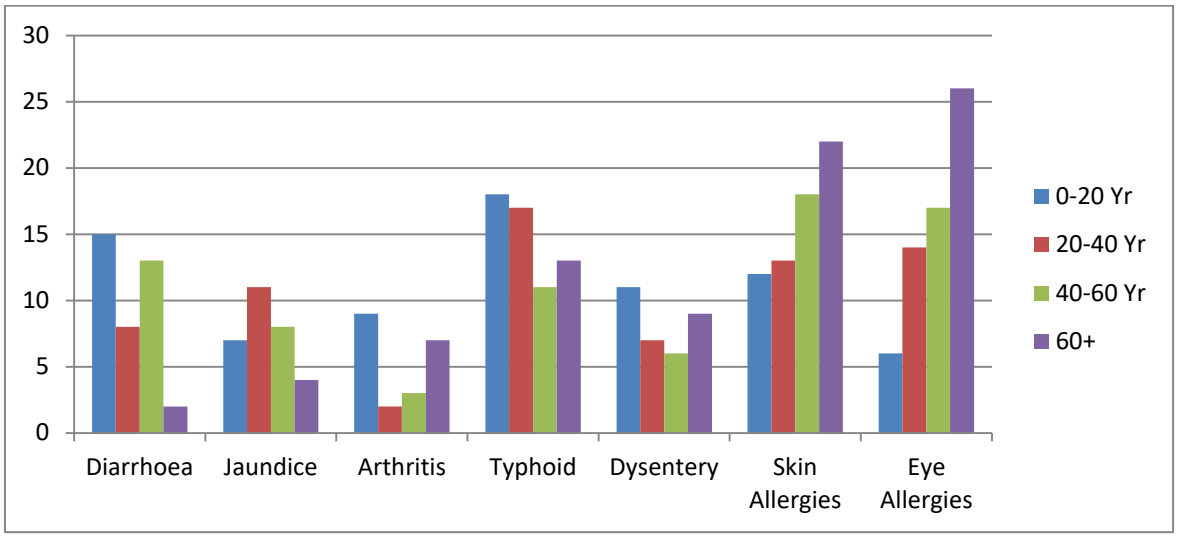
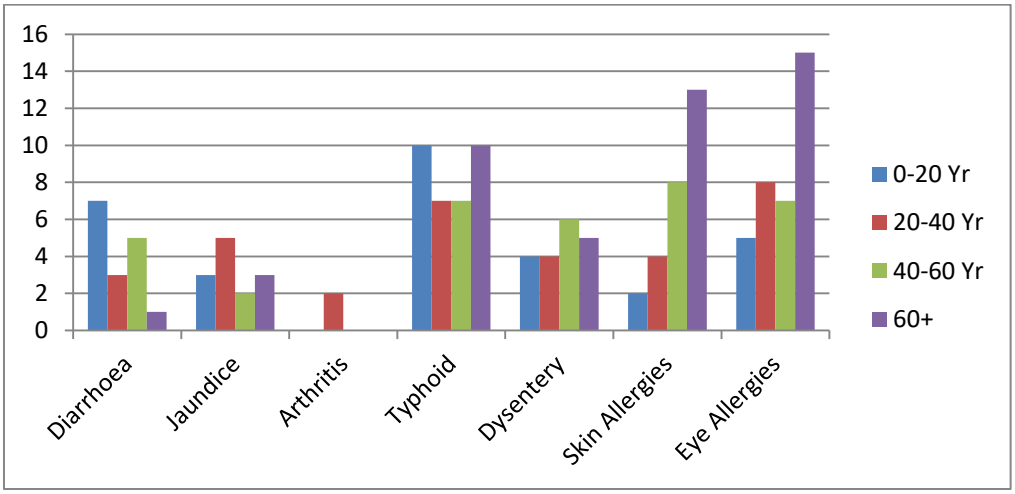


Table: Diseases due to polluted water in controlled area

Diseases	**Age of surveyed people**				**Total**
	(0-20)	(20-40)	(40-60)	60+	
Diarrhea	7	3	5	1	16
Jaundice	3	5	2	3	13
Arthritis	0	2	0	0	2
Typhoid	10	7	7	10	34
Dysentery	4	4	6	5	19
Skin Allergies	2	4	8	13	27
Eye Allergies	5	8	7	15	35
Total					**146**



The tables above shows the effect of polluted water due to coal-field Power plants and mines on human health. There is huge difference of number of diseases found in both the areas. In Damodar Valley area after surveying 292 people a total of 309 diseases found. During field survey many people found suffering with two or more diseases. Especially the older section (40-60) and 60+ ages of people were suffering with eye & skin allergies, hypertension, diabetes and arthritis at the same time. Almost every person of some household of all age-sections found effected with any of these air and water-borne diseases.

On the other hand in controlled area after surveying180 people only 146 number of diseases found with which they or their

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family are suffering. Majority of these diseases in controlled area were casual or seasonal.But in Damodar Valley people were suffering with acute and chronic diseases.

Expenses on Health: A comparison in mining and non-mining area Cost of Illness: A comparison of cost on health treatment in Damodar Valley and controlled area.

Cost of Illness technique is a technique for economic valuation in the health care sector to evaluate the economic burden of illness impose in the society in terms of consumption of Health care resources and production losses (Terricone.R, 2006) Direct and Indirect cost on health like expenses on doctor's fees, medicine, lab test, hospital bedding charges, loss of wages etc. are included in COI technique.

On the basis of surveyed schedule a table below shows the difference between the expenses on health in Damodar Valley and controlled area.

Average/ mean expenses on Health in Damodar Valley & controlled area

Expenses on Health during last 2 months	In Damodar Valley	Controlled Area
Doctor's Fees	128.5	758.5
Travelling	786.7	545.8
Lab Test	1550.5	540
Medicines dietary items	1714.85	916.76
Hospital Bedding Charges	1035.5	504.76
Loss of wages	2050.85	985.06
Total	**6868.4**	**4248.72**

The above table shows that the mean expenses on health in Damodar Valley is much more than in controlled area of Govindpur. The main reason behind it is the type and severity of the disease. The people in mining region are suffering with acute diseases. Frequency of disease occurrence is also high. Frequency of visit is also added in doctor's fees. In the mining region of Damodar Valley where expenses on health is 6,848.4 in controlled area it is only 4,248.72.

Conclusions:

The people living in mining region are forced to drink polluted water. Due to consumption of these polluted water they are suffering with various acute and chronic water borne diseases. Their life have become miserable. They are expanding a large portion of their income in their health or treatments of diseases which has degraded their living standard. They are unable to fulfill their other need due to high expenses on health.

Recommendations:

The Govt. and the coal companies and power plant corporation are taking adequate actions to mitigate the problem water pollution but still there are many of mining practices and regulation needs to be addressed. For the sake of current and future generations we need to safeguard the purity and quantity of water against irresponsible mineral developments.

The coal company should ensure the best pollution prevention strategies are employed were the risk can be managed. The company should also ensure that mining should be stopped where it is effecting to other resources.

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AN OVERVIEW OF FLORICULTURE IN INDIA

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Abstract

Flowers are used in Indian culture since an ancient time. We as flowers for worship the god marriage ceremony festivals etc. We use flowers for decoration also. Flowers are used for making different types of perfumes. India produces the flowers in traditional way and this production is only for local market, but this thing is not same in everywhere it changes according to the area. It means we can find variety of flowers in different area of India the global market turnover of flowers around 130 thousand crore. Rose has use on larger level. Rose is famous mace flowers among youth. Netherland is top country in exporting flowers in the word .In India Karnataka, Tamil Nadu, Maharashtra West Bengal Rajasthan are top in the production of flowers there are 57,730 hector area use for planting flowers in this paper we will study the deferent use of flowers and the things related to flowers

***Keywords*-:** *flowers, use of flowers, Netherland, Export, Indian Agriculture*

Introduction:

Agriculture is broadly defined as farming or a business run by farmers to make a living on the crops cultivated by them in their farm. Different types of agriculture like floriculture, sugarcane cultivation, paddy farming, livestock farming, fish farming etc. have come into existence from the products to be extracted from the field. Also, based on the type of irrigation, there are different types of horticulture and arable agriculture. There are also types of organic and chemical farming depending on the use of fertilizers. Roughly natural and economic factors lead to changes in the type of agriculture.

The Indian economy is mainly based on agriculture. Agricultural sector has prime importance in Indian Economy. The share of agriculture in India's gross national product is estimated at 16.1 per cent in 2015. 54.6 per cent of the total labor force in the country subsists on agriculture and allied industries; this is the only business in private sector. In India, 55% agriculture is based on rain; therefore the economy of the country is mostly based on agriculture. More than 50% population of India depends on agriculture and more than 70% farmers are minor and average land holders and their livelihood depends on cultivated.

In terms of industrial development, agriculture is highly significant. The agriculture sector provides raw material to the main industries along with small and cottage industries in the country. The main part of export business has also been very closely related to agriculture. During 2010-11, the share of agriculture and agriculture related things was 12.4%, during 2013-14, it was increased to 13.8%.

Statement of Problem-

Flowers has extraordinary important in India but production flowers is taking is only for local market India floriculture practiced only in the area of pilgrimage. We can find incomplete source of irrigation for the floriculture flowers are produce only for local market and there Farmers are planting limited varieties of flowers.

Significance of the study:

Flowers have been used extensively in Indian culture since time immemorial. Flowers are widely used in India for worship, weddings, festivals, celebrations etc. From time immemorial, flowers have been the means of expressing our gratitude to our deities, Kuldaivat, Kulaswamini, Lord Ganesha, Goddess Durga, Allah and Jejus. Flowers are used in all the programmes, be it religious, public, social or cultural. People can have different conventions, but the essence of flower remains the same and they are used in all sects.

The per capita daily consumption of flowers in India is very low. In India, floriculture is done in a traditional way and

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it is done for the local markets. Therefore, the rate of flowering per hectare in India is very low as compared to other flower producing countries. Flowers are traded in the global market for around Rs 230,000 crore. There is an increase of 10 to 15% every year. Due to different climatic situations in India, different types of flowers are cultivated throughout year. There is an ample scope for increasing India's share of flower exports in the global market.

Objectives:

1) To study impact of the weather on floriculture.
2) To examine changes in floriculture in the country owing to modernization.
3) To evaluate the share of floriculture sector in Indian agricultural trade.
4) To study various problems faced by the floriculture sector in India.

For this research data has been collected through the Survey so it needed much field work Secondary sources have been used for the present study. To study of changes that have taken place in Indian floriculture due to modernization, online references have been used. There are huge markets of flowers in cities like Mumbai, Pune, Ahmedabad, Trivendram, Lucknow, Kanoj, Delhi, Kolkata, Madurai, Bangalore, Chennai and Hyderabad. There is a huge sale of roses, marigolds, mogra, gladiolus, tuberose, shevanti, gerbera, aster, lily, daisy, Aboli delia etc. and garlands, bouquets, wigs, garlands are sold in great number.

The area under rose, marigold, tuberose, lily, mogra, shewanti and gerbera flowers is relatively large in India. Flower exports are in high demand in the domestic market. Similarly, there is a lot of scope for export of flowers in the global market. According to the 2001 census, 157730 hectares were cultivated in India, but according to the 2012-13 statistics, it increased to 250,000 hectares. Looking at the state-wise area of floriculture in India, Karnataka has the highest area of 19,161 hectares, while Madhya Pradesh has 1270 hectares under floriculture. In the case of Maharashtra, the area under rose cultivation is the largest. In terms of area under flowers in India, Karnataka, Madhya Pradesh, Tamil Nadu, Maharashtra, Andhra Pradesh, Rajasthan are the leading states for production of long stem flowers.

The agriculture business is changing rapidly with times. Therefore, the demand for flowers has been increasing. Flowers are important from a commercial point of view. Modern floriculture on a commercial basis is a recent concept. Since floriculture is already practiced in the open, they have to deal with organic or inorganic factors. Therefore, there was not much income from this floriculture. However, in the modern era, exportable flower production has gained importance. In this age of competition, it is important to have high quality products. It has been increasing 6 to 20% per year. The states of Karnataka and Tamil Nadu cover 75% of the total floriculture area of the country. Karnatka Agro Industries Corporation has launched India's first computerized auction center in Bangalore, Karnatka. Many people are in the business of training others with the help of updated knowledge of floriculture. It is seen that some entrepreneurs are providing job opportunities in this sector.

Globalization has opened up various markets for flowers. Due to this, there is an opportunity to sell flowers in many countries. It will help the country to progress along with the farmers. Nearly 146 countries in the world are leading in the business of producing and selling flowers. The flower trade has been growing at 6 to 20% per annum. However, India's share of the global flower market is negligible at 0.07%. The policy of the Central Goverment regarding floriculture in the last few years is correct. The Flowering rate per hectare productivity in India is very low. When cultivating flowers in a modern way, it is necessary to use polyhouse technology for the production of quality flowers. If these flowers are produced in the open field, such flowers do not get quality. However, building a polyhouse in India is a costly affair and unaffordable for many farmers. The technology of building a playhouse is not available in India today. Some foreign companies offer this type of technology but these companies charge a high price for it. The flowers are perishable and are good for harvesting at very low temperatures. Thus, it is difficult to sell flowers in domestic and foreign markets.

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Problems like lack of modern and scientific technology, flower grading, chaotic market systems, interference of brokers in marketing, lack of information about import and export and climate in India are faced by floriculture.

Recommendation-:

1) Government has to in encourage the farmer to turn the floriculture
2) Women need to train to start the small business it needs to start training classes about flowers culture in rural area.
3) Guide the farmers how floriculture can be beneficial
4) To tell the importance of floriculture through the newspaper, T.V.
5) Educated people need to look at the floriculture as a means of employment

Conclusions:

Floriculture has been significant in India since ancient times. There is scope to increase the share of floriculture in India. Many transformations have taken place due to modernization in floriculture. India's share of flower production in world trade is very less. Large scale measures are being taken by the government to increase it. Floriculture is a great option for farmers and it is good for the economic progress of the country. Due to the increase in flower production in India after globalization, sales are gaining momentum. The climate in different states of India is conducive for flowering. There is a huge opportunity to export world class, high quality flowers and their products. For Indian floriculture, there is a need of polyhouse technology, proper guidance and proper grade system, selection of flower varieties.

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NANOTECHNOLOGY FOR SUSTAINABLE DEVELOPMENT OF FISHERIES AND AQUACULTURE

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Abstract

As the world population increasing geometrically, most of the countries with the highest numbers of people facing many food security problems. To meet the global food requirements one should pay attention on alternative food sources especially on fisheries and aquaculture. According to the Food and Agriculture Organization (FAO) of the United Nations fish is man's most important single source of high-quality protein, providing approximately 16% of the animal protein consumed by the world's population. To increase the productivity and sustainable development in fisheries and aquaculture industries, now the scientists are using advanced technology like nanotechnology. As their novel properties, nanoscale structures and materials such as nanoparticles, nanowires, nanofibers, nanotubes nanosensors, DNA nanovaccines, gene delivery and smart drug delivery etc. have been explored in many biological applications like biosensing, biological separation, molecular imaging, anticancer therapy, animal health, reproduction, prevention and treatment of diseases. Nanotechnology applications in the field of fisheries and aquaculture can be used for the improvement of fish health management, fish breeding, aquatic environment management and also utilized to detect bacteria in packaging, produce stronger flavors, colour, quality, and safety in processing industry.

Key words: *Nanotechnology, sustainable development, fisheries, Aquaculture.*

Introduction

As the world population increasing geometrically, most of the countries with the highest numbers of people facing many food security problems. The Food and Agriculture Organization (FAO) of the United Nations estimates that global demand for food will increase by more than 50% by the year 2050, due to population and economic growth [1]. Around the world, nearly one in seven individuals experience chronic hunger and lack the nourishment they need to stay healthy and lead active lives. Number of reasons is there why the people did not get sufficient food even aggregate production is available in all over the world. Although the causes are many, poverty is probably the most important cause of food insecurity [2]. The link between poverty and food insecurity is universally well known. Poverty limits access to essential food meeting daily requirements or ensuring dietary diversity and thereby leading to malnutrition [3]. Fisheries and aquaculture sectors provide protein-rich and high-nutrient food at a very low cost to the people living below the poverty line all over the globe. Fish provides valuable proteins, lipids, vitamins and also supplies minerals like calcium, phosphorous and sodium [4]. Hence, the fisheries and aquaculture sectors are one of the most important sectors that produce protein-rich food as well as generate adequate income for poor and marginal families.

Nanotechnology in fisheries and aquaculture

Now, nanotechnology applications are widely used in fisheries and aquaculture fields to improve the productivity and quality of aquatic products. As their novel properties, nanoscale structures and materials such as nanoparticles, nanowires, nanofibers, nanotubes nanosensors, DNA nanovaccines, gene delivery and smart drug delivery etc. have been explored in many biological applications like biosensing, biological separation, molecular imaging, anticancer therapy, animal health, reproduction, prevention and treatment of diseases. Nanotechnology applications in the field of fisheries and aquaculture can be used for the improvement of fish health management, fish

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breeding, aquatic environment management and also utilized to detect bacteria in packaging, produce stronger flavors, colour, quality, and safety in processing industry [5]. Nanotechnology applications are using in the following fields of aquaculture.

1. Fish growth

Some of the nanoparticles have shown tremendous influence on growth pattern of fishes. According to some repots Selenium nanoparticles supplementation through diet can enhance the growth rate, body weight, antioxidant property, increased glutathione peroxides activity of crucian carp [6]. It is evident that, when fed with iron nanoparticles, young carp and sturgeon shows increased growth [4]. Supplementation of iron oxide nanoparticles with food resulted in improvements in survival, growth and biochemical parameters in carp fish [7].

2. Nano-vaccines

Vaccines given to fish in conventional methods show little response and also noticed that some adverse effects. To overcome this problem nanoparticles are using for effective delivery and enhanced immunity in fishes. In recent days a wide variety of organic substances, including chitosan, poly (lactic-co-glycolic acid), nano-poliplexes, and virus-like particles (VLPs), have been employed to construct nanovaccines to fight against diseases in aquaculture [8].

3. Nano- based drug delivery

Drug delivery is one of the most important aspect which is used to cure various diseases in fisheries and aquaculture. An advanced nano-based drug delivery system has been developed to deliver the drugs to the specific tissue level to fight against pathogens. Antibiotics, probiotics, medicines, and nutraceuticals can be effectively and precisely combined with nanoparticles to obtain better results [9].

4. Nano-Tagging and Nano-Barcoding

Nano-tagging can be used in fisheries and aquaculture to detect the feeding habits, feeding behavior, metabolic status of the body and swimming behavior of fishes from very long distance. Processing companies and exporters can track the source or delivery status of their aquaproducts till they reach the market by using nanobarcoding [10].

5. Nanodelivery of Nutraceuticals

Nutraceuticals are used in fisheries to maintain good health, value addition and stress management of fishes. Nanodelivery methods have been developed to deliver nutraceuticals to fish because they require minimal quantities and are highly valuable [11]

6. Nanotechnology for Pond management

Today the pond management is also depending upon nanotechnology for the removal of various contaminants like ammonia, nitrites and nitrates which accumulates in aqua ponds. Iron nanoparticles can be used to remove carbontetrachloride, trichloroethane, polychlorinated biphenyls and dioxins very effectively [12].

Conclusion

There is no doubt that the field of nanotechnology will help the fisheries and aquaculture sector to stand at high altitudes. Nanotechnology applications can be used to establish high quality standards in fish ponds, food processing units and package industries. But there is a need for extensive research on the potential adverse outcomes of using nanoparticles. The results of this research should be used to drive the fisheries and aquaculture industry forward more effectively in a sustainable manner.

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A GEOGRAPHIC STUDY OF LAND COVER CHANGE DETECTION IN SHAHADA TEHSIL OF NANDURBAR DISTRICT (MH)

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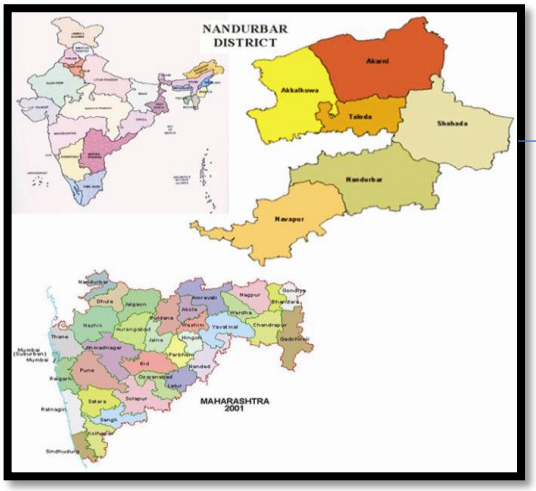
Abstract:
Land cover termed as, 'the part of the earth surface covered by different natural and cultural features'. LULC word also use for identifying Land cover change. LULC study over a period of time is a useful technique to analyze change in Land cover patterns. Specially RS & GIS technology made it possible. It helps to find how much land has been modified throughout a specific period. It will further predict how Land cover will be change in upcoming future if the same trend had gone in past. Especially older data before 2000 is difficult to get from satellite resources. Older satellite images had coarse resolution catch by old sensors. But recently satellite source provides more finer resolution with advance scanners, hence helped to identify physical as well as cultural features effectively. Current study focuses on detailed observation of LULC change detection Shahada region of Nandurbar district (MH).

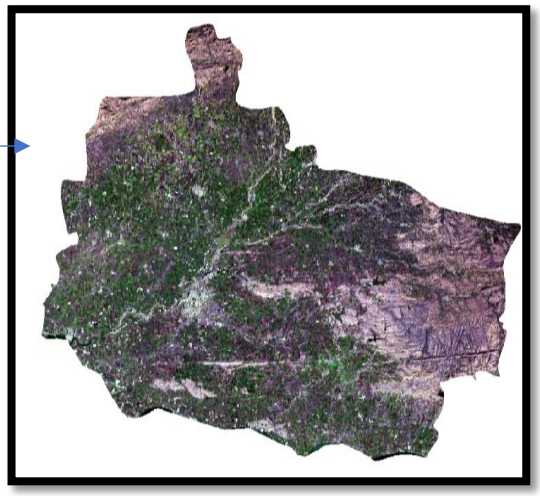
Introduction:
The given study is based on Land cover classification of Shahada tehsil of Nandurbar District. It is aimed to study very detail classification of landcover to find changing Land use patterns over a period of time. The time duration considered for this change detection is more than 20 years. The special focus is on vegetation cover, how it got reduced in last 20 years. And how that vegetation is transformed into mainly agriculture. Nandurbar district is well known for tribal district, and earlier there was a great forest cover but now it is vanished mainly due to increasing agriculture. In the given study, RS & GIS used as a main tool in identifying Land use Land cover Change. Satellite images of specially Winter season has selected due to clear picture & easy to differentiate land cover.

Aim & Objective:
The main aim is to find out Current Land Cover Patterns in detail on tehsil level. And how much change will be seen today in comparison of last 20 years in Shahada tehsil of Nandurbar district.

Location of Study Area:



Nandurbar District



Shahada Tehsil

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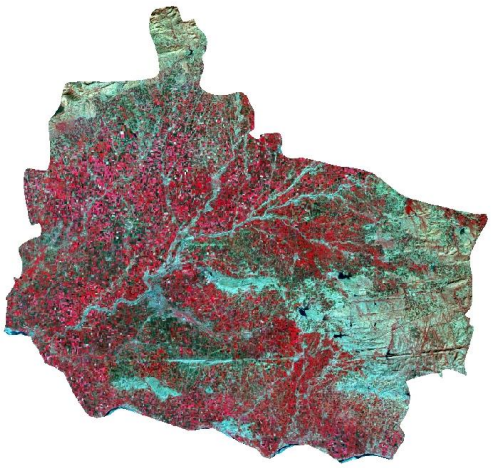
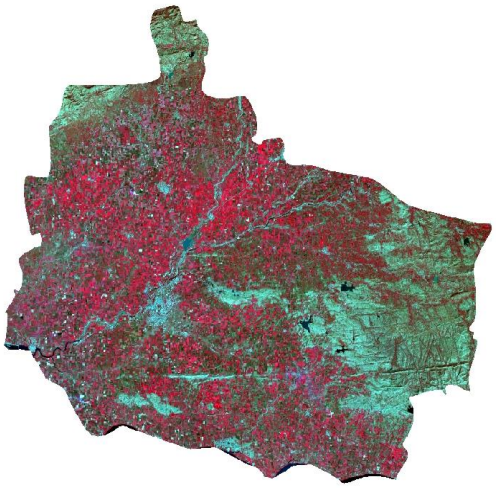
Database:

For getting better results and clear identification of features specially area under Natural Vegetation and Agriculture, images of winter season have been selected.



Shahada -Landsat 7 (16 Dec. 1999)



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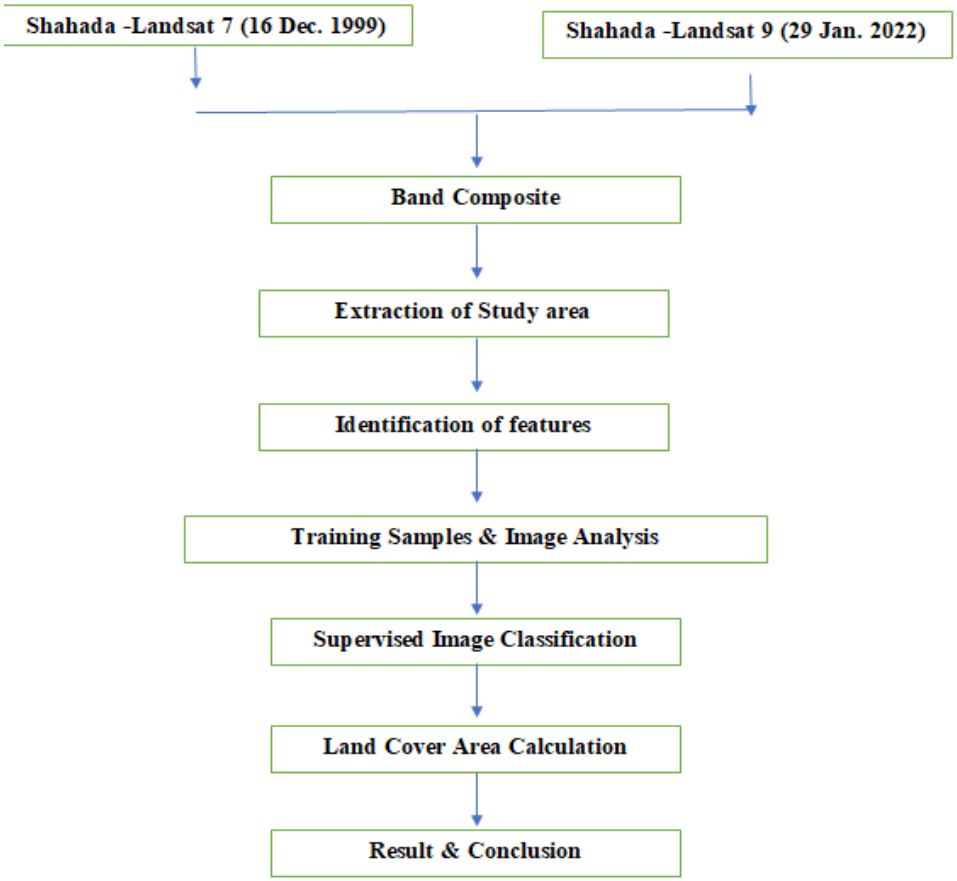
Methodology:

The methodology adopted for the study is as follows:



Result & Conclusion:

Study reveals that, As the study area is in tribal district. There was a good forest cover as well as good amount of water bodies in 1999. But in current year i.e., 2022. Area under forest cover & water bodies has reduced while area under agriculture, settlement and barren land

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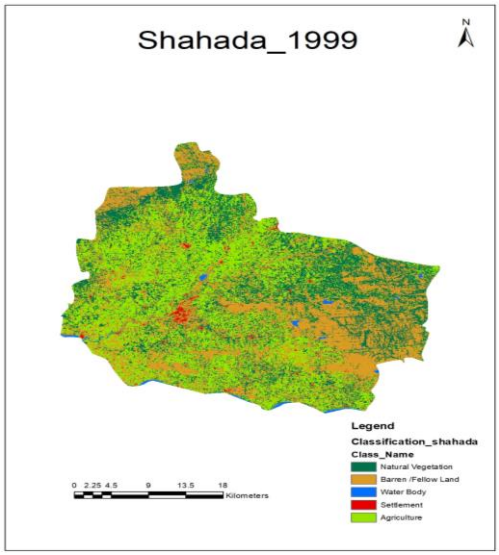
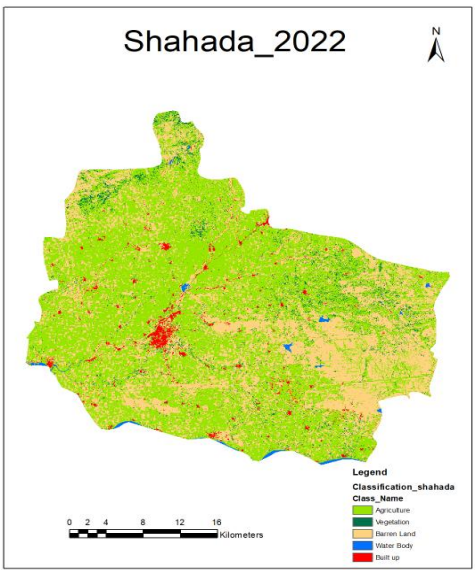
has increased. It shows deforestation had that area





Sr. No	Land use Type	1991 (Area in sq.km.)	2022 (Area in sq.km.)
1	Agriculture	408.98	689.72
2	Fellow/Barren Land	423.69	428.12
3	Natural Vegetation	336.42	41.88
4	Water Body	7.99	5.92
5	Built UP	10.64	22.06
	Total	**1187.73**	**1187.73**

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ROLE OF PLANTING METHODS AND WEED MANAGEMENT STRATEGIES

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DOI- 10.5281/zenodo.7264527

Abstract
Weeds are the most significant impediment to the formation of long-term agricultural productivity. Weeds control the majority of agricultural production techniques and generate huge losses (37%) as a result of their interference. Farmers apply different methods to manage weeds in various crops/cropping systems, the most common of which is the use of herbicides, which is now ahead of the list owing to manpower shortages. Environmental, social, and economic issues about global competitiveness, production costs, soil erosion, pollution, and concerns about the quality of rural life. enhancing crop competitiveness through preventative measures and cultural practises. The key concept in new weed management practices will be to improve agricultural competitiveness by using preventative measures, cultural practises, mechanical methods, plant breeding, biotechnology, biological control, and crop diversity. Integration of the current aspects is essential for long-term weed control that maintains or improves crop yield, profitability, and environmental quality. The scope of sustainable weed management, rising worries about herbicide resistance, environmental and health hazards of pesticides, including herbicides, and diminishing profitability are the key difficulties of 'high input' agriculture.

Introduction

By 2050, the present world population of 7.7 billion people will have risen to nearly 9 billion. To feed this population, global food production will have to rise by 70% to 100%. (www.fao.org). Crop production is affected by biotic and abiotic limitations, as well as socioeconomic and crop management concerns (Ghersa, 2013). Weeds compete for sunshine, water, nutrients, and space with crops. Furthermore, they are home to insects and pathogens that damage agricultural plants. They also devastate natural ecosystems, endangering local plants and animals. Weed emergence time, weed density, weed type, and crop yield losses are all factors that influence crop yield losses. Weeds can cause a 100 percent yield loss if left uncontrolled.

Weed Biology and Ecology

Understanding the biology and ecology of weeds is critical for developing any weed control strategy. Weed biology research has risen in recent years, as we still lack fundamental information on a number of essential species. A greater knowledge of the environmental variables impacting weed seed germination would aid in the development of efficient management techniques, such as boosting germination to kill seedlings or inhibiting germination to kill seedlings (Chauhan and Johnson, 2010). Based on this knowledge, management plans might include attempts to decrease weed seed banks by affecting weed seed germination (Gallandt, 2006).

Crop Competition and influence of planting methods

Narrowing crop row spacing, increasing crop seeding rate, changing crop planting direction, selecting a weed-competitive crop cultivar, and improving precision delivery of nutrients so that they are accessible to crops rather than weeds can all help enhance crop competitiveness. Crop competition is not a new approach, but it has the potential to be more successful, especially in the case of herbicide-resistant weeds. Three to four weeks after planting, a single or double herbicide treatment would suppress weeds before the competitive characteristics of the crop reduced the need for ongoing weed management (Chauhan, 2012). The goal is to close the canopy of the crop as quickly as feasible. Weeds that emerge after the canopy has been closed have a reduced ability to develop and generate biomass and seeds.

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Integrated Weed Management (IWM)

Instead of depending on a single approach, IWM is the management of weeds utilising several, complementary ways within a system. IWM's major goal is to minimise the selection pressure for the development of weed control resistance to any one approach (Chauhan et al., 2017). Unfortunately, most nations' weed research is focused on herbicide research. Further study on IWM across worldwide settings is required for effective weed management and a reduced risk of herbicideresistant weed development.

Prevention, Control & Eradication

Developing a control plan that is implemented over period is part of an integrated weed management. The species of weed, the severity of the infestation, and the accessibility of water, trees, and other native or desired species all determine control strategies.

1.prevention

Prevention is the first line of defence in preventing the spread of weeds in a given region. Only use weed-free seed, hay, gravel, or fill that has been certified. Weed seeds are transported and distributed by people, animals, and machinery. Before entering a weed-free zone, make sure your equipment and vehicles are clean and clear of apparent debris. All areas are prone to infestation when disturbed; re-vegetation of native species is needed immediately after the disturbance has occurred.

Prevent Spread with Soil and Equipment

Weed seeds and plant vegetative components move with agricultural machinery and soil. Longdistance transit is cause for the spread of new weeds in formerly weed-free areas. The worst offenders are industrial machinery, seed, and secondhand agricultural machinery. Before transporting equipment from one location to another, it should be cleaned. When transporting grain or dirt, cover it with a tarp. Tarps not only limit the proliferation of weeds, but they also prevent the loss of a valuable commodity.

Prevent Spread Through Feed and Manure

After passing through animals, weed seeds may viable, resulting in polluted manure. To assure that all of the weed seeds are destroyed, feed screenings should be finely pulverized, cooked, or pelleted. poultry is the most effective at eliminating weed seeds as their crops grind the seeds. Sheep, horses, pigs, and cattle are in order of decreasing effectiveness.However the rate of breakdown in manure, on the other hand, is determined by the weed seed type and the temperature of the manure. Seeds will survive longer if the manure is frozen or chilled.

Prevention of new weeds in your fields

Remove the plant and seed head to prevent seed formation. Place viable seed in a bag and bury it, or incinerate it. If the plant is a perennial, physically, chemically, or mechanically destroy the root system. To avoid root spread to regions that are not infected, use cutting (discs) rather than ripping (cultivator) equipment on perennial weeds. Before harvesting, inspect the infestation locations to ensure that no new seed has germinated.To avoid re-infestation from vegetative components or seed that did not germinate the first year, monitor areas for three to four years.

Control

The most common weed management method is CONTROL. Control measures bring the weed population in a given region down to a level where the land may be used to its maximum potential. In addition, effective management may help to avoid new infestations. Chemical, cultural, mechanical, and biological control are the four major methods utilised for control. The Best Time To Get Rid Of Noxious Weeds Is Prior To Them Establishing In An Area.

Chemical Method Of Weed Control

Herbicides are chemicals that are used to destroy plants or weeds. For the successful implementation of herbicide technology, which is a chemical approach of weed control, adequate technical know-how is required. For consistent application and greater herbicide efficiency, extreme caution must be exercised when using the herbicide. Before applying a herbicide to a crop, it is critical to evaluate its selectivity, as well as the dose, timing, and mode of treatment.

There are 5 types of herbicides:

Broad spectrum herbicide:-These are effective against a wide range of weeds.

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Selective herbicide:-These only work on a specific particular spicies of weeds.
Contact:-These kill weed tissue at or around the point of contact (they don't spread around the weed) and need to be applied evenly.
Systematic herbicide:-These make their way through the weed's circulatory system and can be injected into it.
Residual herbicide:-These may be sprayed on the soil and then destroyed by the root uptake. They are capable of controlling germinating seedlings and remain active in the ground for a period of time.

Benefits of chemical method:

Herbicides can be used to manage weeds in crop rows and other areas where cultivation is not possible.Weed control begins early in the season using pre-emergence. Cultivation and manual weed control methods might harm the root system. Herbicides decrease the use for pre-planting tillage. They are useful in minimal / zero tillage. Many perennial weeds that are resistant to other approaches can be controlled with herbicides.

Mechanical control

Mechanical control methods physically disrupt weed growth. Hand pulling, mowing and burning are examples of mechanical weed control. These are feasible control options depending on the type of weed and size of infestation. Mowing and hand pulling is highly recommended at the flowering stage, prior to seeding, to prevent further propagation. Mechanical control methods physically disrupt weed growth. Hand pulling, mowing and burning are examples of mechanical weed control. These are feasible control options depending on the type of weed and size of infestation. Mowing and hand pulling is highly recommended at the flowering stage, prior to seeding, to prevent further propagation.

Biological control

Biological control methods use living organism to disrupt weed growth. Often, the organism is an insect or plant pathogen and a natural enemy of the weed. Generally, biological control is effective when combined with other control measures and not a sole solution. Biological agents are host specific and there aren't agents available for all noxious weeds. Grazing can be effective depending on the type of weed. Goats and sheep will consume and control a vast array of various, difficult to control invasive species.

Early Detection And Erradication

Early detection and eradication of newly introduced weeds is the best way to prevent establishment. Early detection programs should include weed identification, mapping and determining high priority areas. Certain areas may be more vulnerable to disturbance or weed invasion, and should be considered high priority areas. These areas should be clearly marked on a map and should be inventoried whenever possible. It's suggested to identify and map all of your weeds during the flowering stage. This is when they are most noticeable. Control options may vary depending upon weed species and location.

This allows getting a jump start on them in the spring and knowing exactly which weeds you have and exactly where they are located. Colored marker flags make good visual aids. Cooperate with adjacent landowners and other agencies in order to coordinate early detection efforts around high priority areas. If you share weed infestations with your neighbors, go meet them and try to address the problem together. Can you cut costs by working together? Consider having a meeting with neighbors and other local landowners.

Conclusion:

In several cropping systems, weeds represent a key biotic restriction to productivity. A single method of weed control will not give adequate long-term weed management, and will frequently result in resistance development. Weeds are the source of considerable yield loss, even when a specific control strategy is used. In order to feed an ever-increasing human population, it is becoming increasing necessary to decrease yield loss. As a result, effective and long-lasting IWM initiatives are required. No doubt herbicides are boon for efficient weed control in all situations, so cause obvious risk of residues and health hazards, if not used properly, we have to find a way to deal with weeds as well as residues.

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REVIEW PAPER ON DUAL MASS FLYWHEEL

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Abstract

The Dual Mass Flywheel (DMF) is primarily used for dampening of oscillations in automotive Power trains and to prevent gearbox rattling. This mainly includes a model for the two arc springs in the DMF and their friction behavior. Both centrifugal effects and redirection forces act radially on the arc spring which induces friction. A numerical simulation of the DMF model is compared to measurements for model validation. Finally, the observability of the engine torque using the DMF is discussed. For this purpose, a linear torque observer is proposed and evaluated. It has been speculated that the use of a dual-mass flywheel (DMF) can lead to attenuation of clock metallic noise, even though it's main purpose has been to counter transmission rattle by reducing the input torsion impulse. The effect is also highlighted by the main frequency reducing content of the response when DMF is employed.

Introduction

The rapid development of vehicle technology over the last few decades has higher performance engines paralleled by an increased demand for driver comfort. The Weight-saving vehicle concepts as well as wind tunnel-optimized bodies now allow other sources of noise to be perceptible to the driver. In addition, lean concepts, extremely low-speed engines and new generation gearboxes using light oils contribute to this. The middle of the 1980s, this advancement has pushed the classic torsion damper as an integral part of the clutch driven plate to its limits. Extensive development by researchers resulted in a simple, but very effective solution – DMF – a new torsion damper concept for the drive train. In today's world power train control systems need accurate torque information to perform various tasks. It includes for example the clutch actuation in automated manual transmissions and dual-clutch transmissions and the control of electric motors in hybrid power trains. Dual mass flywheel of indirect torque estimation is needed because the direct measurement of the transmitted torque using Strain gauge cannot be done in volume production cars for economic reasons.

Literature Review

N.N. Suryawanshi, D.P. Bhaskar (2015) [1]: Studied that experimental study of dual mass flywheel on convection flywheel on two stroke engines. DMF used for dampening of oscillations in in automotive power trains on to prevent rattle of gearbox. the author expressed a model of two stroke engines and to perform operation and after getting result found that, the DMF was more efficient than convention flywheel.

Tejashri Khochare (2015)[2]: focused on development of new flywheel for two stroke engine system using helical spring and multi-mass system to improve inertia of flywheel and to improve engine efficiency. comparative analysis of spring mass flywheel and conventional flywheel on two stroke engines after that getting result was found that the DMF is 1.3 times effective than the conventional flywheel.

Govinda A, Dr. Annamalai K. [3]: Studied the design and analysis of arc spring used in DMF. This work was carried out by the study of effect of arc spring on DMF.When the operating speed is low, vibration occurs due to the torsional resonance, this can be avoided using DMF.

Zhow Bin. [4] : Performed operation on torsional vibration signal simulation and analysis of dual mass flywheel based on Lab View, analysis on torsional vibration waveform the non-contact method used for above analysis performing operation in lab obtained the result of the simulation and analysis in the form of waveform.

Proposed Design

Components :

1. Primary flywheel-The primary flywheel is connected to the crankshaft of the engine.

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The inertia of the primary flywheel combines with crankshafts to form one whole.

2. Plain bearing-The bearing is positioned in the primary flywheel. The primary and the secondary flywheels are connected via a pivoting bearing. The weight forces applied by the secondary flywheel and the clutch pressure plate. The same time, it bears the release force applied on the DMF during clutch disengagement. The pivoting bearing allows not only both flywheels to rotate against each other, but also a gentle tilting movement (wobbling).

3. Arc springs-In order to make ideal use of the available space, a coil spring with a large number of coils is fitted in semicircular position, and so-called arc spring lies in the spring channel of the DMF and is supported by a guide. Under operation, the coils of the arc spring slide along the guide and generate friction and thereby damping. To prevent the arc springs from wear, the sliding contact areas are lubricated. The optimized shape of the spring guides helps to reduce friction significantly, besides improved vibration damping, arc springs help to reduce wear.

4. Flange-The task of the flange is to transfer torque from the primary flywheel as well as arc springs to the secondary flywheel in other words, from the engine to the clutch. The flange is tightly riveted to the secondary flywheel with its wings sitting between the arc spring channel of primary mass. The gap between the arc spring stops in the arc spring channel is big enough to enable the flange to rotate.

5. Primary cover-To prevent the flywheel from wear and rust also damage.

6. Secondary flywheel-the secondary flywheel the DMF connects to the drive train on the gearbox side. Interacting with the clutch and the clutch cover is bolted to its outer edge, after the clutch has been engaged and the integral clutch spring mechanism presses the driven plate against the friction surface of the secondary mass.

Block Diagram

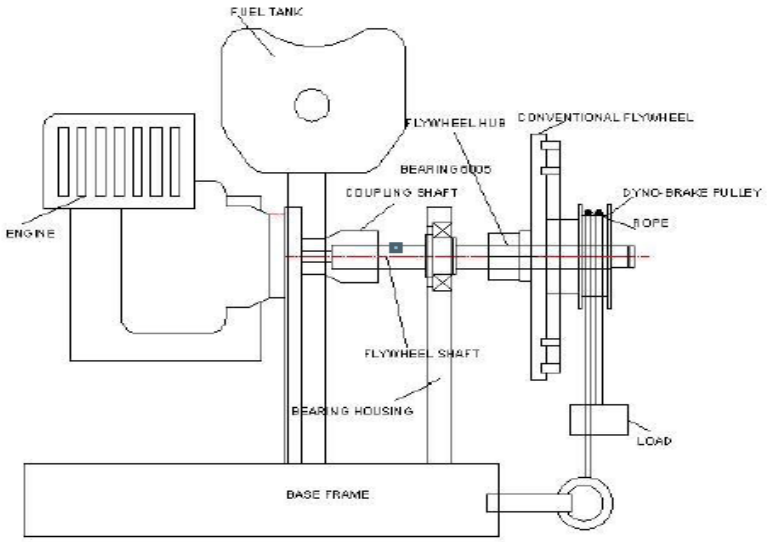

Fig.(1) Dual mass flywheel system of two stroke petrol engine

All engines have flywheels that balance out compression and power strokes, maintain idle and starting or reduce component wear. If the flywheel is too light the motorcycle requires more effort to start as idles badly, and is prone to stalling. The Weight is not the important factor here, but inertia. Inertia is stored energy, and is not directly proportional to flywheel mass. It's possible to have a light flywheel with much more inertia than a heavier flywheel. The motor develops must accelerate the flywheels before leaving the sprocket shaft and any used in come to with the flywheel up to speed is not available at the rear wheel. This will not show up on a steady-state or rear wheel dynamo or simple desk-top dynamo program, but is detectable in a transient dynamo that accelerates the engine at a specific rate 300 or 600 RPM per second are common. Flywheel inertia is stored when you revolution the engine slightly before letting, the clutch out this

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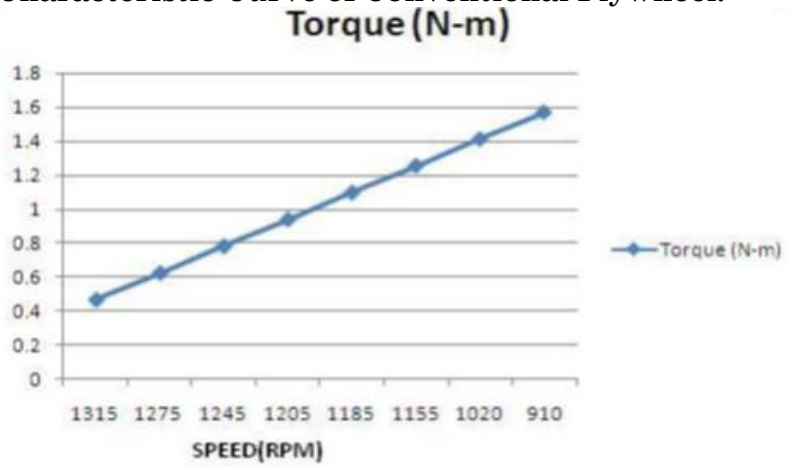
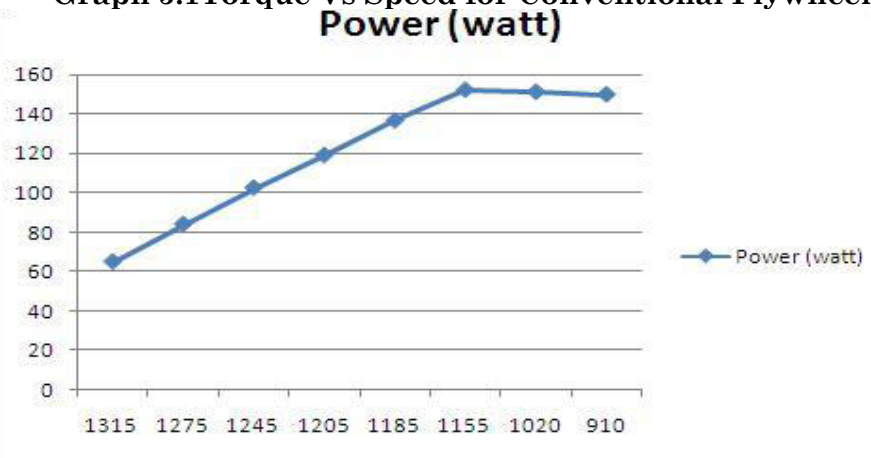
small amount of extra power helps in getting the motor cycle underway with minimal effort. By "the action of borrowing something" power for a few seconds. The engine must develop less to move from a standing start. Once the clutch is completely engaged then inertia cannon longer be borrowed the motorcycle can only use what it produces in real time when the clutch is slipped all flywheel weight reduces acceleration.

5. Performance Characteristic Curve of Conventional Flywheel:



Graph 5.1Torque Vs Speed for Conventional Flywheel



Graph: 5.2 Power Vs Speed for Conventional Flywheel.

Graph: 5.3 Efficiency Vs Speed for Conventional Flywheel.

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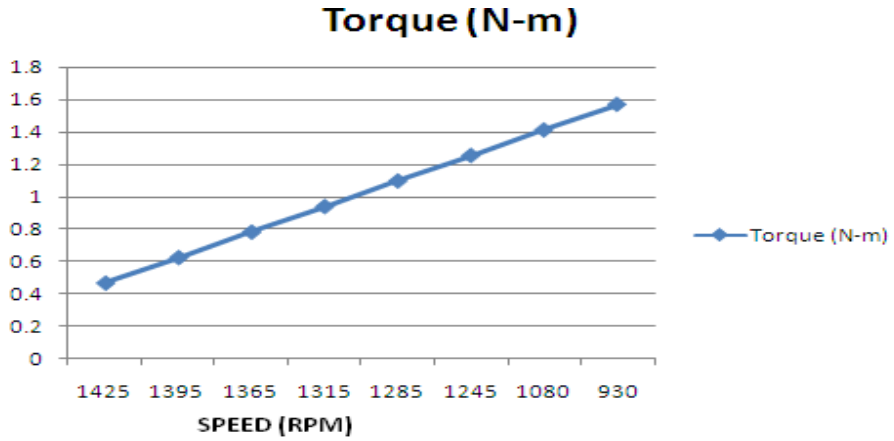
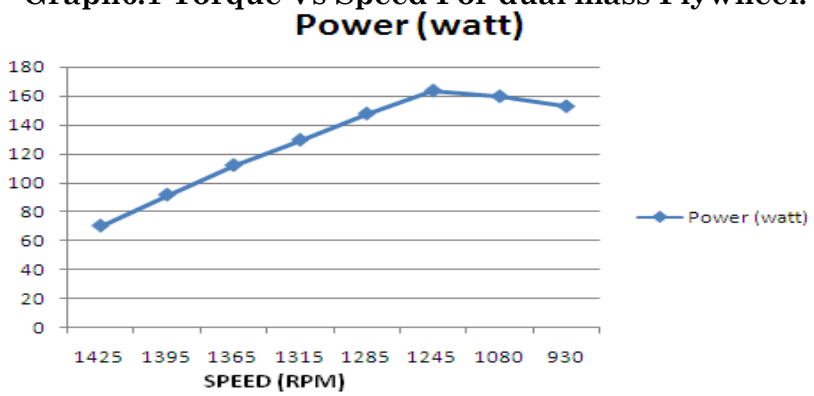
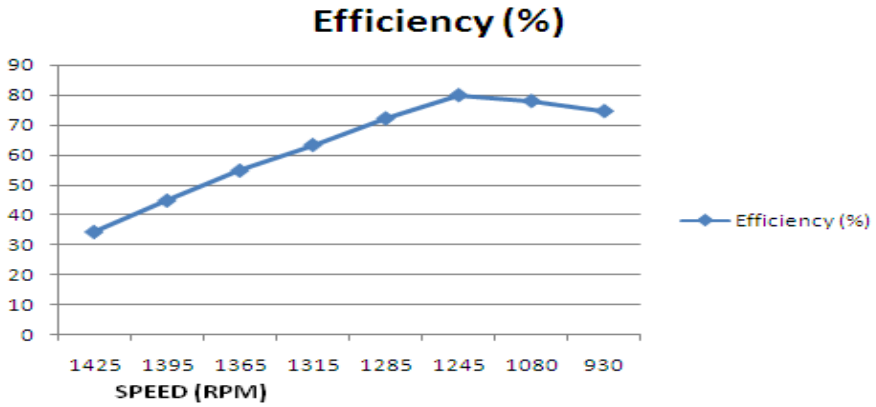
6. Performance Characteristic Curve of Dual Mass Flywheel (DMF)



Graph6.1 Torque Vs Speed For dual mass Flywheel.



Graph: 6.2 Power Vs Speed for Dual Mass Flywheel



Graph: 6.3 Efficiency's Speed for Dual Mass Flywheel.

7. Comparative Performance Characteristics Curve

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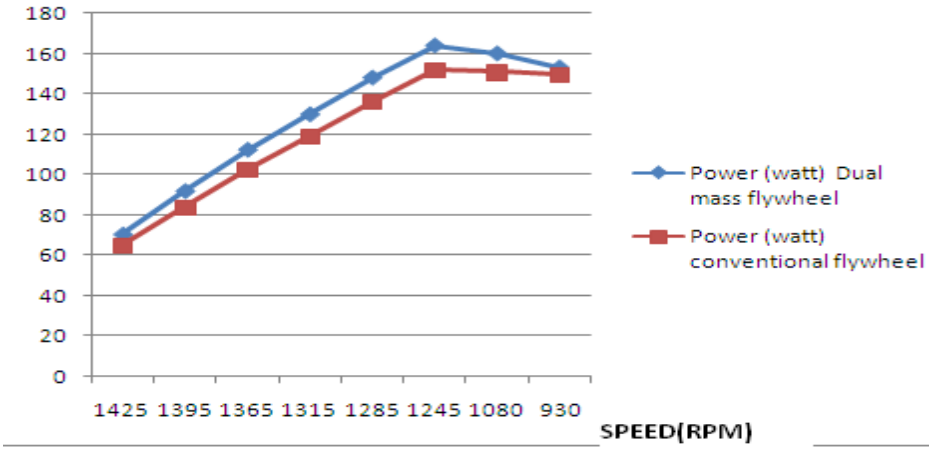
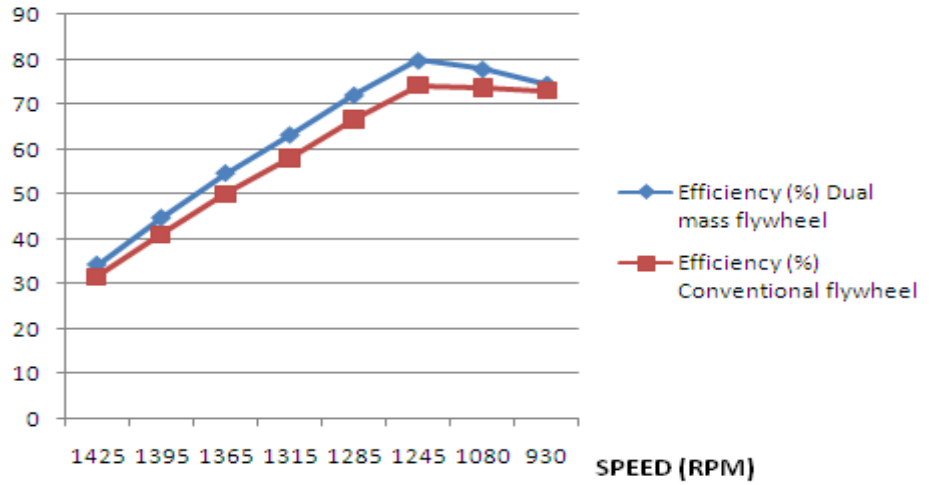


Graph: 7.1 Comparison of Power Output of Conventional and Dual Mass Flywheel.



Graph: 7.2 Comparison of Efficiency of Conventional and Dual mass flywheel

Conclusion

It is observed that there is approximately 7 to 8 percent increase in power output by using the Dual mass flywheel. It is also observed that the DMF is 5 to 6 percent efficient than the conventional flywheel which will also result in increasing economy of fuel in the engine. Size of DMF is increased but it can be reduced by using integrated assembly of clutch and flywheel. It has a good future scope for compact size. Cost for masses attached is increased but compensated in rise of efficiency and power output.

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MAGNESIUM OXYCHLORIDE: A GREEN CHEMICAL BINDER FOR ENVIRONMENT SUSTAINABILITY

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Abstract:
Nowadays, in the developing phase of world most of the part of development is dependent on construction industries. Cement is main part of any constructing materials. Many such cements are ideally suited to specialist applications in precast construction, road repair, and other fields including nuclear waste immobilization. Ordinary Portland cements (OPC) like grey cement, white cement, rapid hardening Portland cement etc. is widely used for constructions but OPC is very expensive and not environment friendly because of heat production and CO_2 emission in large amount. Magnesium oxychloride is alternate for OPC which is sustainable environment friendly cement because of it absorbed CO_2 from environment and no any heat released. Magnesium oxychloride cement (MOC) overcome drawbacks of OPC. It has high strength, high bonding and quick setting cement. It does not require humid curing. It is a tough, stone like fire proof compound. MOC is non-hydraulic cement which does not required water for harden. Materials used for MOC preparation is commonly available and not expensive. It is relatively light in weight and it has low coefficient of thermal expansion and shows negligible volume change.

Keywords: *Magnesium oxychloride, environment friendly, Magnesium oxide, Magnesium chloride, Cement.*

Introduction:

The expression binder material designates substances that harden independently and bind other solid materials, conferring cohesion and resistance to the system. Binders can agglomerate solids or join them along their contact surfaces. This expression comprises construction materials of distinct nature and properties, with different applications and economic importance(1). Chemical binder can be a liquid or solid, organic or inorganic that forms a bridge, film or metrics filler or that cause a chemical reaction(2).Chemical binders produce a strong final agglomerate, permanently, bond particles, withstand the rigors of storage, handling, packaging and shipping. Polymerization tendency or interlocking crystal habits are actually responsible for their binding behavior.

Cement:

Generally, cement is a binder, a substance used for construction that sets, hardens, and adheres other materials to bind them together. Cement is seldom used on its own, but rather to bind sand and gravel (aggregate) together. Cement mixed with fine aggregate produces mortar for masonry, or with sand and gravel, produces concrete. Concrete is the most widely used material in existence and is only behind water as the planet's most- consumed resource(3). Hydraulic cements setting and hardening involve hydration reactions and therefore require water. Hydraulic cements are made of a mixture of silicates and oxides. (Example- Portland cement).

Hydraulic cement set and become adhesive due to a chemical reaction between the dry ingredients and water. Non-hydraulic cements only react with a gas and can directly set under air. Example- slaked lime (Calcium oxide mixed with water), hardens by carbonation in contact with Carbon dioxide, which is present in the air. In construction project, the material that can conglutinate granular materials (such as sand and gravel) or bulk materials (such as bricks and stone) together as a whole are called binding materials, the important materials in construction project(4). Mostly ordinary Portland cement is widely used as construction materials. Mostly used cements are grey cement, white cement, rapid hardening cement, sulphate resisting Portland cement, Portland pozzolana cement,

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oil well cement, clinker cement Magnesia cement etc.

Magnesium oxychloride cement:

It was discovered by the French engineer Stanislas Sorel in 1867. It is also known as Sorel cements. It has a maximum compressive strength of over 10000 PSI compared to 2000 PSI for common Portland cement and has excellent shear strength. This non- hydraulic cement is formed by the addition of Magnesium chloride/sulphate solution to a fine powder of Magnesium oxide. The viscous paste hardens on drying and sets to a cement consisting of a mass of needle-like crystals. It has high strength, high bonding and quick setting cement. It does not require humid curing.

It is a tough, stone like fire proof compound that can be used for light or heavy floorings. Having tremendous load bearing capacity, it can withstand the least trace of cracks or fissures. It is relatively light in weight (Sp. gr. 2.5). It has low coefficient of thermal expansion and shows negligible volume change during setting. The instability and loss in strength of oxychloride cement paste when exposed to water has prevented its widespread use [5].

MOC cement is one of the strongest binders possessing certain advantage over Portland cement. However, both the nature of raw material and laying practices are important to get a product of sound quality. In addition, proportion of raw material and conditions of curing (low temp. and high humidity) also affect the quality.

Properties of Magnesium oxychloride cement:

1. It is high strength, high bonding and quick setting cement (setting about 3-8 hours) with high early strength 14 MPa (~2000 psi) within 2 hours.
2. It sets under condition of high relative humidity but humid curing as in Portland cement is not required.
3. It commonly achieves compressive strength of 9000-45000 psi and transverse strength of over 800 psi, many times strong than that of conventional cement.
4. It is a tough, stone like fire proof compound that can be used for light or heavy floorings.
5. Having tremendous load bearing capacity, it can withstand vibrations form heavy cast iron wheel movement without the least trace of cracks.
6. It is light in weight (density 2.5 ± 0.2) and provided good flooring.
7. A soundness floor of about 5Sq. meters can be laid in a single operation.
8. It has a low coefficient of thermal expansion and show negative volume change during setting.
9. It is completely non-conductive of electricity.
10. It is non-sparking, abrasion resistant, anti-microbial and has excellent flame-retardant properties.
11. It is eco-friendly green chemical binding material.
12. Hardening behaviour and strength of MOC cement strongly depend on the formation of P5 and P3 from MgO & $MgCl_2$ water solution and the initial composition.
13. MOC cement is almost inert towards action of mild alkalis, grease, petrochemical etc. Strong mineral acids attack it vigorously and leach the surface, strong alkalis also affect it at elevated temperatures.

But soon as layer of basic magnesium chloride is formed and the reaction is checked if contact with alkalis is not prolonged further. A long-time contact with alkalis is harmful due to the porosity of the product.

Oxychloride cement $\xrightarrow{\text{Strong acid}}$ Solution of Mg salt.

Oxychloride cement $\xrightarrow{\text{Alkali}}$ Basic $MgCl_2 + Mg(OH)_2$

Advantage of Magnesium oxychloride:

In recent decades, the major motivation for the development and uptake of MgO-based cements has been driven from an environmental stand point. These advantages are led to a recent explosion in interest, both academic and commercial, in the area of MgO-based cements.

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1. The lower temperatures required for the production of MgO compared to the conversion of $CaCO_3$ to OPC and the energy savings associated with this reduced temperature have led many to envision MgO-based cements as being central to the future of eco-friendly cement production.
2. There are two obvious environmental implications [utilization of waste (Dolomite waste as an inert filler and Carbon dioxide sequestration] of MOC-based materials.
3. Magnesium oxychloride cement has the advantages of low-carbon emission, reducing the Magnesium chloride waste, and lack of humid curing.
4. MOC has been successfully used as environment friendly fireproof thermal insulation products, urban refuse/ cement compound floor tiles, light-weight boards.

Disadvantage of Magnesium oxychloride:

1. The MOC has not been widely utilized yet due to the poor water resistance and the short setting time at high ambient temperatures.
2. The strength loss of eco-friendly MOC based materials immersed in the water has largely limited their applications.
3. Poor water resistance as the chloride ion accelerates corrosion of reinforcing steel, leading to expansion cracks.
4. It is reported that a 28-days water immersion of MOC pastes under the ambient temperature only retains 10% original strength. It is considered that Phase5 (5 $Mg(OH)_2.MgCl_2.8H_2O$) and Phase3 (3 $Mg(OH)_2.MgCl_2.8H_2O$) inside MOC based materials will gradually decompose into Magnesium hydroxide, $Mg(OH)_2$ during the water immersion , which damages the skeleton of materials(6).

Superior properties then OPC: The ability of MgO to absorb CO_2 from the atmosphere to form a range of carbonates and hydroxycarbonates lends itself well to the discussion of "carbon-neutral" cements, which could potentially absorb close to as much CO_2 during their service life as was emitted during their manufacture. The total amount of emitted CO_2 for MgO production is higher than that for OPC calcination (1.7 tons CO_2/ton MgO versus 1 ton CO_2/ton OPC). However, with the aid of the carbonation of MOC-based materials, the final net emitted CO_2 can be significantly offset and be brought down to 40%-50% lower than that associated with OPC manufacturing(7).

Conclusion:

Magnesium oxychloride cement is environment friendly and sustainable product in construction engineering. Magnesium oxychloride cement is air hardening cement which absorb CO_2 form environment which is useful to decrease CO_2 concentration. Magnesium oxychloride cement is white in color which can be used in place of white cement and can also be used in making decorative items. Material used for MOC preparation is $MgCl_2$, MgO and H_2O. Dolomite is inert feeler which is locally available industrial west and cheap materials. MOC is sustainable products which is preserve environment and superior to ordinary Portland cement. The majority of MgO-based cements are more costly to produce than Portland cement because of the relatively high cost of reactive sources of MgO and do not have a sufficiently high internal pH to passivate mild steel reinforcing bars. This precludes MgO-based cements from providing a large-scale replacement for Portland cement in the production of steel-reinforced concretes for civil engineering applications, despite the potential for CO2 emissions reductions offered by some such systems. Nonetheless, in uses that do not require steel reinforcement, and in locations where the MgO can be sourced at a competitive price, a detailed understanding of these systems enables their specification, design, and selection as advanced engineering materials with a strongly defined chemical basis.

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PHILOSOPHY'S PLACE IN THE SOCIAL SCIENCES

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Abstract

"Theory without practice is empty, while practice without theory is blind"

The truth of the above statement manifests itself in the value of social science's research methods to society which is the focus of this work. Therefore, the work argues the research that social science's methods of investigation into the social life of society remains a potent weapon in the hands of practical men in their societal re-engineering endeavors, despite its shortcoming. This means that apart from showing the main features and constraints of social science's research methods, this work also aims to bring to limelight the tremendous contributions of social science's research methods to social re-engineering.

Keywords: Research Methods, Social Sciences, Society

Introduction

Since philosophy is originally and is still "the mother of all sciences, it then behaves on it to continue to play the essential parental roles to other disciplines. Philosophy of social sciences is one of such parental roles. Indeed, the role of philosophy to social sciences is to critically question the basic assumptions and the methods of acquiring knowledge in social sciences in order to wake the latter up to the realization of acquiring knowledge that will not only have instrumental value but also intrinsic value.

Philosophy is part of the cultural background of any educated person, and nevertheless remains spiritual, fundamentally underdetermined in its own essence. In this paper we will try to identify the points of similarity and discrepancy between philosophy and science.

Rational of the study

What is research?

Research can be simply defined as "the process of acquiring knowledge". Introduction to Research Methodology, states that "in the social sciences, the application of the term "research" is restricted to activities designed to promote the development of a science of behavior. But if research is synonymous to the promotion of a science of behavior in social sciences as revealed, then what is social sciences?

The meaning of social sciences

In view of the above, we make bold, in this paper, to discuss each social science discipline in relation to its focus on society. The social sciences, "which deal with human behavior in its social and cultural aspects, include the following disciplines: anthropology, sociology, economics, political science, and the study of international relations". This is important because some disciplines like history, law, education, linguistics and even philosophy can fit for social science disciplines without distorting the original meaning of social sciences. In other words, what are the methods of research in social sciences?

The main features of philosophy in social sciences

Originally, science means a systematic body of knowledge. We make bold to say that social science disciplines are science driven. By so doing, the methods of research in social sciences are scientific in nature. The reason is that social sciences are relatively new disciplines when compared to natural sciences and this has made their adoption of scientific methods necessarily compulsory. Consequently, the scientific methods which the social sciences use while carrying out any social investigation are experiment, measurement, hypothesis, observation, data collection, data analysis, objectivity, generalization, sampling, etc.

Objectives

Objectivity is one of the central principles of research. In this connection, many authors states that "objectivity is a bridge between the subjectivities of subjects and the rest of

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real world." Research that fails to reflect high level of objectivity cannot be considered as a serious academic endeavor. Hence, objectivity is indispensable to research in natural sciences and in the social sciences.

Hypothesis

Hypothesis can be regarded as the "compass" or the "guiding principle" of research since research is basically meant to test whether a hypothesis is correct or incorrect, right or wrong. The role of hypothesis in research cannot be overemphasized because it guides the researcher in planning the course of the inquiry, in choosing the kinds of data needed, in deciding the proper statistical treatment, and in examining the results of the study.

Methodology

Experimentation

Experiment as a specific category of scientific activity did not emerge until the scientific revolution of the seventeenth century. In social sciences, or, in behavioral sciences, there are three categories of experimentation. These are laboratory experiment, field experiment, and field studies. The essence of experimentation in natural or social sciences is to enable the researcher to improve on the conditions under which he observes, and to derive verified functional relationships among phenomena, under controlled conditions so as to arrive at more precise results.

Measurement

The concept of measurement is not only fundamental to natural sciences but also germane to social science's research. In social science, the common measuring instrument is scale. A scale, "must have either (1) an origin (2) an order or (3) a distance, or all these. The best scale possesses all these characteristics and the lower level, inferior scale possesses only one or none of these characteristics". There are four types of scales used in measurement in the social sciences. These are nominal scale, ordinal scales, interval scales and ratio scales.

Observation

How detailed or objective could a social researcher observe the social phenomena? Answer to this question remains always controversial within and outside the camp of social scientists. More will be said on this later. Data collection in social sciences, it is customary to collect data through two notable methods namely, survey methods and non- survey methods. Data can also be classified into two: qualitative and quantitative data. Examples of qualitative data are color, intelligence or honesty, etc. while quantitative data are height, intelligent quotient and grade-point average.

Sampling

Sampling also occupies an important space in social science's research. It is the stage of research that gives the researcher the freedom of choice concerning who to interview, and where to use as a case study. As such, a sample can be simply defined as "a smaller representation of a large whole"

Generalization

In social science, generalization gives relevance and practicability to research. Research that is neither relevant nor practicable can never achieve a successful generalization. This means that generalization helps social scientists to make available their findings in order to enjoy universal validity.

Discussion

This is not surprising, because in order to achieve a new result in philosophy, it is necessary not to describe an existing one, but to go beyond the existing and create fundamentally new terms, concepts, ideas – and for this, it is necessary to have an extraordinary power of thought and imagination, which possessed only by great philosophers. We prefer to leave this question open, and although the authors are more inclined to a negative answer, very interesting arguments for its positive solution are given in the paper

Conclusion

Our position is somewhat different: scientific philosophy still exists and constitutes an important layer of philosophical culture in general, but it does not fully exhaust it. the history of philosophy and other disciplines that formally form part of philosophy and constitute a kind of scientific segment of the philosophical whole. However, those who seek to limit philosophy to this scientific segment alone make a great mistake. Without belittling its significance at all, we dare to assert that there is a philosophy beyond science. And it is these uncharted

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areas within which the most important ideas are formulated, the most significant breakthroughs are realized, and the most revered idols are subverted.

Recommendations

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AMELIORATION OF ALTERED ANTIOXIDANTS STATUS BY GINGER IN STZ INDUCED DIABETIC RAT BRAIN

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Abstract:

The present study was carried out to investigate the protective effect of Ginger on lipid peroxidation (LPO), antioxidants activities of both enzymatic and non-enzymatic in streptozotocin (STZ)-induced diabetic rats brain. Thirty Wistar strain rats were divided into five equal groups: Normal control (NC), Diabetic control (DC), Ginger treated (Gt), and Diabetic plus ginger treated (DC + Gt) and Diabetic plus glibenclamide (Standered reference drug). Experimental diabetes was induced by a single dose of STZ (50mg/kg, i.p.) injection. The oxidative stress was measured by tissue Lipid peroxidation (LPO) level, content of reduced glutathione (GSH) and by antioxidant enzymatic activities of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx) and glutathione reductase (GR) in rat brain. We observed in the present study antioxidant enzymatic activities and glutathione content were decreased in diabetic control rats. Administration of Ginger (200mg/kg day) diabetic rats showed significant increase in the activities antioxidant enzymes when compared to diabetic control rats. From the present results, we conclude that diabetes-induced brain oxidative stress was modulates by ginger treatment, thus ginger can be used as a regular nutrient to care for the brain tissue.

Key words: Diabetes, Ginger, STZ, Antioxidant enzymes and Glibanclamide

Introduction:

Diabetes mellitus is a metabolic syndrome categorized by the defeat of glucose homeostasis as a consequence of defects in insulin emission and functionality. Glucose accumulation in the blood and continued hyperglycemia, often leading to various microvascular and macrovascular complications [1]. In Diabetes mellitus, a leading non-communicable disease with multiple etiologies, affects more than 100 million people worldwide and is considered as one of the five leading causes of death in the world [2]. A state of increased free radical formation has been shown by Diabetes mellitus [3]. The endurance of oxidative stress consequential from improved free radicals has been postulated in diabetes. The harmful influence of diabetes mellitus on metabolism of tissues of various organs is well known. Glucose control plays an important role in the pro-oxidant/antioxidant balance [4]. Antioxidants, which can hunt free radicals in opposition to harm and decompose, have an important role in biological system and may be helpful in the prevention of cancer, heart diseases, ageing and diabetes mellitus. The central nervous system is highly inclined to oxidative stress. Reactive oxygen species (ROS) reliant central nervous disorders have been experiential to be really triggered by the occurrence of free radicals. Anti-oxidant treatment has proved to be extremely useful to combat reactive oxygen species-induced injury in the central nervous system. Synthetic antidiabetic agents create severe side effects, such as hypoglycaemic unconsciousness and renal and hepatic disorders. The plant products usefulness is reported to be recognized to the amount of bioactive substances such as alkaloids, flavonoids, phenolic compounds and essential oils, with antioxidant activity properties [5]. Ginger (Zingiber officinale) is generally addicted as spice for the food flavouring. Various reports have demonstrated that ginger has hypoglycemic, hypocholesterolemic, antirheumatic and antidiabetic properties in humans and experimental animals [6]. Ginger is considered to be an excellent entrant for oral remedy as it is useful, non-toxic and without severe part effects. Many phytochemicals like phenols, flavanoids, terpenoids and other phytochemicals were present in ginger which is responsible for their pharmacological

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activities. Its dried extract contains monoterpenes and sesquiterpenes [7]. However, the effects of ginger have not been studied for its antioxidant actions on diabetic brain parts. Thus, the present study aims to investigate the neuroprotective effect of ginger on oxidative damage in the brain of streptozotocin-induced diabetic rats.

Material and methods:

Animals.

Wistar strain male albino rats aged 3months weighing 180 ±200 g were obtained from Indian Institute of Science Bangalore (IISc). The rats were housed in clean polypropylene cages having 6 rats per cage and maintained under temperature controlled room (27±2°C) with a photoperiod of 12 h light and 12 h dark cycle. The rats were fed with a standard rat pellet diet and water ad libitum. The experiments were carried out in accordance with guidelines and protocol approved by the Institutional Animal Ethics Committee.

Chemicals:

All the chemicals used in this study were of analytical grade obtained from Fisher, sigma, Ranbaxy, Merck.

Induction of diabetes

The animals were fasted overnight and diabetes was induced by a single intraperitoneal injection of a freshly prepared solution of streptozotocin (STZ) (50 mg/kg body weight) in 0.1 M cold citrate buffer (pH 4.5). The animals were allowed to drink 15% glucose solution overnight to overcome the drug- induced hypoglycemia. The animals were considered as diabetic, if their blood glucose values were above 250 mg/dl on the third day after STZ injection. Ginger treatment was given to the diabetic rats for 30 days.

Ginger ethanolic extract preparation

Fresh ginger rhizomes were purchased nearby and washed by water to eliminate the dissipate. The outer layer of ginger was peeled off and was air dried. Two kilograms of air dried

Herb rhizomes was crushed into well powder automatically and extracted in cold percolation for 24 h with 95% ethanol. The extract was recovered and 95% ethanol was further added to the ginger powder and the extraction was continued. This process was repeated three times. The three extracts were pooled together, combined, filtered and the filtrate was concentrated to dryness under reduced pressure in a rotary evaporator. The resulting ethanolic extract was air dried, finally yielding 80 g of dark brown, gelatinous extract of ginger dried rhizomes. The crude ethanolic extract was used for the experiments without any further purification. Dose equivalent to 100 mg/kg and 200 mg/kg b.w of the ginger, was calculated and suspended in 2%, v/v Tween 80 solution for the experiment.

Grouping of animals

The rats were divided into five groups, six rats in each group and treated as follows:

Group 1. Normal control (NC): this group of rats received vehicle solution (2% of Tween 80).

Group 2. Ginger treatment (Gt): six rats received ethanolic extract of ginger with a dose of 200 mg/kg body weight via oral gavage for 30 days.

Group 3. Diabetic control (STZ 50 mg/kg body weight) (DC): streptozotocin is given intraperitonially for the induction of diabetes to this group.

Group 4. Diabetic + ginger treatment (DC + Gt): diabetic rats received ginger ethanolic extract (200 mg/kg) for a period of 30 days.

Group 5. Diabetic + glibenclamide treatment (DC + Gli): diabetic rats treated with glibenclamide (600 micro gram /kg body weight orally).

After completion of 30 days of treatment, the animals were sacrificed by cervical dislocation and the brain tissues were excised at 4^{0}C. The tissues were washed with ice-cold saline, immersed in liquid nitrogen and immediately stored at 80^{o}C for further biochemical analysis.

Analytical procedure

Brain superoxide dismutase activities were assayed in the tissue homogenates by the method of Misra and Fridovich at 480 nm for 4 min on a Hitachi U-2000 spectrophotometer. Catalase activity was determined at room temperature by using the method of Aebi (1984), Activity of glutathione peroxidase was determined by the method of Flohe and Gunzler (1984), Glutathione reductase (GR) activity was determined according to the method of Carlberg and Mannervik (1985). The

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concentration of reduced glutathione (GSH) in brain homogenates was measured, as described by Akerboom and Sies (1981).

Statistical analysis

Analysis of variance (ANOVA) and Duncan's multiple comparison tests among data were carried out using the SPSS (Version 13.5; SPSS Inc., Chicago, IL, USA) and M.S. Office, excel software for the significance of the main effects (factors), and treatments along with their interactions. Statistical significance was set at $p < 0.05$.

Results

Ameliorative effect of ginger on antioxidant enzyme status in STZ-induced diabetic rats

Significant ($p < 0.01$) decreases in SOD, CAT, GPx, GR activities and GSH level and a high level of MDA were observed in the diabetic control rats compared with normal control rats. Diabetic rats with ginger treatment, showed significant ($p < 0.001$) increases in SOD, CAT, GR, GPx activities and GSH level, and a decrease in MDA level, which reflects restoration of the antioxidant enzyme systems to near-normal values (Figs. 1–6).

Discussion:

Diabetes is accompanied with lipid peroxides increased levels and reactive oxygen species and antioxidant enzymes SOD and CAT activities were decreased which play an important role in scavenging the toxic transitional of partial oxidation [8]. The antioxidative defence system enzymes like SOD and CAT showed lower activities in the brain tissue during diabetes and the results agree well with the earlier published data [9]. The decreased activities of SOD and CAT may be a response to increased production of H2O2 and O2_- by the auto-oxidation of the excess of glucose and non-enzymatic glycation of proteins. Pigeolet et al. [10] have reported the partial inactivation of SOD and CAT activities by hydrogen peroxide and hydroxyl radicals. SOD and CAT was decreased could also be due to their protein expression levels decreased in the diabetic condition, as recently reported in hepatic cells [11].Treatment with ginger extract and *glibenclamide* has reversed the SOD and CAT activities. This could be due to the presence of alkaloids, flavonols, flavones and volatile oils in *ginger*. These compounds may have antioxidant properties, with this property the extract could directly scavenges the superoxide radicals.

A prominent imbalance between reactive oxygen species production and endogenous anti-oxidant defence mechanism has been confirmed by reduced activity of GPx and GR in diabetic rats in the present study. Decreased GPx and GR activities indicate production of lipid peroxides and elevated H_2O_2 production. Treatment with ginger significantly potentiates above enzyme activities and the results are in agreement with the previous reports [12]. Thus, these results suggest that ginger has effective antioxidant activity by free radicals scavenging and oxidants/anti-oxidant homeostasis restoring developed during diabetic condition. In the present study we have observed significant reduced in Glutathione levels in brain during diabetic condition. The detoxification pathway of reactive oxygen species involves glutathione oxidation to glutathione disulfide (GSSG), ensuing in GSH level decreased diminution of tissue GSH content improves cellular damage caused by oxidative stress in accordance with previous Publications [13]. Ozbek et al [14] found that untreated diabetes caused generally lower levels of GSH in different brain region. With administration of ginger extract enhanced the GSH content in the diabetic rats. The increases in the content of GSH may protect cellular proteins against oxidation through glutathione redox cycle and also directly detoxifies reactive oxygen species generated from exposure to STZ. GSH content and GPx activity significant increase in diabetic rats treated with ginger indicate an adaptive mechanism in response to oxidative stress.

Conclusion:

From the above findings we concluded that ginger extract could be effective glibenclamide (like the anti-diabetic drug) in preventing the diabetic-induced turbulence in brain antioxidant enzyme status and lipid peroxidation. This was exposed by enhanced activities of antioxidant enzymes and recovered brain cells from injuries by ginger treatment in the diabetic rats. These results could further suggest that possible use of ginger as a nutraceutical supplement to cope

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with diabetic-induced damaging effects and to protect brain cells from reparation.

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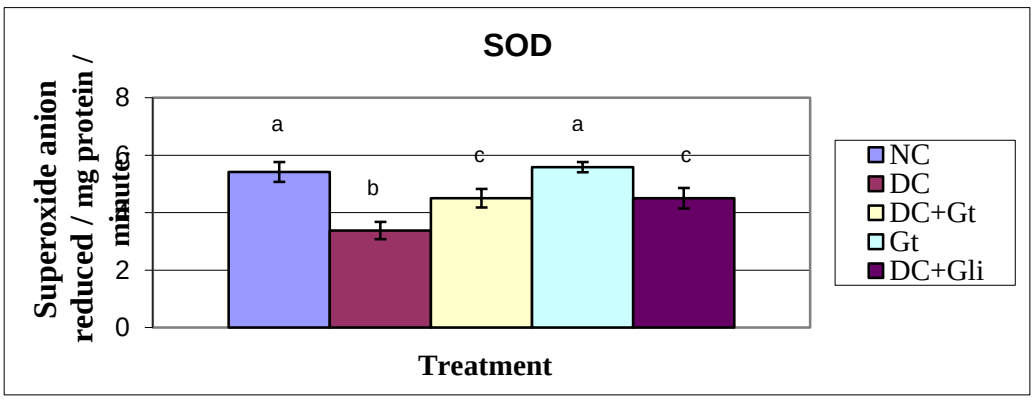

Fig.1: Changes in SOD activity in the brain of Normal Control (NC), Diabetic control (DC), Diabetic rats treated with *Ginger* (DC+Gt), *Ginger treated* (Gt), Diabetic rats treated with *Glibenclamide*. Each vertical bar represents the mean ± SD (n=6). Top of the vertical bars having the same letter do not differ significantly at p<0.01.

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Fig.2: Changes in CAT activity in the brain of Normal Control (NC), Diabetic control (DC), Diabetic rats treated with *Ginger* (DC+Gt), *Ginger treated* (Gt), Diabetic rats treated with *Glibenclamide*. Each vertical bar represents the mean ± SD (n=6). Top of the vertical bars having the same letter do not differ significantly at p<0.01.

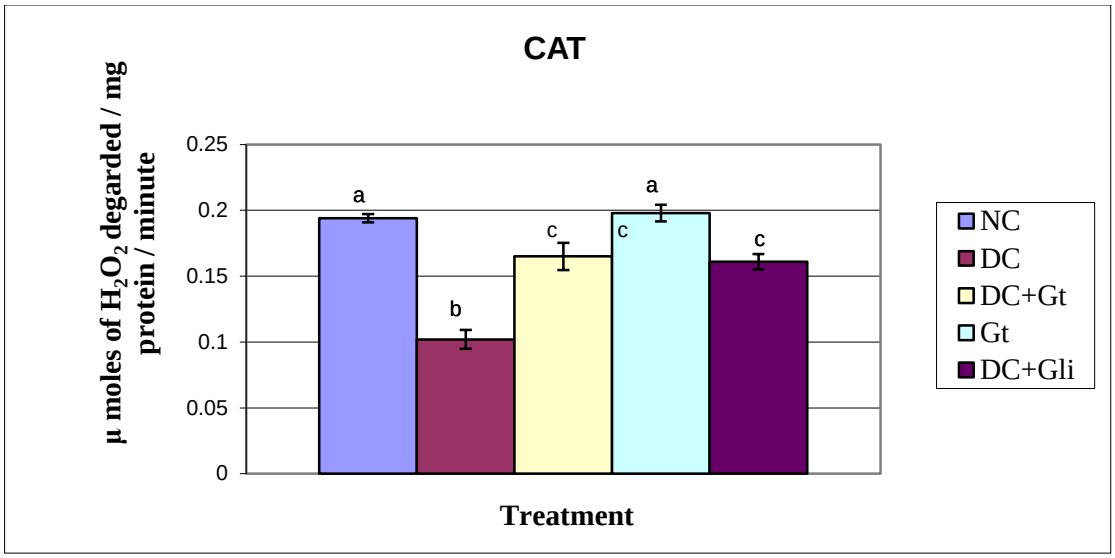

Fig.3: Changes in GPx activity in the brain of Normal Control (NC), Diabetic control (DC), Diabetic rats treated with *Ginger* (DC+Gt), *Ginger treated* (Gt), Diabetic rats treated with *Glibenclamide*. Each vertical bar represents the mean ± SD (n=6). Top of the vertical bars having the same letter do not differ significantly at p<0.01.

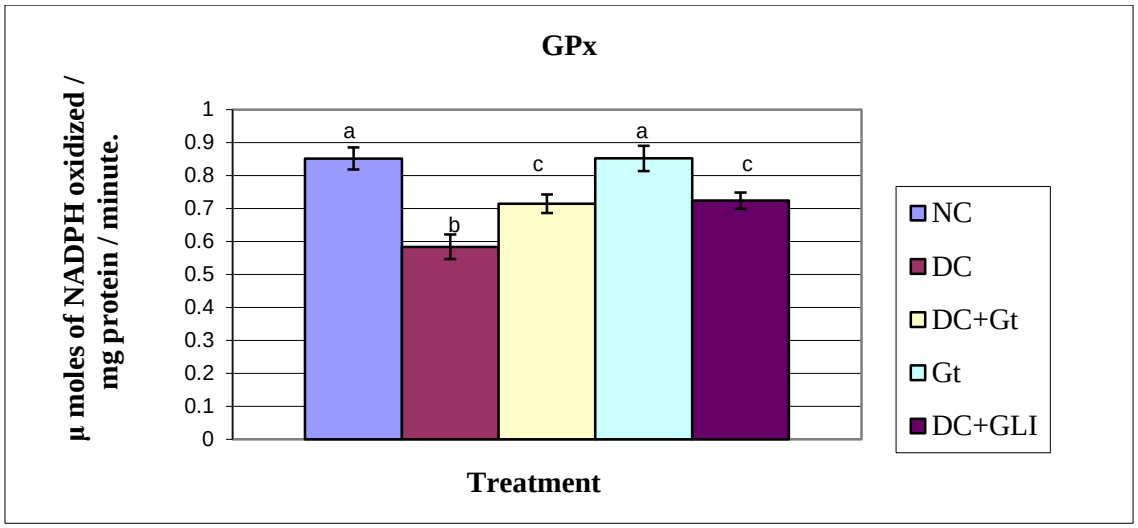

Fig.4: Changes in GR activity in the brain of Normal Control (NC), Diabetic control (DC), Diabetic rats treated with *Ginger* (DC+Gt), *Ginger treated* (Gt), Diabetic rats treated with *Glibenclamide*. Each vertical bar represents the mean ± SD (n=6). Top of the vertical bars having the same letter do not differ significantly at p<0.01.

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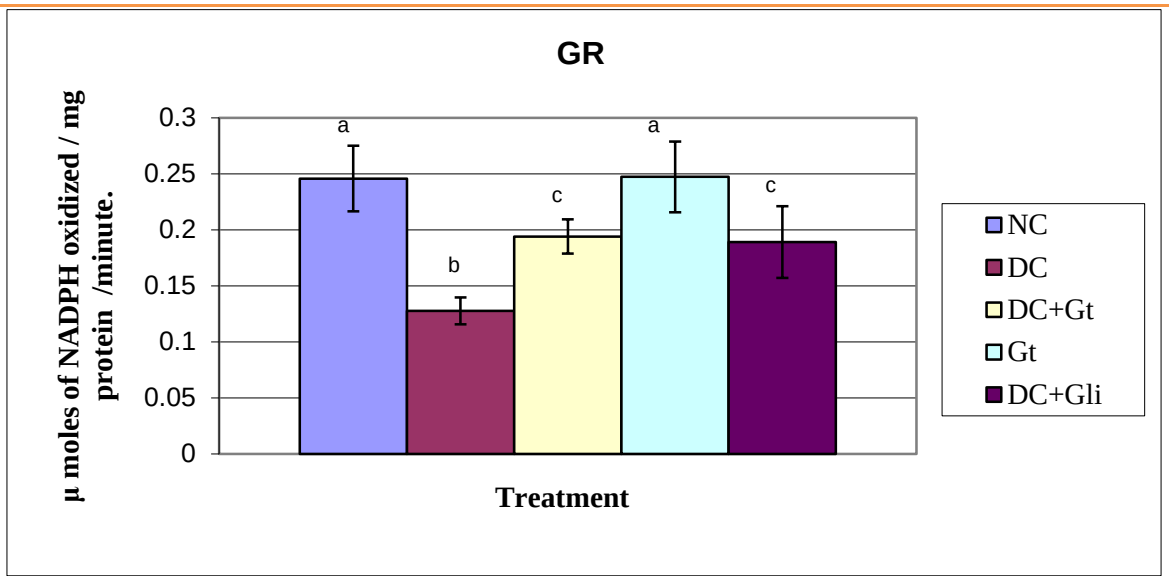
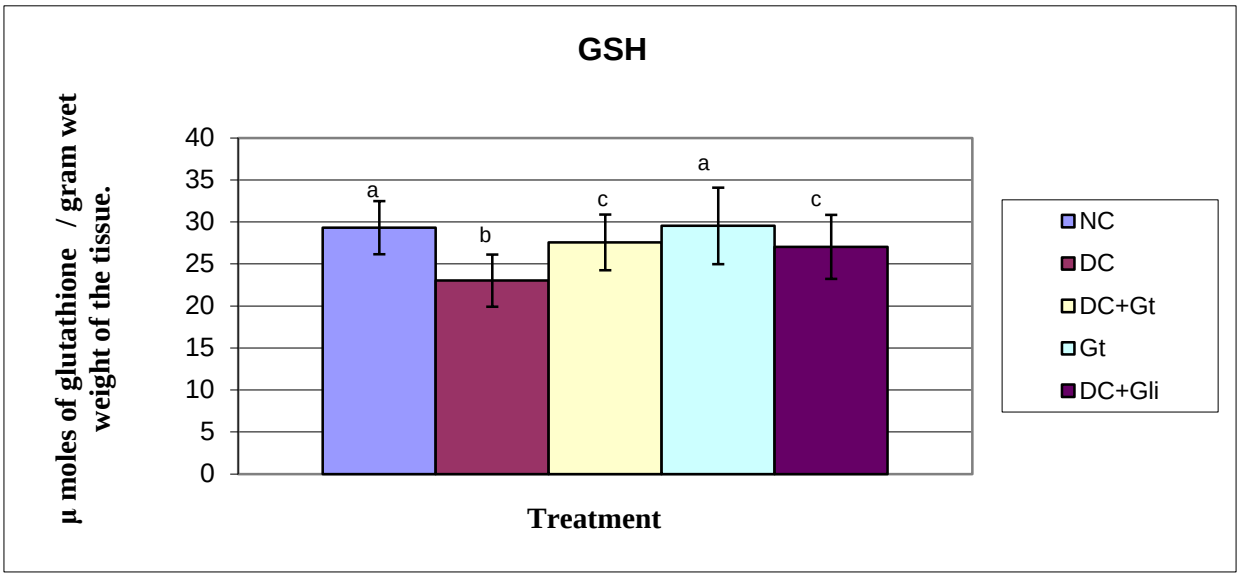


Fig.5: Changes in GR activity in the brain of Normal Control (NC), Diabetic control (DC), Diabetic rats treated with *Ginger* (DC+Gt), *Ginger treated* (Gt), Diabetic rats treated with *Glibenclamide*. Each vertical bar represents the mean ± SD (n=6). Top of the vertical bars having the same letter do not differ significantly at p<0.01.



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EDUCATION FOR SUSTAINABLE DEVELOPMENT

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Abstract:
Education for sustainable development (ESD) leads to the development of the knowledge, skills, understanding, values and actions required to create a sustainable world, which ensures environmental protection and conservation, promotes social equity and encourages economic sustainability. Sustainability education encompasses all school subjects and extends far beyond the classroom. It gives students actual skills they can use to improve the world. It provides today's children with the independent they must for tomorrow. The purpose of this paper is to discuss The sustainable development goals and some pedagogy and tools of surrounding e-learning systems.

Keywords: sustainable development goals; education; E-Learning, etc.

Introduction:

Sustainable Development:

Sustainable means "able to be sustained"; that is, to be maintained indefinitely, and is contracted with "unsustainable", referring to what cannot be maintained (Martinez-Alier 2002; Wackernagel and Rees 1995). Sustainable development means having a different vision of the world. Sustainable development a constantly evolving concept, is thus the will to improve everyone's quality of life, including that of future generations, by reconciling economic growth, social development and environmental protection (UNDESD, 2005)

Source-http://www.aproms.ap.gov.in/SDG/

The concept of sustainability has undergone notable developments over the past few years. In its beginnings, the report "Our Common Future" [1]Education is most important and top priority goal because it is a basic human right and the bottom on which to build peace and drive sustainable development. Education is both a goal in itself and a means for attaining all the other SDGs. It is not only an essential part of sustainable development, but also a key supporter for it. That is why education represents an essential strategy in the pursuit of the sustainable development goals..Education for Sustainable Development – a key instrument to achieve the SDGs "A basic change is needed in the way we think about education's role in global development, because education has a responsibility to be in gear with 21st century challenges and aspirations, and foster the right types of values and skills that will lead to sustainable and inclusive growth, and peaceful living together. " Irina Bokova, Director-General of UNESCO Sustainable means "able to be sustained"; that is, to be maintained indefinitely, and is contracted with "unsustainable", referring to what cannot be maintained (Martinez-Alier 2002; Wackernagel and Rees 1995). Sustainable development means having a different vision of the world. Sustainable development a constantly evolving concept, is thus the will to improve everyone's quality of life, including that of future generations, by reconciling economic growth, social development and environmental protection (UNDESD, 2005) T

Objectives of the study:

1) **To Study The Goals Of Sustainable Development.**
2) **To Study The Pedagogy And Tools Of Education.**

Research Methodology:

The present study paper is mainly based on secondary data which is collected from periodicals, books, websites research articles and Internets.

The following figure shows United Nations Sustainable Development Goals:

Definitions:

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"Education for Sustainable Development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future"(UNESCO, 2014)

."Education can, and must, contribute to a new vision of sustainable global development." (UNESCO, 2015)

Education for Sustainable Development aims at developing proficiency that empower individuals to reflect on their own actions, taking into account their current and future environmental, economical, cultural and social impacts, from a local and a global perspective. It helps students to acquire new concepts and critical thinking abilities, which are learned in application to real life situations. Students obtain information and gain knowledge, while getting familiar with the dilemmas faced when applying or producing innovative solutions for interdisciplinary sustainability issues Individuals should also be empowered to act in complex situations in a sustainable manner, which may require them to strike out in new directions; and to participate in socio-political processes, moving their societies towards sustainable development. UNESCO coordinates the international community to achieve the education goals of SDG-4 through partnerships, policy guidance, capacity development, monitoring and advocacy with the Education 2030 Framework for Action as roadmap Emphasis on upgrading learning resources and facilities to make access to information easier or instruction more engaging has led to the formation.

Sustainable Development Goal (EDUCATION) through

E- Learning Pedagogy-

According to Naidu (2006), the term E-learning comprises more than online learning, but incorporates all educational activities that are carried out by individuals or groups working online or offline.

E-learning is "utilizing electronic technologies to access educational curriculum outside of a traditional classroom,"

In a modern world, higher education has an obligation and central in redefining education for the case of sustainability surpassing its two traditional functions of research and teaching.Nowadays, higher education and sustainability are widely recognized as interlace concepts.

Smart classroom:

Smart Classroom is a setting that incorporates electronic devices and software into the learning environment. Typically, it is a digital classroom where a physical classroom extends into a digital space. This digital environment makes it possible for users to collaborate or continue their work outside the classroom.Students find it engaging and easy to access learning resources, networks and track their learning progress. teacher also find it resourceful in focus on students' work in a smart classroom.Smart classroom facilitates customization of feedback based on student, lesson, group and more.

Digital Education:

Digital Education is broder than what we see in today's world.

Digital Education is consisting of 3 elements.

1.Technology-

2.Digital content-

3.Instruction-

1.Technology- It is tools by which used the the digital content transmitted from source to recipient that is the student communicating Bluetooth,laptop,camera,3D printing machine, these are used for education.

2. Digital content- digital content is all enriched and quality content that is mid available to students through this technologies, channel. it can be regular online platform, PDF file, multimedia presentation, PPT Presentation etc. which deals with the transmission of information from sources to recipient.

3.Instruction-

Who is going to handed to the digital content process to trend teacher to the quality teacher are in separable part of entire part of digital content system. because this trained teacher get to now how aware to transmit information or knowledge to students to this technologies. These three elements makes digital education.

Learning Management System (LMS)-We need technology in every classroom and in every student and teachers' hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world. A Learning Management System (LMS) is an online accommodates software

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used for creating, delivering, tracking, and reporting educational courses and outcomes. It can be used to support traditional face-to-face instruction, as well as amalgamate / blend and distance learning environments. During the COVID-19 pandemic, it is crucial to address the dramatic changes in all aspects of life generated by the emergence of information technology, particularly given its presence in higher education as sustainability. Technology has also helped to improve the simplest of practices, such as the development of traditional learning as sustainability techniques. Alias and Zainuddin define LMS as a web-based framework designed to promote the learning as sustainability process in educational institutions by properly planning, implementing and updating it. A methodology that falls under the umbrella of e-learning as sustainability has made it possible to resume the learning as sustainability process after lockdown This technology is known as a Learning Management System (LMS), the use of LMS in the learning as sustainability process helps to encourage e-learning as sustainability by offering instructional material without constraints on time or place. LMS nowadays have turned out to be a standard tool in higher education to facilitate interaction, communication, and collaboration with and among each other. Thus, LMS have grown into an indispensable tool for facilitating teaching and learning in higher education. Besides cropping and improving students' communication skills and assisting teaching in general, studies also found that the implementation of LMS contributes to sustainability by significantly reducing the production of materials and conserve resources.

MOOCs are another prominent development as part of the ramified E-Learning universe. The basic idea of MOOCs is to educate a massive amount of students online and free of charge. The term MOOC was first introduced by Dave Cormier from the University of Prince Edward Island in 2008 to describe a course about Connectives and Connective Knowledge . MOOCs can bring knowledge to students who may not have access otherwise, and be of use to learners who can't afford the costs of higher education. Non-traditional education realized through a MOOCs is a useful form of online learning and can complement traditional university learning.

Conclusion: Education is a vital importance for Sustainable Development. Education for Sustainable Development empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity.

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JUVENILE COMMON CRANE *(GRUS GRUS*) RARELY SIGHTED AT DIKSAL, TAHSIL INDAPUR, DIST. PUNE, MAHARASHTRA

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Abstract
The distribution of Common Crane (*Grus grus*) is Europe and is also called as Eurasian crane. It is the long distance migratory bird, during its migration it passes its winter in the north India. The juvenile common crane was rarely observed at the wetland area of Diksal (Latitude 18.31045^0 N and Longitude 74.79357^0 E), Tahsil Indapur, Dist. Pune. It is IUCN Red List of threatened species as Least Concerned.

Keywords- Common Crane, *Grus,* juvenile, Bhima, Ujani

Introduction-
The male Common Crane (*Grus grus*) are slightly heavier and larger than females with weight showing the largest sexual size dimorphism, followed by wing, central toe, and head length in adults and juveniles. This species is slate-grey overall. The forehead and lores are blackish with a bare red crown and a white streak extending from behind the eyes to the upper back. The overall colour is dark on the back and rump and pale on the breast and wings. The primaries, the tips of secondaries, the tip of the tail and the edges of upper tail coverts are all black and the greater coverts droop into explosive plumes. Body feathers of juvenile has yellowish-brown tips and lacks the drooping wing feathers and the bright neck pattern of the adult, and has a fully feathered crown. Every two years before migration, the adult *Grus grus* undergoes a complete moult, remaining flightless for six weeks, until the new feathers grow (J. C. Alonso *et al*. 2019).

This *Grus grus* species is found in the northern parts of Europe and across the Palearctic to Siberia. The species of common crane is a long distance migrant predominantly wintering in northern Africa. Autumn migration occurs in August to October in the breeding areas but from late October to early December at the wintering sites. Spring migration starts in the month of February at wintering sites up to early March, but from March through May at the breeding areas (Javier, A. Alonso *et al.*,1990). Migration phenology of common cranes is changing due to the climate change. Some birds can be seen in winter in southern Europe, including Portugal, Spain and France. Most eastern common cranes winter in the river valleys of Sudan, Ethiopia, Tunisia with smaller numbers in Turkey, northern Israel, Iraq and parts of Iran. The third major wintering region is in the northern half of Indian subcontinent, including Pakistan. Minimal wintering also occurs in Burma, Vietnam and Thailand (M. Orellana-Macías *et.al*., 2020).

Methodology-
The study was conducted during the period of September 2018 to August 2022 at the wetland area of Bhima river of Indapur tahsil, Dist. Pune, Maharashtra, India. The observations were carried out twice in aweek of each month during the time 7.00-11.00 am and 3.30-6.30 pm. The birds were observed with the help of binocular and a digital camera. The photographs of the species have been confirmed with the field guide of ornithologist Salim Ali (2002) and Satish Pande *et al*. 2011.

Results-
- **Name of species:** Common crane
- **Family:** Gruidae
- **Scientific name:** *Grus grus*
- **Status:** Winter migrant
- **Date of sighting:** 3rd February 2019
- **Time of sighting:** 10.45 am
- **Weather:** Sunny
- **Number of times sighted:** Single
- **Gender of bird:** Male
- **Locality:** Diksal (Latitude 18.31045^0 N and Longitude 74.79357^0 E), Tahsil Indapur, Dist. Pune, Maharashtra state, India

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- **Habitat description:** Wetland of Ujani reservoir
- **Distance from human civilization:** 3 km
- **Any other bird/animal associates:** Birds sighted at the wetland area are- *Tachybaptus ruficollis, Phalacrocorax niger, Threskiornis melanocephalus, Plegadis falcinellus* and *Fulica atra*.
- **Bird behavior:** The diet of common crane is It largely eats plant matter, including roots, rhizomes, tubers, stems, l eaves, fruits and seeds. Their animal foods are insects, snails,crabs, amphibians and small birds.
- **Threats to the habitat:** Bird poaching
- **Photograph:** Attached
- **Previous records:** No documented record of juvenile common crane from this locality.

Coclusion-

The distribution of Common Crane *(Grus grus*) is Europe and is also called as Eurasian crane. It is the long distance migratory bird, during its migration it passes its winter in the north India. The juvenile common crane was rarely observed at the wetland area of Diksal, Tahsil Indapur, Dist. Pune. It is IUCN Red List of threatened species as Least Concerned.

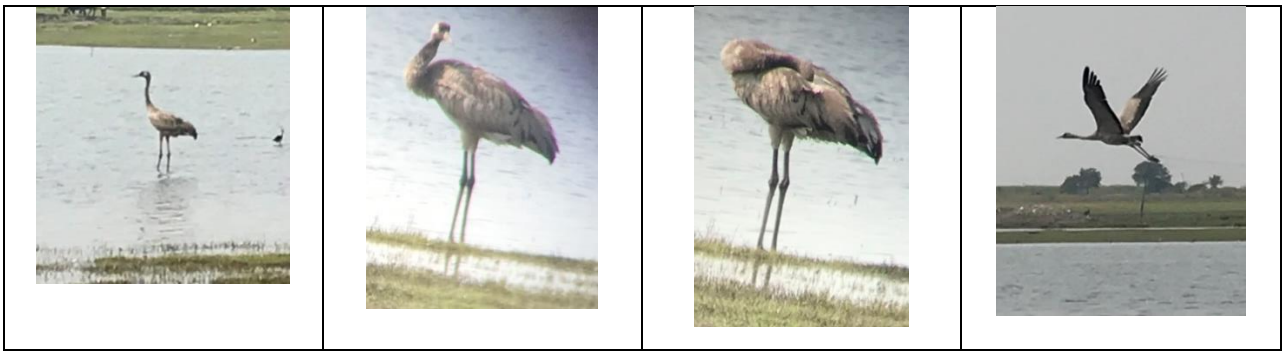

Plate: Different positions of Common crane (*Grus grus*) at the location of Diksal

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SIGHTED RARELY THE WOOD SNIPE (*GALLINAGO NEMORICOLA*) AT WETLAND AREA OF VILLAGE KUMBHARGAON, TAHSIL INDAPUR, DIST. PUNE, MAHARASHTRA, INDIA

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Abstract

Wood snipe (*Gallinago nemoricola*) rarely occurred at marshy area of Kumbhargaon (Latitude 18.28019^{0}N and Longitude 74.76541^{0}E), Tahsil Indapur, Dist. Pune. This species is listed as a vulnerable in the IUCN Red List of threatened species (IUCN 2008). Mostly these species occur in marshy areas. Poaching threats have been the real issue in conservation of wood snipe.

Keywords- Wood snipe, *Gallinago nemoricola*, IUCN, red list

Inroduction-

Wood snipe (*Gallinago nemoricola*) is listed as a vulnerable in the IUCN red list (IUCN 2022). It breeds locally in the Himalayas of northwest and northeastern India, Nepal, Bhutan and China and in the regions of southeast Tibet, central Situan and perhaps Yunnan (Birdlife International 2001, Grimmett *et al.* 2000). In winter it occurs at lower altitudes in the Himalayas as a regular visitors in small numbers to north Vietnam as a vagrant to the hills of central and southern part of the India and Sri Lanka, Bangladesh, Myanmar, North Thailand and Laos (Birdlife International 2001). All the species were found from marshy areas (J. R. Kathiawada, 2010).

Methodology-

The study was conducted during the period of September 2018 to August 2022 at the wetland area of Bhima river of Indapur tahsil, Dist. Pune, Maharashtra, India. The observations were carried out twice in aweek of each month during the time 7.00-11.00 am and 3.30-6.30 pm. The birds were observed with the help of binocular and a digital camera. The photographs of the species have been confirmed with the field guide of ornithologist Salim Ali (2002).

Results-

- **Name of species:** Wood snipe
- **Family:** Scolopacidae
- **Scientific name:** *Gallinago nemoricola*
- **Status:** Vagrant, vulnarable
- **Date of sighting:** 27th January 2022
- **Time of sighting:** 11.15 am
- **Weather:** Sunny
- **Number of times sighted:** Single
- **Gender of bird:** Male
- **Locality:** Kumbhargaon (Latitude 18.28019^{0}N and Longitude 74.76541^{0}E), Tahsil Indapur, Dist. Pune, Maharashtra state, India
- **Habitat description:** Wetland of Bhima river
- **Distance from human civilization:** 2 km
- **Any other bird/animal associates:** Birds sighted at the muddy wetland area are- *Phalacrocorax niger, Egretta alba, Ardea cineria, Threskiomis melanocephalus, Platalea leucorodia, Anas poecilorhyncha, Fulica atra, Charadrius hiaticula, Charadrius dubius, Charadrius alexandrines, Limosa limosa, Tringa glareola and Himantopus himantopus*
- **Bird behavior:** The diet of wood snipe is mostly worms, isect larvae, snells, crustaceans. They slurp up invertebrates through nearly closed bill. Their call is a series of nasal 'check-chek-chek' sound.
- **Threats to the habitat:** Bird poaching
- **Photograph:** Attached

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- **Previous records:** No documented record of Wood snipe from this locality.

Coclusion-

Wood snipe (*Gallinago nemoricola*) has been found rarely which has been included in the IUCN red list. Poaching threats have been the real issue in conservation of wood snipe.

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Plate: *Gallinago nemoricola* (Wood snipe)

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SEMI VENOMOUS SNAKE, LEITH'S SAND SNAKE RARELY OCCURRED AT THE OUTSKIRT OF GOTONDI VILLAGE, TALUKA INDAPUR, DIST. PUNE, MAHARASHTRA, INDIA

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Abstract
From the desert outskirt of Gotondi village (Lat. 18.057446^{0}N Long. 74.858476^{0}E), taluka Indapur, Dist. Pune on 19th March 2004, the Leith's sand snake was rescued since it was entangled in a torned piece of fishing net, some one might have thrown that fishing net as unwanted. The investigator has rescued 1479 snakes during the period Nov. 1990-Aug.2022 and this snake rescued once only since it is rare and Least Concerned in IUCN Red List threatened species.

Keywords- Leith's sand snake, IUCN, Indapur, Gotondi, *Psammophis leithii*

Introduction-
Psammophis leithii is commonly called as Pakistan sand racer, Pakistani ribbon snake or Leith's sand snake, is a species of rear-fanged snake in the family Psammophiidae. The species is native to south Asia. It is harmless to humans. This Leith's sand snake (*Psammophis leithii*) species has been mentioned as least concerned in IUCN Red List of threatened species (Vyas, R., Srinivasulu *et.al.*; 2021).

Materials and methods-
The work was conducted at Indapur tahsil of Pune district, Maharashtra state, India, under which 143 villages have been included covering of 1,487 sq km area during the period of 1991-2022 to work on the diversity of snakes, environmental education and wild life conservation of snakes. The rural and urban habitation and also the scrubland, rocky areas, swamp areas, water bodies, etc. have been considered. Survey, collection and identification of snake species have been carried out in a tahsil area. The investigator is a skilled person to handle the various non venomous, semi venomous and venomous snakes. For safehandling of snakes, snake hooks and cotton bags have been used and for rescuing of snake from waterfilled well, the snake tongs have been used. To prevent the snake bite precautionary measures have been taken. During rescuing the Leith's sand snake, the morphological structures of the body of snake have been observed and photographs have been taken for the study purpose..

Results-
Leith's Sand Snake- *Psammophis leithii* (Gunther,1869)-
Scientific classification: From kingdom to subfamily same as Trinket snake
Genus- *Psammophis*
Species- *leithii*
Local name: Marathi- Lithicha Reti sap
Non venomous/Semi venomous/Venomous: Semi venomous
Length: 68 cm
Identification: Yellowish body has four dark brown lines from head to tail. The head has an elongated dark mark. The mouth is also elongated and the head is somewhat bigger than the neck. Big eyes with round pupils. Underside is faint yellowish-white with smooth scales.
Rescued from location: Desert outskirt of Gotondi village (Lat. 18.057446^{0}N Long. 74.858476^{0}E), taluka Indapur, Dist. Pune on 19th March 2004. I have rescued 1479 snakes during the period Nov. 1990-Aug.2022 and this snake rescued once only since it is rare.
Habitat: Grasslands and deserts.
Habit: Lizards, garden lizards and small birds (Khaire N; 2011).**Breeding behaviour:** Oviparous. Female lays around 4-10 eggs (Khaire N; 2011).
Characteristics: It is a diurnal and is found on the ground as well as trees.

Conclusion-
From the desert outskirt of Gotondi village (Lat. 18.057446^{0}N Long. 74.858476^{0}E), taluka Indapur, Dist. Pune on 19th March 2004, the Leith's sand snake was rescued

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since it was entangled in a torned piece of fishing net, some one might have thrown that fishing net as unwanted. The investigator has rescued 1479 snakes during the period Nov. 1990-Aug.2022 and this snake rescued once only since it is rare and Least Concerned in IUCN Red List threatened species.

		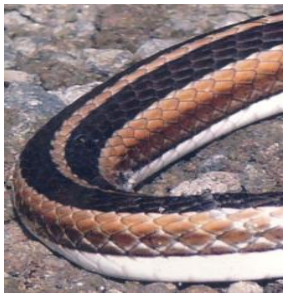
Leith's sand snake	**Head and neck**	**Dorsal and lateral view**

Plate: Leith's sand snake (*Psammophis leithii*)

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IMPACT OF COVID-19 ON INFLOW OF FOREIGN DIRECT INVESTMENT

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Abstract
The World investment report focuses on trends in foreign direct investment (FDI) worldwide, at the regional and country levels and emerging measures to improve its contribution to development. It also provides analysis on global value chains and the operations of multinational enterprises, with special attention to their development implications.
The covid-19 pandemic has put the global economy into a recession which means the world economy has started shrinking while India has no exception. In recent years Indian has emerged as one of the most favorite destination for foreign investment. The main purpose of this study is to examine the impact of Covid-19 in the Foreign Direct Investment (FDI) in India. A trend of FDI inflow has been observed with the comparison of pre and post Covid-19 pandemic period. The outcomes show the first quarter of 2020 has worst impact, while after that, due the revised FDI policies and India's internal capabilities to attract foreign investors, a surge in FDI inflow has been observed. FDI being a constructive force of the economic growth could play an important role in supporting the economy during after the crisis.

Keywords: Covid-19, Foreign Direct Investment (FDI), Recession.

Objective of the study
To study the impact of Covid-19 pandemic in the inflow of FDI in India.
To get the general idea about the revised FDI policy in India.
To Analysis the trends in FDI

Research Methodology
Data sources and Data type: the study is based on secondary data collected from various sources including RBI bulletin, Economic survey reports and DIPIIT. Data is taken with a view to cover the Covid-19 period for that reason April to October for fiscal year 2020-21 is being compare with previous 5 years of the same months.
Tools and Technique applied: line graph, and pie chart has been used to analyze data

Limitations of the study
Following are the major limitations of the study:
The study has taken into consideration only FDI Equity inflows but there are other instruments of FDI also.
The study mainly depends upon the published secondary data which was assumed to be reliable

Introduction COVID-19 is not only a public health crisis, as it has also severely affected the global economy and financial markets. Among the consequences of the disease mitigation measures implemented by countries around the globe are significant reductions in incomes, higher unemployment rates, and disruptions in the transportation, service, and manufacturing industries. Financial markets worldwide have been affected by the pandemic. Initially, stock markets declined sharply in response to the pandemic, but recovered subsequently in a spectacular manner, buoyed by expansionary monetary policy and later on by the advent of vaccination. The reaction of the gold market to the pandemic was rather unorthodox, as the proposition that gold is a hedge for stock portfolios was not supported for failure to observe negative correlation. On the international scene, the pandemic has hit trade and capital flows. In particular, foreign

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direct investment (FDI) flows have fallen sharply and disproportionately to the decline in domestic economic activity and trade flows. This is the issue under consideration in this paper where we examine the facts and figures and make an attempt to provide some explanations for the sharp decline in FDI inflows in 2020. The explanations are based on the macroeconomic consequences of the pandemic, theories of FDI, and on the prevailing understanding of the economic effects of crises and disasters. We start with some background notes on the theory and empirics of FDI.

After a steady decline in 2020 further accelerated by the COVID-19 crisis, global FDI flows1 surged 88% in 2021 (Figure 1), reaching USD 1 815 billion, surpassing their pre-pandemic levels by 37%. The United States and China saw the biggest increases but many other economies also recorded increases. The driving force of the increase in FDI flows can be attributed to a significant upswing in OECD earnings on FDI, which peaked in 2021. Fewer of those earnings were distributed back to parent companies, resulting in higher levels of reinvested earnings, which spurred the rebound. OECD FDI equity inflows also increased by 25%, exceeding pre-pandemic levels by 4% and slightly reverting the declining trend observed since 2016. In contrast, OECD intra-company debt flows remained negative for the second consecutive year. While new investment activity was generally strong in 2021, the prospects for 2022 remain uncertain with the war Russia is waging in Ukraine.2 Greenfield investment in emerging and developing economies remains weak.

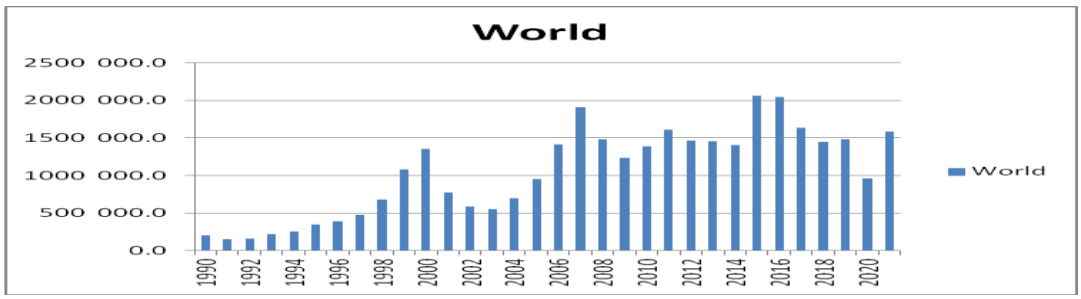
Analysis and interpretation

Figure 1 shows annual global FDI flows from 1999 to 2021 as well as quarterly and half-year trends from 2017 to 2021.3 Looking at half-year values, FDI flows went up by 98% in the first half of 2021, before dropping slightly by 4% in the second half of the year. Looking at quarterly values, the rebound of global FDI flows was mainly concentrated in the first quarter of 2021, when they grew by 90% over the previous quarter before dropping 12% in Q2 2021 and remaining almost stable throughout the rest of the year.

Table 1. World FDI inflows, by region and economy, 1990–2021 (Millions of dollars)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
FDI Equity Inflow	204 887.7	153 959.1	164 685.0	222 236.6	255 893.7	345 142.7	392 778.7	480 628.5	681 509.3	1078 285.7	1356 685.1
Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
FDI Equity Inflow	773 130.5	590 311.3	549 628.8	698 479.5	953 219.6	1415 251.7	1905 472.6	1486 234.9	1237 833.9	1390 942.3	1610 398.2
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	
FDI Equity Inflow	1468 753.1	1459 042.8	1402 522.5	2063 638.3	2045 423.6	1632 638.5	1448 276.2	1480 626.0	963 138.5	1582 309.8	

Figure-1: Monthly FDI Equity Inflow ($ millions)



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Inflows In the OECD area, FDI inflows increased by 75% to USD 809 billion (Figure 2), 5% up on pre pandemic levels. FDI inflows in the OECD area accounted for 45% of global FDI inflows in 2021, a slightly lower average than in 2018-2019 (51%). The increase over 2020 was mostly driven by rebounds in inward FDI flows in the United States (USD 382 billion), boosted by record-high levels of reinvestment of earnings and increased equity inflows involving major M&A transactions (see Sections 2 and 4). Yet, rises were recorded in many other OECD countries, in particular in Canada (USD 60 billion), Switzerland (USD 37 billion) and Japan (USD 25 billion).4 In contrast, FDI flows into EU27 countries as a whole decreased by 30%, driven by decreases in Ireland, Germany and Luxembourg, down from peak levels recorded in 2020. Disinvestments were also recorded for the third consecutive year in the Netherlands.

Table 2. Developed economies FDI inflows, by region and economy, 1990–2021 (Millions of dollars)

Year	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
FDI Equity Inflow	171 279.5	116 083.0	112 105.3	145 961.3	153 719.5	228 407.0	246 473.0	295 542.1	509 573.1	870 309.9	1133 973.8
Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
FDI Equity Inflow	560 142.5	424 916.1	355 532.5	440 433.6	630 455.5	1012 877.7	1382 376.7	901 911.5	766 876.9	761 318.7	933 049.0
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	
FDI Equity Inflow	789 264.5	799 972.6	713 961.7	1322 723.0	1384 814.4	937 683.0	753 320.3	764 455.7	319 189.8	745 739.2	

Figure-2: Monthly FDI Equity Inflow ($ millions)

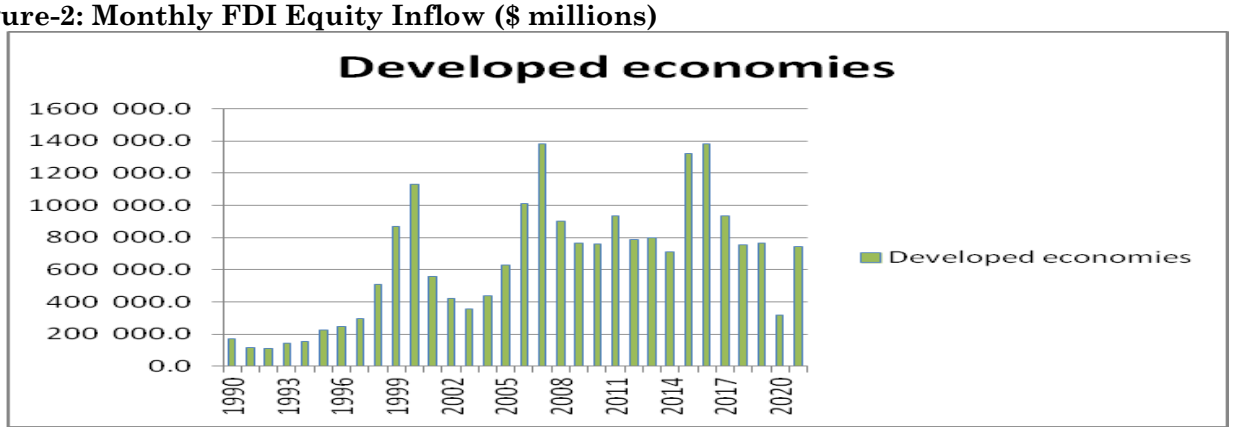

Figure 2 shows a comparison of FDI equity inflow for the period 1990 to 2020 with the last 32 years FDI equity inflow. It is clear from the above figure that there is gradual decrease of FDI equity inflow in the month of April 2020 to June 2020 as compare to the same of last 5 years average due to the Covid-19 outbreak. From the month of July to October 2020 it is observed that the FDI inflow has sharply recovered and in the month of August 2020 the FDI equity inflow was highest because of the $ 10 billion investment by Google in the country.

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Table 3. South Asia FDI inflows, by region and economy, 1990–2021 (Millions of dollars)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
FDI Equity Inflow	212.8	446.9	754.4	1 354.3	1 950.0	2 816.3	3 380.0	5 413.6	3 926.6	3 249.5	4 866.3
Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
FDI Equity Inflow	6 747.1	10 570.7	8 376.2	10 864.8	14 182.1	28 589.5	34 594.7	56 591.6	42 466.3	34 862.5	44 331.6
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	
FDI Equity Inflow	32 364.8	35 612.5	41 449.5	51 227.3	54 281.0	51 639.9	52 262.5	59 085.8	70 957.3	52 416.8	

Figure-3: Monthly FDI Equity Inflow ($ millions)

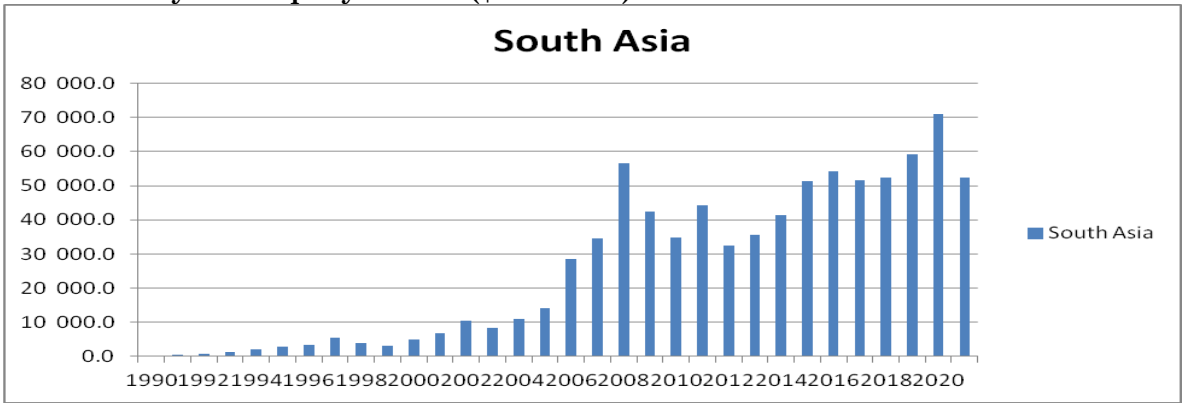

Figure 3 shows a comparison of FDI equity inflow for the period 1990 to 2020 with the last 32 years FDI equity inflow. It is clear from the above figure that there is gradual decrease of FDI equity inflow in the month of April 2020 to June 2020 as compare to the same of last 5 years average due to the Covid-19 outbreak.

Table 4. India FDI inflows, by region and economy, 1990–2021 (Millions of dollars)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
FDI Equity Inflow	236.7	75.0	252.0	532.0	974.0	2 151.0	2 525.0	3 619.0	2 633.0	2 168.0	3 588.0
Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
FDI Equity Inflow	5 477.6	5 629.7	4 321.1	5 777.8	7 621.8	20 327.8	25 349.9	47 102.4	35 633.9	27 417.1	36 190.5
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	
FDI Equity Inflow	24 195.8	28 199.4	34 582.1	44 064.1	44 480.6	39 903.8	42 156.2	50 558.3	64 072.2	44 735.1	

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Figure-4: Monthly FDI Equity Inflow ($ millions)

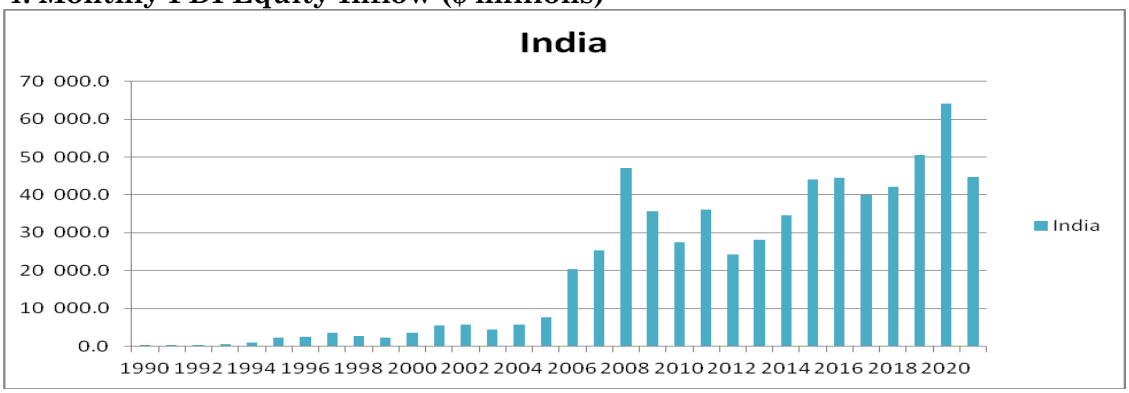

Figure 4 shows a comparison of FDI equity inflow for the period 1990 to 2020 with the last 32 years FDI equity inflow. It is clear from the above figure that there is gradual decrease of FDI equity inflow in the month of April 2020 to June 2020 as compare to the same of last 5 years average due to the Covid-19 outbreak. From figure it is observed that India is also impacted by
Covid-19 outbreak.

Conclusion

From the above study it is observed that the Covid-19 pandemic brought unrest on the whole world and India has no exception. The First quarter of FY-20 has shown a considerable negative growth in FDI equity inflow in the country but due to the Government's favorable business environment and timely FDI revised policies, FDI equity inflow has shown a surge of in the second quarter of FY-20. India's rival chain's dispute with the US has proven beneficial for India. As India having a large domestic market and having all capabilities to attract any big manufacturing company to shift its operation into the country.

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THE NEEDS TO IMPLEMENTS SERVICENOW CLOUD IN EDUCATION

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Abstract:

ServiceNow is a cross-platform cloud based database architecture use to connect the various departments in centralized database structure to managing and optimizing data through single cloud computing server through Configuration Management Database i.e. CMDB. Now days in education field ServiceNow play an important roles to achieve a better system flow using a Configuration Management Database. ServiceNow is a ticketing tools that processes and catalogs customer service requests. The user can raise requests that deal with incidents, changes, problems, and other services using tools like ServiceNow. ServiceNow cloud not implementing in the education sector as compared to the other enterprises as well as corporate sector.

***Keywords*:** ServiceNow, CMDB, Leveraging.

Introduction:

The ServiceNow business model is based on providing products using SaaS cloud computing software. It involves setting up systems to define, manage, automate and structure services for companies. ServiceNow users can find the software useful within security, operations, customer service, HR and other industries. With the cloud computing students are able to interact, do the assignments as they are on single computer. This process not only is efficient but also saves time and improves the quality in students. ServiceNow cloud has benefitted the colleges, institutes and schools. From the cloud service providers, the customer takes complete ownership of managing applications, operating systems, software, databases, etc. in the cloud. For example – Rackspace, Digital ocean, etc. The ServiceNow Service Automation Platform is a highly configurable, approachable, and extensible cloud platform built on an enterprise-grade architecture and infrastructure. All ServiceNow applications are built on this single platform, including custom applications created by ServiceNow customers and partners. ServiceNow is built using Java and Tomcat web server running on Linux as well as Windows. Although to develop new modules and applications in ServiceNow the JavaScript knowledge is sufficient. ServiceNow operates data centres in North America (Canada is the default location, with additional centres in the United States), South East Asia (South Korea and Singapore), Europe (Germany, Switzerland, The Netherlands, Ireland), U.K. (England and Wales), Japan, Australia, and Brazil.

Why need ServiceNow in Education?

As higher education IT leaders seek to overcome challenges to digital transformation within their institutions, they are also being tasked with improving student, faculty and staff experiences. To do that at scale, university IT departments must be able to meet their needs quickly, be agile in how they operate, and develop new software and tools to support a modern digital experience. According to an EDUCAUSE QuickPoll, higher education institutions are thinking more about digital transformation now than they were in 2022. In a 2022 survey of higher education institution IT leaders, 13% of respondents were currently engaged in digital transformation, while 32% were in the process of developing a digital transformation strategy. In the 2022 QuickPoll, 44% were currently engaged in digital transformation and another 27% were in the process of developing a strategy.

To spur digital transformation, higher education institutions increasingly are turning to tools from ServiceNow, not just for functions such as IT service management (ITSM) but also for a service-oriented IT model that enables IT teams to advance their universities' digital strategies and missions. ServiceNow's platform can serve as a modern operational backbone for universities seeking to transform how they interact with students and staff.

How Colleges and Universities Are Leveraging ServiceNow?

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As higher education student and staff experiences with companies have grown more digital and personal during the pandemic, their expectations for how they should interact with their institutions have changed. IT teams must become strategic partners to other university departments, students, faculty and staff members as they seek to streamline operations across the entire campus. Organizations need standard processes, shared data, shared applications and shared technologies to thrive in this environment. Higher education institutions must avoid having multiple applications that perform the same function. Sharing data is essential to transformation, he says, and ServiceNow enables that for agencies via a shared data repository. To focus on that kind of work, universities can leverage ServiceNow to simplify and optimize IT operations by merging core operational functions into a single platform. The platform enables standardized processes and allows data sharing to leverage shared applications. This empowers IT teams to work in a service-oriented fashion, operating not as a cost centre but as an integral element of the delivery of modern, mobile-friendly services that students and staff can access whenever they need to. ServiceNow tools allow an IT team to function more like a business than a technology provider, able to forecast demand and focus on the delivery of core services.

Good organizations and organizations that have a modern operational environment have services that provide value back to the business. ServiceNow gives students a single access point for all university services, quickly giving them the information they need. This implementation has reduced change-related incidents by more than 70%. It also has created a single record for each student; displaying each interaction a student has with administrative offices in one location and helping the university deliver on its commitment to student success. Colleges that have multiple campuses can benefit from a cloud-based ITSM, as well. Having a single source of information across all buildings, cities, and even sometimes, countries, means that everyone is on the same page and tasks that require multiple stakeholders won't have to bounce around from location to location and risk getting lost.

How to improve performance using ServiceNow to helping modernize the Education?

1) Better Communication:

Many colleges and universities struggle with a reliable means of communication between departments, faculty, or locations. With ServiceNow you can have everyone on the same wavelength. With improved communication, you can see benefits such as:

- Improved incident or case tracking
- Effective tools to any and all departments on campus
- Getting improved metrics and reporting to learn how you can better streamline services
- More accurate reporting and metrics
- The ability to create a knowledge base for any and all documentation
- Another recent evolution in the ServiceNow sphere has been the rise of chatbots. Organizations both large and small are eager to have an automated, but still personable, way to answer simple questions, raise and review tickets, and even schedule meetings between multiple users - all without having to open up everyone's calendars.

2) Faster Resolutions:

Reporting issues, service outages, and incidents has never been quicker with ServiceNow. The Self Service Catalogue capabilities mean that users don't have to send emails or make phone calls to see what the status is on a project. Instead, they can review the m all in one place. Give users the ability to search for information via a knowledge base without having to submit a request. Manage and track open requests, or submit new ones all in one location Request or order services, or suggest services not currently available.

3) A Centralised Data Handling:

A centralized source of information helps different campuses stay in sync. In the case of any college with different departments, each campus had different systems for their financial aid processes. If a student were to call any of the campuses, they would likely receive a completely different answer at one than the other. The

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colleges didn't document calls either, meaning that there was no record of a conversation if a student needed assistance or guidance. Implementing ServiceNow gave the college system a single contact centre between all of the campuses that can manage requests, generating tickets in ServiceNow. The improvements have created unison between the different locations and have improved trust in the community.

4) Operational scheduling:

Schedule daily operations on college system while maintaining close-ended database for analysing data easily and getting proper outcome.

Impact of ServiceNow the new standard in education

Delivering great experiences while building resiliency. Education institutions are at an infletion point. An industry already challenged by an eight year decrease in enrolments, deep cuts in funding, and ongoing questions about the return on tuition investment is now facing new pressures in the wake of COVID-19. While the pandemic forced institutions to quickly pivot to a border online learning environment, which caused great disruption, it also illuminated the need for engaging, secure, and seamless experiences both online and on campus. Now, education institution are working to develop, a more resilient and responsive framework to deliver on their mission of student success.

Service Now works with higher education institution to:

1. Deliver great experience for students
2. Automate manual and organizational processes.
3. Project against threats and facilitate compliance.
4. Attract and retain students and faculty.

Benefits to use ServiceNow in Education

1. Deliver great experience for students

While many students interaction how moved to digital formats that doesn't guarantee a seamless experience the tools, and processes for students are often spread across multiple platforms incoming students may apply register for classes order book, and supplies, schedule academic advising, and stay up to date on their grades-all on different website.

2. Automate manual and organizational process

In any educational institution, many separate internal departments work together to ensure the success of each student, this web of support requires countless processes often resulting in siloes, delays, and errors. And, most workflows are still manual and paper –based. Creating better environment tom serve students is possible. Automating the most common processes and integrating multiple systems enables faculty and staff to serve students in more meaningful ways that can result in reduced cost, better students' outcomes, and increased employee satisfaction and retention.

3. Protect against threats and facilitate compliance

Cybersecurity, compliance, and data protection are critical priorities for education institutions. The threats range from stolen research findings to compromised networks – all of which can damage stakeholders trust and put accreditation at risk. These tools also helps institutions secure the campus both online and offline and enable real-time reporting and compliance alerts.

4. Attract and retain students and faculty

As so many academic experiences move online, it's crucial to highlight students and faculty's lifecycle events in new and creative ways. Better experiences can have to powerful effect on student retention and faculty; education institution must explore unique ways to create engaging connection that add value. With the new platform, educational institutions can optimize manual and organizational processes to reduce frustration around transitions, these milestones, with digital workflows that automate experiences for faculty, like onboarding, moving towards tenure, and offboarding.

Limitations of ServiceNow in Education

1) If centralized database architecture fails entire system collapse down.

2) There are some processes that have many steps to completed i.e. Time consuming task

3) Sometimes limited user access the ServiceNow application for read and write data. For that pay some extra amount.

4) ServiceNow areas not identified in details processing, missing some steps to completing task.

5) Educational institution needs some extra

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support to maintaining security and privacy.

Conclusion

ServiceNow in education is a revolutionary change. According to report issued by centre for integrative research in computer and learning sciences states that the next level uses of ServiceNow cloud in education not yet invented. So the people working on ServiceNow should let the educators and education policy makers know about this in depth. Although there are several cons of using ServiceNow in educational sector, our features are ServiceNow so the educational system should start exposing their students to this sort of technology which started using a bit of ServiceNow. The impact of ServiceNow will be seen first in the higher education levels and gradually increase to the higher education. The ultimate impact of ServiceNow in education will only decide by the time. The main aim of ServiceNow is to make work of an educator easier but not replace them.

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