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Antioxidant activity of three marine microalgae *Nostoc* sp., *Chaetoceros muelleri* and *Nannochloropsis oculata*

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Abstract

Ocean is the sink for several bioactive compounds with potential application in the field of pharmaceuticals and nutraceuticals. In this study antioxidant activity of three marine microalgae viz. *Nostoc* sp., *Chaetoceros muelleri* and *Nannochloropsis oculata* were evaluated. The microalgal extracts were prepared with methanol and 1, 1-diphenyl-2-picrylhydrazyl (DPPH) assay were used to determine antioxidant properties by measuring the absorbance at 517 nm. Marine diatom *Chaetoceros muelleri* exhibited highest antioxidant activity of $66.98 \pm 7.96\%$, cyanobacteria *Nostoc* sp. with $61.30 \pm 4.25\%$ and lowest activity of $33.69 \pm 2.62\%$ was recorded in green algae *Nannochloropsis oculata*. Results showed that pigment fucoxanthin in marine diatom *Chaetoceros muelleri* might be the reason for higher antioxidant activity. It is also found that each group of microalgae contains many potential antioxidant compounds which scavenge various types of free radicals. Thus, the antioxidant potential of marine microalgae could be exploited in aquaculture feeds for production of disease resistant larvae and also in pharmaceutical sector.

Keywords: Microalgae, antioxidant, aquaculture, cyanobacteria, diatom, DPPH

1. Introduction

The ocean is considered to be the sink for the high potential biological organisms from where prospective drugs can be made. These marine organisms are reported to contain structurally novel and biologically active metabolites (Leelavathi and Prasad, 2014). Among them, microalgae are minuscule organisms which contain numerous bioactive compounds. They trap the solar energy to chemical energy by photosynthetic mechanism that can be exploited for commercial use with antioxidant activities (Laungsuwon and Chulalaksananukul, 2013). To facilitate speedy adaptation to ecological conditions, algae synthesize diverse of secondary metabolites (antioxidant) that cannot be found in other organisms. Microalgal species as alternative materials to extract natural antioxidative compounds have attracted much attention of biomedical scientists. Hence it is important to



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Development of a suitable medium for *in vitro* studies on the blood cells of sand lobster, *Thenus orientalis*

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Abstract

The circulating blood cells of arthropods and molluscs are collectively referred to as hemocytes which form the crux of most of the physiological and immunological responses in these invertebrates. It is therefore, essential to study these cells to gain better insight about the physiological reactions in these animals. In order to study these cells *in vitro*, it is a pre requisite to obtain hemocytes in native form, so that the *in vivo* functions can be ascertained. It is to be noted that the suitability of a medium for obtaining these hemocytes varies from each animal. This study focusses on standardization of various parameters in formulating a conducive medium to obtain hemocytes from the hemolymph of sand lobster, *Thenus orientalis* in native form. Various hemocyte characteristics was analysed and finally a suitable anticoagulant medium which maintains most of the hemocyte characteristics was chosen.

Key words: Hemolymph, *in vitro* studies, Anticoagulant, Hemocyte characteristics

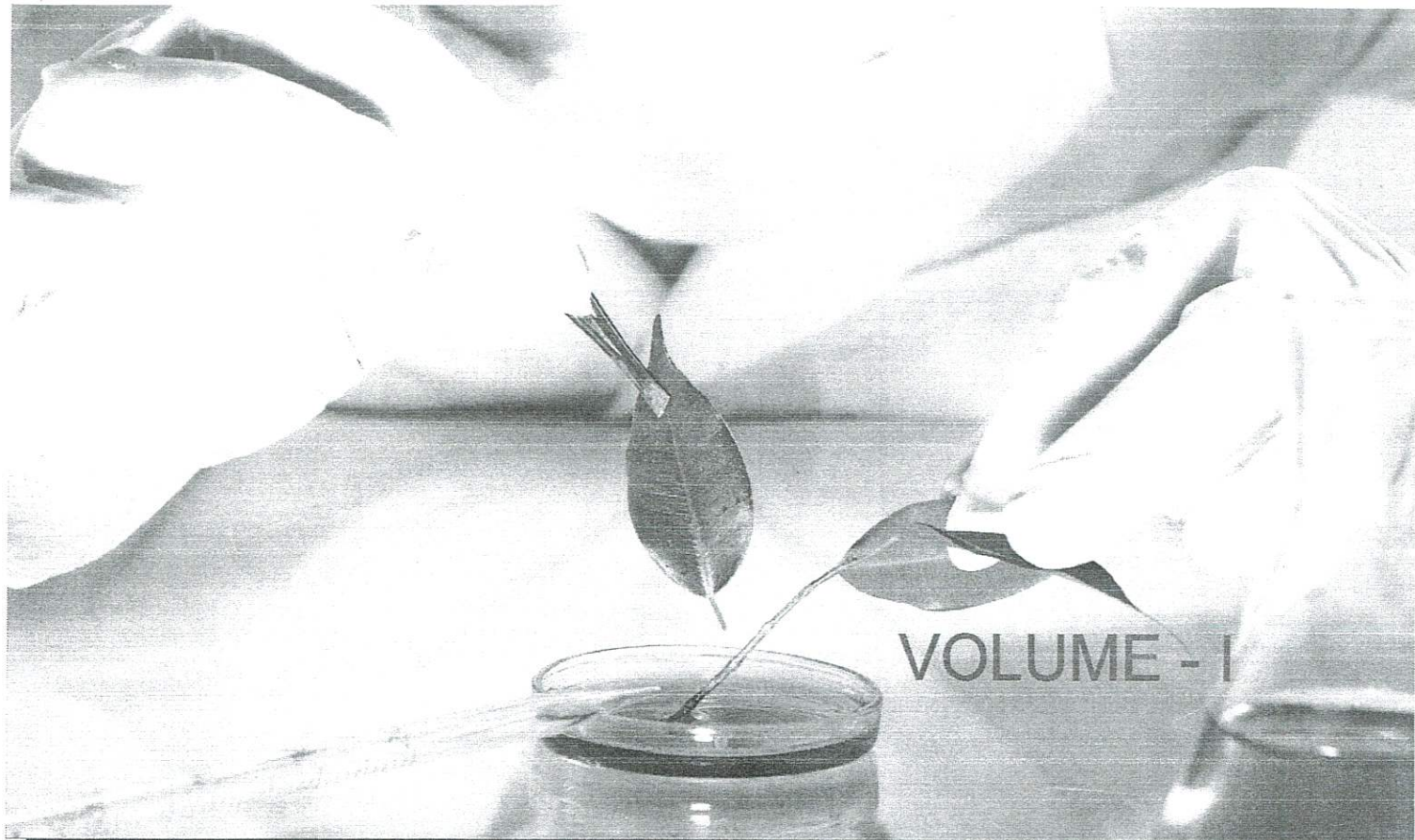
1. INTRODUCTION

Invertebrates constitute about 95% of all known species of the animal kingdom. It includes a vast diversity of animals ranging from unicellular protozoans to the more advanced arthropods, mollusks and echinoderms. Unlike invertebrates, vertebrate immune system has been extensively studied with respect to origin, development, structure and functions of the immune cells and tissue. The importance of discovering novel defense reactions in invertebrates are being slowly recognized. Furthermore, an understanding of the host defense of these "simple" animals may provide clues to the origin of vertebrate immunity and result in a unifying concept for immunology [1]. Crustaceans are a large group of arthropods which include crabs, lobsters, crayfish, shrimp, krills and barnacles. An extensive review has been published dealing with almost every aspect of crustacean immune system [2, 3]. From these studies it is evident that the internal defense system of crustaceans encompasses the humoral (molecules) and cellular (hemocytes) immune components. The circulating blood cells (hemocytes) are the primary effector component of the cellular immune system of crustaceans [4, 5]. These cells have been known to interact with various foreign materials and mediate immune reactions such as phagocytosis, nodule formation, encapsulation and cytotoxicity [6]. Apart from these free hemocytes, certain fixed cells called nephrocytes are identified in crustaceans that could play a role in certain cellular defense functions [7].

Hemolymph coagulation is an important physiological and immunological process in most group of animals as it helps to (a) seal the wound, (b) prevent fluid loss, (c) maintain the internal osmotic balance, and (d) prevent entry of pathogens [8]. From earlier investigations it is known that the hemocytes directly involve in hemolymph coagulation process by interacting with the plasma components. As a result the hemocytes undergo various alterations including aggregation, degranulation and lysis. Even though these changes in the hemocytes confer beneficial effects in hemostatic mechanism, most of these hemocytes, as consequence, are rather no longer free, intact or viable in native form *in vitro*. This is a major drawback for investigators to study their morphological, cytochemical or functional characteristics. Therefore, in this direction investigators have devised several anticoagulants but with limited success. Therefore, there is a necessity to develop an efficient anticoagulant in order to assess the *in vitro* ability of hemocytes to mediate diverse cellular immune response, thus understanding their *in vivo* significance. The objective of the present study is to develop an anticoagulant to maintain the hemocytes of *Thenus orientalis* in native form which would eventually enable us to analyse the hemocyte morphotypes and its associated functions.



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VOLUME - I

FRONTIERS ON RECENT DEVELOPMENTS IN PLANT SCIENCE AND PLANT BIOTECHNOLOGY

DR MURUGESAN SUBBIAH

S. Murugesan

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Chapter

16

NEEM FLOWERS – A BOON TO HUMAN HEALTH

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ABSTRACT

Plants are the primary source of medicine since ancient times and are excellent alternatives to modern medicine due to their availability, affordability, and stability. There is an increasing demand to discover new phytochemicals from plants due to their diverse secondary metabolites. *Azadirachta indica* is a multipurpose tree species found commonly in India, Africa, and America. The tree is regarded as a 'village dispensary' in India. The importance of the neem tree has been recognized by the US National Academy of Sciences, which published a report entitled 'Neem- a tree for solving global problems'. The objective of this review article is to explore the importance and pharmacological activities of under-explored neem flowers in cosmeceuticals, medicine, and agriculture. Different parts of the neem tree such as roots, barks, leaves, flowers, fruits, and seeds have been used in Ayurvedic, Unani and Homeopathic medicine for more than 4000 years in the treatment of inflammation, microbial infections, viral fever, skin diseases and dental problems due to its medicinal properties. The Neem flower exhibits a wide range of pharmacological activities. The presence of diverse phytochemicals and biological activities emphasizes the significance of extensive research on its structure, pharmacokinetics, toxicity, and molecular mechanism for sustainable utilization and development of modern drugs from neem flowers.

KEYWORDS: Neem flowers, traditional use, phytochemicals, and pharmacological activities.

INTRODUCTION

As a natural resource, plants are the primary source of medicine since ancient times when synthetic drugs were not available for curing several diseases. Still, herbal products are excellent alternatives to modern medicine due to their availability, affordability, stability, and lack of adverse effects (Bendigeri et al., 2019). Over 50% of all modern clinical drugs are of natural product origin, of which plants play a major role in drug development programs. In addition to Synthetic Medicinal Chemistry, there is a huge demand and interest to discover new phytochemicals from the plant kingdom (Eid et al., 2017) due to its diverse secondary metabolites (Sinaga et al., 2016).



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Phytochemical screening and antioxidant activity of red seaweed *Haloplegma* sp.

S.Narmatha and Dr. S.Kavitha

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Abstract

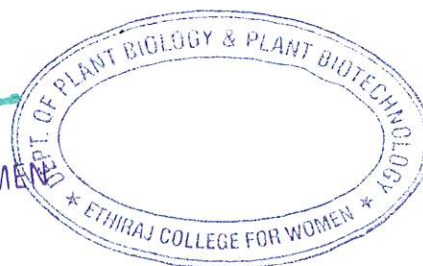
Marine seaweeds are rich sources of several biologically active compounds and they need to be explored for novel components to be used in pharmaceutical industries. The present study investigates the phytochemical constituents and antioxidant activity of methanolic extract from the red seaweed *Haloplegma* sp. Qualitative phytochemical investigations indicated the presence of alkaloids, terpenoids, flavonoids, steroids, glycosides, phenols, tannins and saponins. Folin ciocalteu method was used to determine the total phenolic content of methanolic extract exhibited significantly higher total phenolic content of 42.84µg/mg (GAE). Based on the phenolic content, the selected alga was examined for its antioxidant potential. The antioxidant properties of extract were evaluated by DPPH, Superoxide radical scavenging, Iron reducing power and Phosphomolybdenum reduction assays. The results showed that this extract has a moderate effect in inhibiting the formation of free radicals due to the presence of phenolic content. The presence of bioactive functional groups through Fourier Transform-Infrared Spectrophotometer (FT-IR) analysis showed the presence of hydroxyl, methyl, carboxylic acid, ketone and amine groups. The identification of phytochemicals of the methanolic extract done by GC- MS analysis showed the presence of 5-Methyl-2,4-disopropylphenol, Caryophyllene, Phenol 2,4-bis[1,1-dimethylethyl], Flavone, Dodecanoic acid, 10-methyl-, methyl ester, Methyl eicos-5,8,11,14,17-pentaenoate, Phenol, 2,6-bis[1,1-dimethylethyl]-4-[4-hydroxy-3,5-dimethylphenyl]methyl. The results indicate the presence of active constituents in the extraction of seaweed which can be exploited for the production of lead molecules for use in pharmaceutical industries.

Key words: Phytochemical, red algae, Phenolic, antioxidant,

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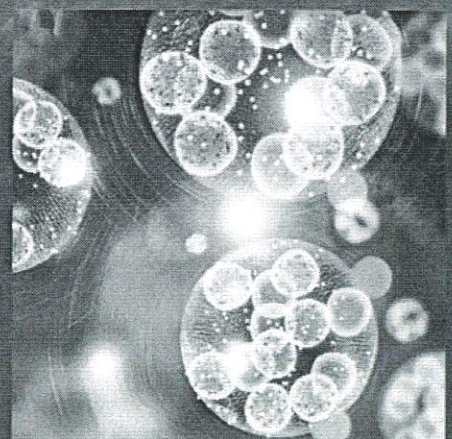
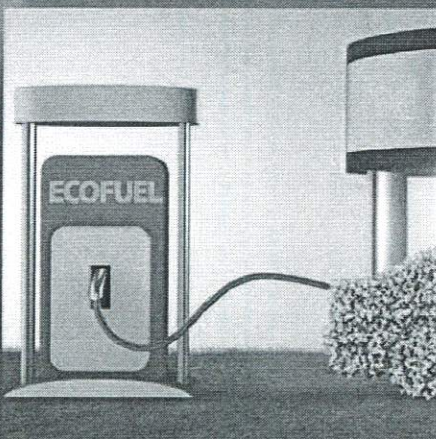
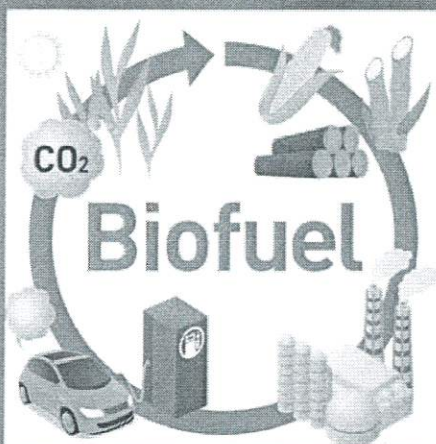
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S.Kavitha

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Opportunities and Challenges



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Opportunities and Challenges

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Microalgae—the ideal source of biofuel

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18.1 Microalgae

Microalgae are unicellular organisms that usually occur as individual cells or in chains or groups. They are found in both freshwater and marine water. Like plants, microalgae also perform photosynthesis. They utilize the greenhouse gas (carbon dioxide) for their photoautotrophic growth. They along with bacteria, form the basic trophic level in the food web, as they are the primary source of feed energy for the trophic levels above them.

Microalgae are the large community that are untapped for their potential products. As per the estimation, approximately, 200,000–800,000 species are present, but only 50,000 species have been discovered and studied (Starckx, 2012). About 15,000 compounds such as enzymes, peptides, sterols, fatty acids, toxins, carotenoids, antioxidants, various polymers were found to be produced from microalgae (Cardozo et al., 2009). Microalgae are ideal hosts to accumulate a large variety of desired products by changing physical and physiological sources such as light source, pH, temperature, nutrients, salts and supply of carbon dioxide. Also, they can be genetically manipulated to achieve the same.

18.2 Biofuel production from microalgae

With the rich history of production of various products from microalgae, they are also identified as the richest and safest source for the biofuel production. Microalgae possess a higher concentration of lipids that are extractable. Later, they are easily converted to biofuel. In general, among various microalgae, *Chlorella*, *Spirulina*, *Chlamydomonas*, *Scenedesmus* and *Botryococcus brauni* are more suitable for biofuel production. Algae, when modified genetically, can produce and accumulate extremely high lipid content, which could be converted to biofuel with energy yield up to 40%. The chemical formula of biofuel is $C_{106}H_{263}O_{110}N_{16}$.

Along with biofuel production, remediation of wastewater and value-added products production can also be attained. Microalgal strains are usually selected based on various factors such as rapid growth, oil content, downstream processing and production yield. Apart from this, the selection criteria involve the ability of microalgae to grow in the presence of highly variable temperature, oxygen concentration, and chemical nature of water (Thomas et al., 2018).

The merits of microalgae in biofuel production include the usage of natural sources such

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10 Entrepreneurship: The Unfathomable Pride of India

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Abstract

In 1001, 33% of the world trade was India's contribution. Indian ancestors were into global business with Europe, Middle East and South Asia. With the innumerable invasions our country faced, there was indeed a downfall of the economy. The British ensured Indians to be 'loyal servants' but this was certainly not lasting forever. Indians had to recognise their potential in belonging to the rich heritage of the past. Over 7 decades of freedom and the nation has seen slow increment in the number of entrepreneurs. One of the bottlenecks to the growth of entrepreneurship is the lack of financial support but most importantly, it is the ability to empower oneself good enough to be persistent and committed. This research paper is an attempt to assess the perceptions of Self-Leadership and Entrepreneurial Attitude Orientation. Purposive sampling technique was used to collect primary data from 94 final year undergraduate female students of Commerce courses of Chennai region. Structured questionnaire was distributed. Weighted mean and Pearson's Correlation were used to analyse the data. It is found that the young adults strongly agree to the statements measuring Self-Leadership and Entrepreneurial Attitude Orientation. Also, there is a strong and positive correlation between the two factors.

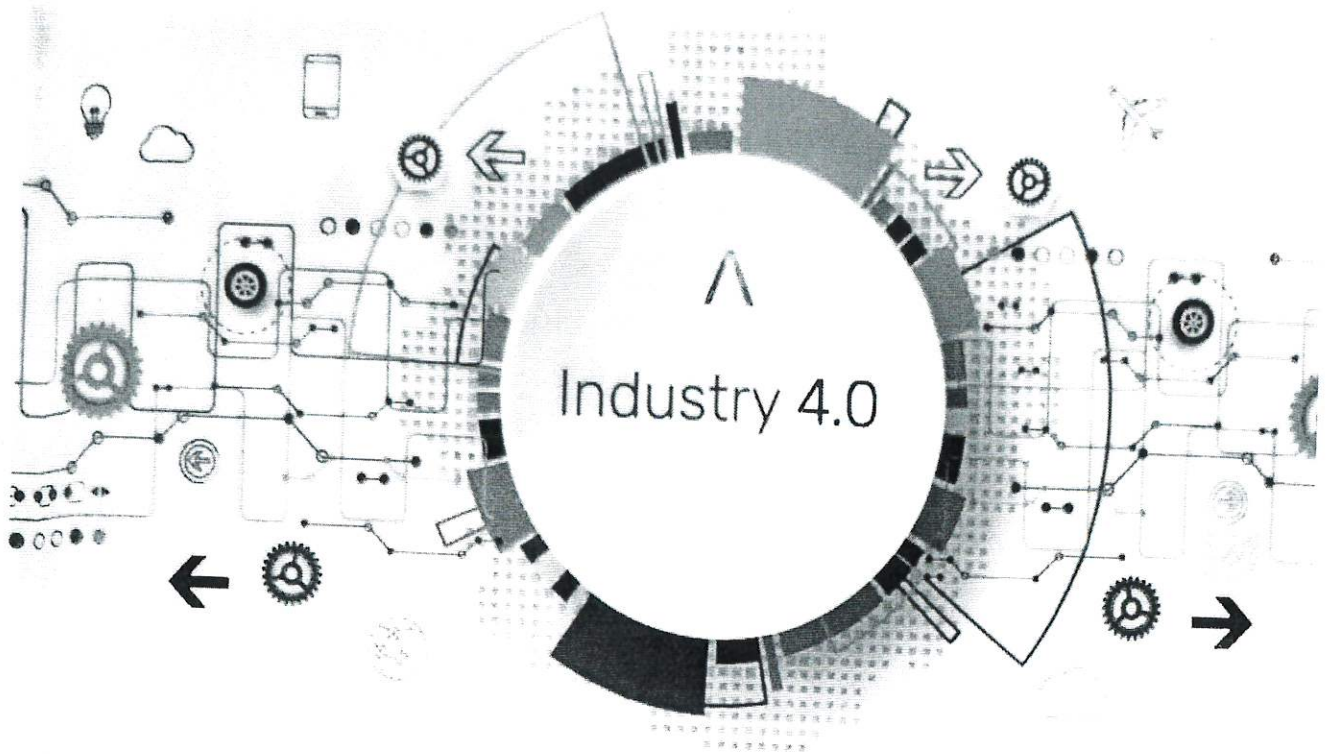
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The Era of Industry 4.0**

**Editors: Dr. Sumanta Dutta, Dr. Arabinda Debnath &
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Entrepreneurship: The Unfathomable Pride of India

Vidhi. B. Modi

Assistant Professor, Department of Bank Management
Ethiraj College for Women (Autonomous)
Chennai, Tamilnadu

Abstract

In 1001, 33% of the world trade was India's contribution. Indian ancestors were into global business with Europe, Middle East and South Asia. With the innumerable invasions our country faced, there was indeed a downfall of the economy. The British ensured Indians to be 'loyal servants' but this was certainly not lasting forever. Indians had to recognise their potential in belonging to the rich heritage of the past. Over 7 decades of freedom and the nation has seen slow increment in the number of entrepreneurs. One of the bottlenecks to the growth of entrepreneurship is the lack of financial support but most importantly, it is the ability to empower oneself good enough to be persistent and committed. This research paper is an attempt to assess the perceptions of Self-Leadership and Entrepreneurial Attitude Orientation. Purposive sampling technique was used to collect primary data from 94 final year undergraduate female students of Commerce courses of Chennai region. Structured questionnaire was distributed. Weighted mean and Pearson's Correlation were used to analyse the data. It is found that the young adults strongly agree to the statements measuring Self-Leadership and Entrepreneurial Attitude Orientation. Also, there is a strong and positive correlation between the two factors.

Keywords: Entrepreneurial Attitude Orientation, Entrepreneurial ecosystem, Self-Leadership, Visionary India, 2047 India.

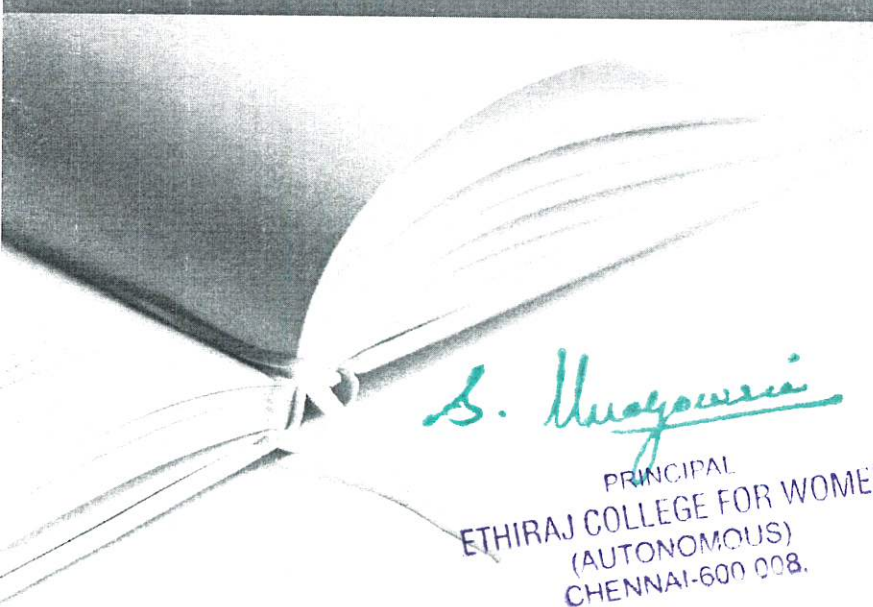
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Paradigm shift in Online Teaching Methods and Practices



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Chapter 25

EMBRACING E-LEARNING: A PERSONAL PERSPECTIVE

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Introduction

E-learning has transformed the education sector in various ways, especially during the COVID-19 pandemic. Just like technology, teaching pedagogy should be constantly altered to adapt to contemporary requirements and educational needs. Online education, according to Harasim (1989) is a domain of learning that combines distance education with the practice of face-to-face instruction, utilizing computer-mediated communication. Adapting to the digital classroom was a challenge for the students and faculty alike. The virtual platform embraces pedagogy vastly different from its brick-and-mortar counterpart. It compensates for its lack of human touch by way of professional development, encouraging effective course design, instruction, implementation, and evaluation. Online teaching came as a boon during the outbreak of the pandemic. Even so, it has a few pitfalls. It increases our active screen-time in using gadgets and leads to frequent headaches and eye strain. It might make students lethargic in terms of completing their assignments or studying for their exams. As far as the teachers are concerned, it has proved more challenging because of two main reasons. One, middle-aged teachers find it hard to wrap their heads around the functioning of a laptop. Two, they are at a loss in harnessing the virtual space to sustain the attention of students. However, as they say in management terms, the ability to convert every difficulty into an opportunity is the sign of success. Further, e-learning has its set of unique advantages. To name a few: ease of access to classes, more sources of information, and the comfort of learning in one’s own rhythm. If I may say so, a lot more needs to be done to make cyber learning more interesting and sculpt it to be a close substitute to traditional classes. Internet-based learning can promote students’ critical thinking skills, deep learning, collaborative learning, and problem-solving skills (Ascough, 2002; Rosie, 2000 & Briggs, 1999).

I substantiate the above by sharing my own experience in this one year of online teaching, which also happens to be my first year in the teaching career. It was indeed very special. One is typically nervous in the first year of formal teaching; but I was relieved. The new medium was as new to me as it was to the veterans! I took this challenge as an opportunity to improvise upon the teaching pedagogy that would make the classes interesting for the students. Attending a few Faculty Development Programmes (FDPs) helped me improvise effectively. In this essay, I intend to share a few methods based on my own experiences and the feedback I received from my students. The strategies of active learning, cooperative learning, and experiential learning are extremely efficacious. They may be helpful to other mentors as well.

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SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL PLANNING
(VOLUME-VII)

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Historical Approach of Blacktown Madras -A Study

A. Indira*

Introduction

The Northern portions of Georgetown with its original Tradition are still seen. There are still deep-rooted communities with relatives living for more than three generations. The homes have hefty wooden entries with short elevated elaborately engraved doors, many of which wearsigns of caste. George Town has constructions at the northern end of mint Street the lengthiest Road in Georgetown; with coins no longer being struck in Madras, the old mint structure is now household of the government press, one of the significant printing units in the city. Georgetown stands nearly ignored in this majestic robe. This black town, through the Old Jail Road, which is close to seven wells and is almost opposite Stanley Hospital, was the city's primary source of water supply till the 19th Century. The city's seven wells Government water works implemented in 1772 was the first organised water supply. The wells are not available today, but they spohold their connection with public services being the home of a pumping station. Mountain water from Saint Thomas Mount was started before seven Wells drinking water for the fort was started. Most cities' commercial activities have focused on the jammed zone between Mint Street and North Beach Road. In Madras, Thomas Salman stated that where the Portuguese, Indians, Armenians and a great variety of other people inhabit surrounded by the brick wall, the streets of the black town are widespread, except for some few brick houses; the rest are measurable cottages built with clay.

Population

The native population of Blacktown took start as well and fled. The blockade lasted three months. At that

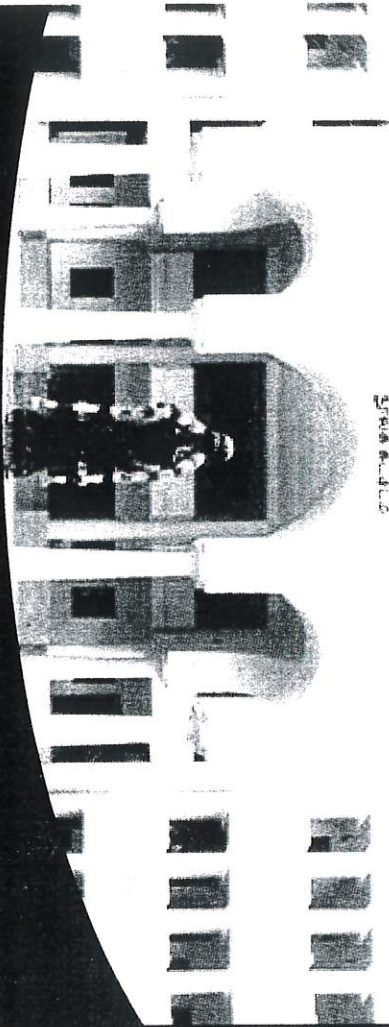
time, Pitt and his Council succeeded in making terms with the Nabob. Dawood Khan received a sum of money in cash in return, for which he undertook to restore the trade, give up the villages he had seized, and compensate the inhabitants for losing their property.¹ The low meadow formed by the nearly dry bed of the river covered with dresses of all colours spread out in the sun and broken up with little ponds and green islands; the dhobis were rinsing the clothes, and slapping them on large stones, presented a gay and novel scene.²

Migration

Salman's Black Town was a settlement that raised John companies need for clothes made in India. The first settlers of the black town were the weavers brought in from Andhra, while traders and intermediaries settled in the Northern Shadow of the fort, the clothes makers worked closer to the north river that is now part of the Buckingham Canal known as Peddanaickenpet. The New Black Town was initially made up of Muthiyalpet and Peddanaickenpet, two unequal half of a square by and large the village of the left-hand caste those without social privileges that traders and artisans, oil mongers, weavers, leather workers at Peddanaickenpet. With the pick of economic activity, the migrant labourers again started flocking the various cities of Tamil Nādu. Feeling insecure after the crisis, the local population began to resist their return. Local political and caste leaders added fuel to the fire by branding the migrant labourers as an influx that would impoverish the 'sons of the soil' term used for natives.³ The New black town that is the current George town arose beyond the 13 pillars, and the old black town

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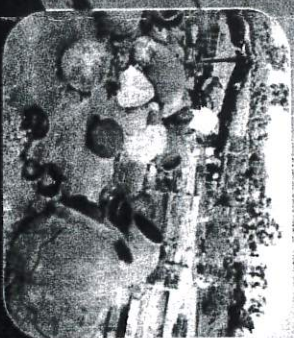
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growth of composite culture. Thus, the archaeological remains proves that the unity in diversity is our ancient tradition custom and still we are following the same. From the above enumeration of facts and details as scholars and readers are able to very clearly understand the relevance of the study of the ancient science of archaeology and how we can take many lessons from it, in various aspects of life even today.



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SHORELINE FLUCTUATIONS, TRADE AND COMMERCE IN MAMALLAPURAM- A STUDY

A. Indira

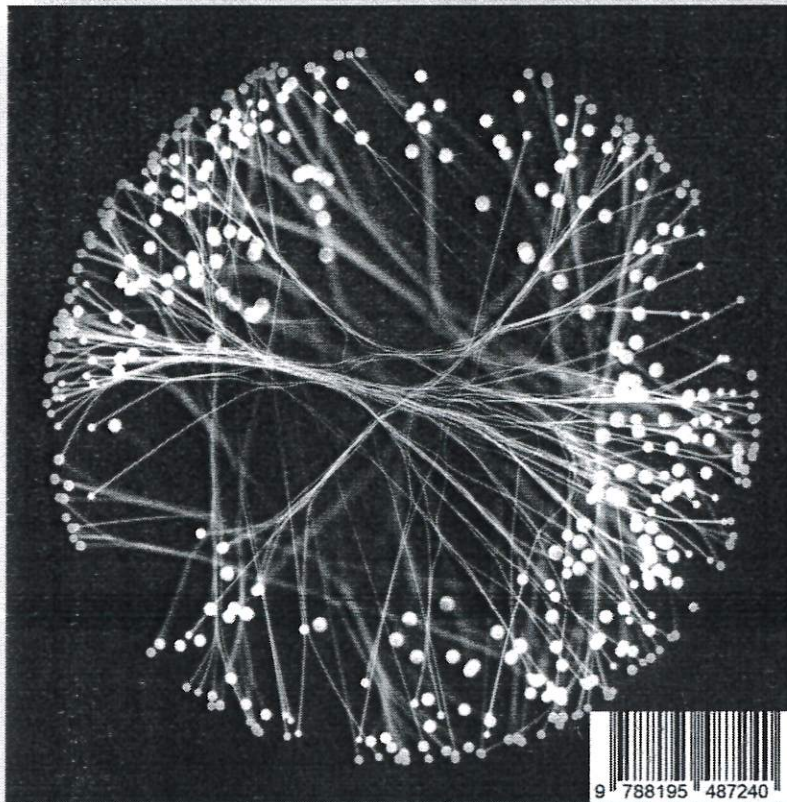
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Abstract

Several Archaeological spots are exposed by coincidence. Occasionally sheets of earth are visible by usual reasons such as wearing away otherwise known as erosion. Maximum unplanned treasures are excavated in the progression of social events such as tilling fields, searching water ways or erecting fundamentals for constructions, infrastructures, and lakes. Mammallapuram is well-known for its architectural understandings such as the Seashore Shrine, the Chariots, Arjuna's Penance, bas liberation and numerous hollow shrines constructed by the Pallava ruler Narasimha Varman throughout the 8th era. It is located around 55 km south of Chennai and currently a World Tradition Memorial. Mammallapuram is said to have been a coastal town right from the commencement of the Christian epoch. The Periplus has stated the Ancient Roman trade from Mammallapuram through very huge containers, made of solo woods bound together, called Sangara had taken place. The epigraphical sources refer that the Pallava monarchs had a lively connection with Sri Lanka, China and Southeast Asia. The Pallava king Simhavarmam lead two expeditions by boarding vessels from Mammallapuram. The underwater explorations were carried out at Mammallapuram by researchers at the National Institute of Oceanography, Goa, to discover the level of underwater evidence on the well-known seaport settlements. The underwater investigations have exposed data on underwater structures and also facts on shoreline changes. Mammallapuram has aided as a seaport during the Pallava period. Portion of previous Mammallapuram town might have been submerged in the aquatic body. The probable reasons for submergence of these structures may be shoreline changes due to erosion. The ethnities stating the submergence of these

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INFLUENCE OF NONMETAL DOPED GRAPHENE BASED NANOMATERIALS SYNTHESIZED USING POLYSACCHARIDE AS PRECURSOR TOWARDS CATALYTIC AND LUMINESCENCE ACTIVITY

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Abstract:

Over the past few decades, Graphene based nanomaterials (GBNs) have attracted broad research interest because of their diverse physicochemical properties and considerable attributes like low cost, non-toxic, electron mobility with abundant functional groups. The study comprehensively summarizes the effect of doping element (S, O, N) with corresponding functional groups in the structure of graphene and analyze the optical and surface properties specifically towards fluorescence, metal sensing and the catalytic ability for the removal of organic/inorganic pollutants in the wastewater. The non metal heteroatom's doped graphene nanomaterials were synthesized using saccharide units as a precursor by hydrothermal method and characterized using some analytical tools. The structural evidence of doping elements of Sulphur and Nitrogen in the structure of graphene were provided by Micro Raman and Powder X ray diffraction analysis (PXRD), X-ray Photoelectron Spectroscopy (XPS) and microscopic images. The results confirmed the enhanced layer structure with reduced number of layers while doping with Sulphur and Nitrogen. Based on the observations, the adsorption and photocatalytic efficiency of the synthesized samples were analyzed for the decolorization of organic dyes. The results indicated the experimental conditions under which Sulphur doped graphene oxide is a good photocatalyst for the treatment of industrial wastewater. The observed microstructural defects have enhanced the fluorescence intensity of the synthesized sample of Nitrogen doped graphene nanomaterials (N-GO) than Sulphur and Oxygen doped graphene. The results provide the design and development of polysaccharides as novel graphene structures which are multi-functional to explore the toxicity towards bioimaging application on normal and cancer cells.

Keywords: Functionalized graphene based nanomaterials, Polysaccharide, Tunable fluorescence, Photocatalyst.

IMPACT OF CLIMATE CHANGE ON THE WATER BALANCE CONDITION IN NORTH EAST REGION OF INDIA

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Abstract:

Rainfall and evapo transpiration change directly influence the change in water balance dynamics of any region. Present study explores the spatial-temporal changes of climatic water balance (computed on the basis of rainfall and evapotranspiration) by using a wide range of

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CARBON DOTS FROM ALDOPENTOSE RICH AGRICULTURAL WASTE VIA PYROLYSIS AS OXYGEN REDUCTION CATALYST

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Abstract:

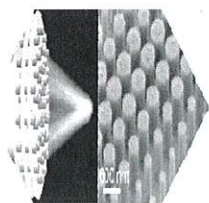
This study reports the synthesis of 0-Dimensional (0-D) Carbon nanomaterial (CN) from pentose rich agricultural waste using thermal pyrolysis approach. The carbonization temperature fixed in the synthesis was able to govern the conversion of bulk aldopentose rich biowaste to 0-D material. The X-ray Diffractogram exhibited a broad peak centered around $\sim 19^\circ$ with FWHM (full width half maximum) of 6.67. The dispersed 0-D CN in aqueous media was found to exhibit green fluorescence under irradiation of UV lamp of 254nm can be observed by naked eye. The arrival of green fluorescence is crucial for bioimaging since it do not harm deoxy ribonucleic acid and considered to be safe. Fluorescent Carbon dots are new class of biocompatible and economic materials and their fluorescent nature is due to surface state and quantum confinement effects. The synthesized 0-D material can be well explored for fuel cell applications due to its Oxygen reducing property. This study successfully demonstrated the convenient and economical approach for converting pentose rich agricultural waste into high value Oxygen Reduction Catalyst.

Keywords: Oxygen reduction, green fluorescence, Carbon dots, Pyrolysis, agricultural waste

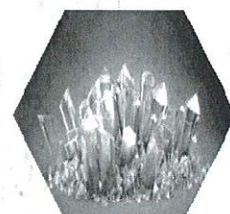

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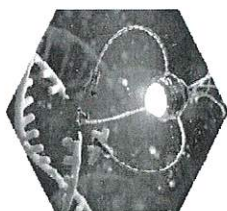
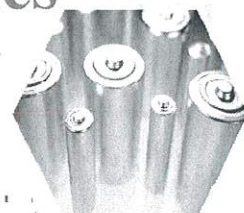
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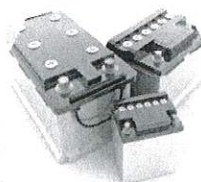
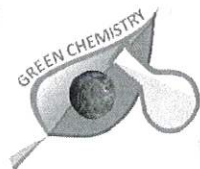
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OP - 16

**FACILE SYNTHESIS OF SULPHONATED GRAPHENE OXIDE FROM FRUCTOSE
FOR THE DEGRADATION OF ORGANIC DYES**

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Dyes are organic pollutants, widely used in textiles, printing and food industry and the effluents have negative influence on the environment. Methylene blue (MB) is a phenothiazine derivative and it is carcinogenic when left untreated. There is a need for a simple method and an efficient solid catalyst with large active sites. In this aspect the Carbon 2D framework with groups like COOH, OH, and nonmetal hetero atoms offer a dynamic catalytic activity. The present study deals with an energy efficient and fast process to introduce such functional groups and Sulphur atoms to the Graphene structure from the simple precursor of fructose. The functionalized Graphene Based Nanomaterials were characterized using Fourier Transformed Infrared (FT-IR), Fourier Transformed Raman (FT-RAMAN), and Field Emission Scanning Electron microscopy (FE-SEM), Energy Dispersive X-ray analysis (EDX). The results were suggestive of their surface defects with increased Carbon to Oxygen ratio (C/O) and hence with adsorption property. The screening for their discoloration efficiency of amino dye of methylene blue by adsorption was satisfactory and hence there is scope for the degradation of other organic dyes and pollutants. The study will ultimately provide cues for the industrial waste water management.

Keywords: Graphene based nanomaterials, Sulphur doped graphene oxide, Hydrothermal, Methylene blue, adsorption catalyst

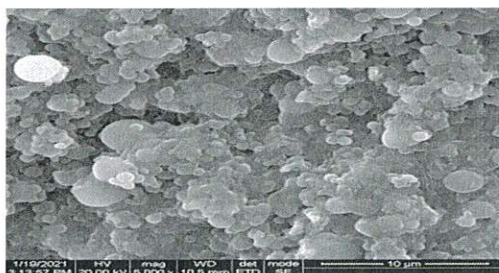
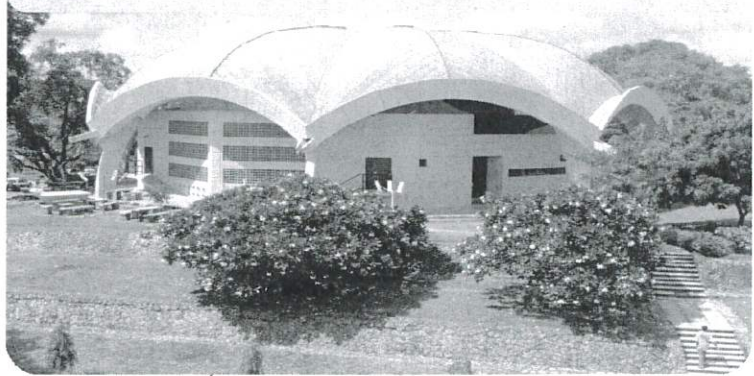
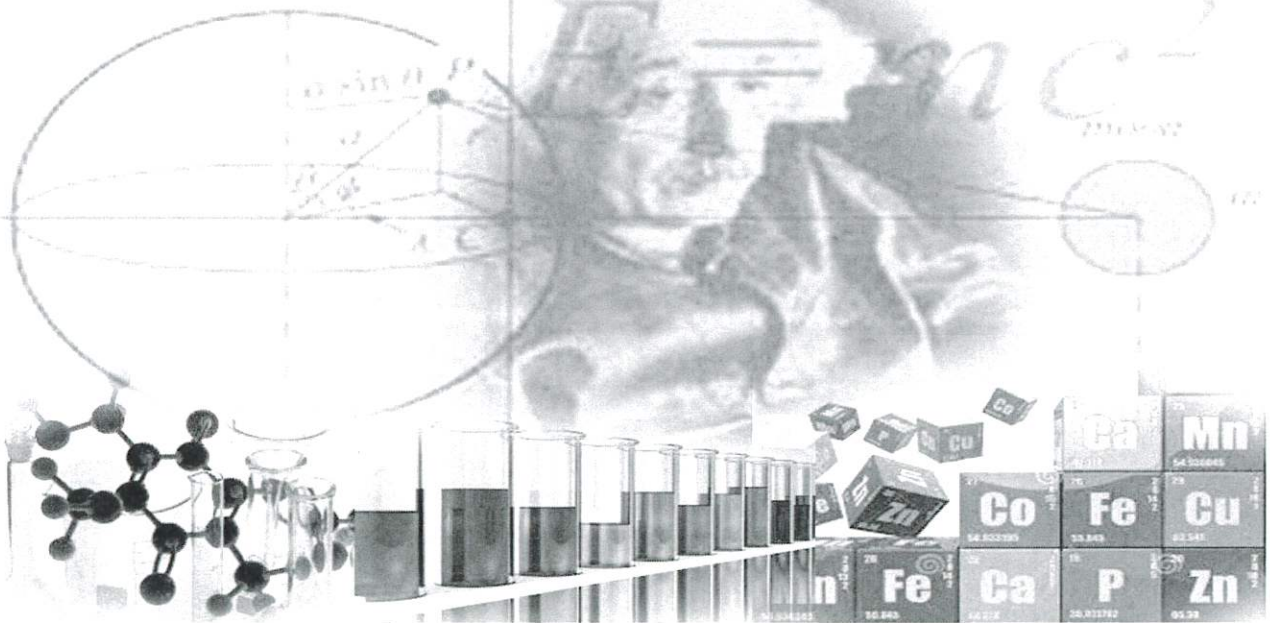


Figure 1 FE-SEM image of Sulphur doped graphene oxide (S-GO)

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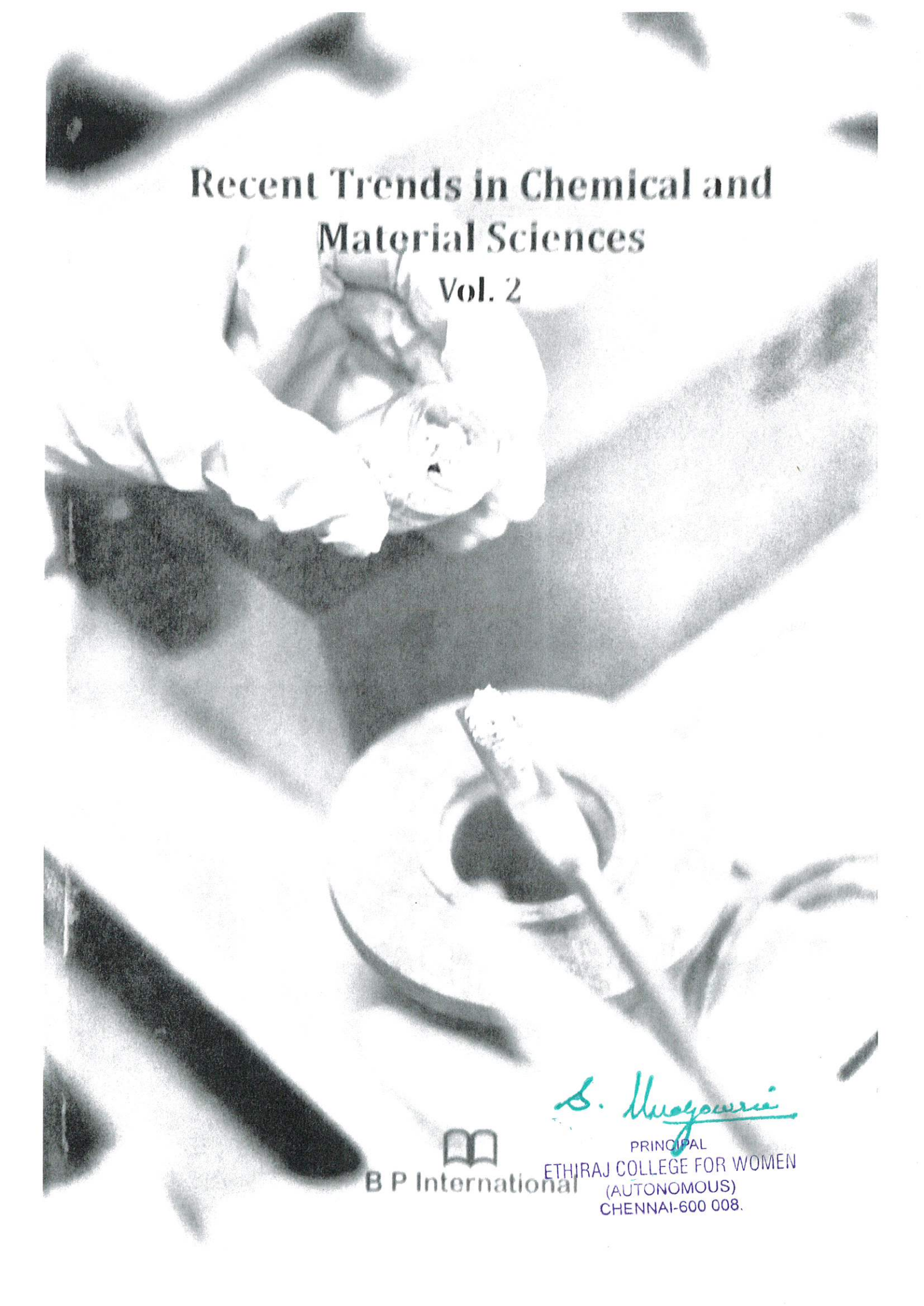


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Study of Influence of Seashell (*Crassostrea virginica*) Precursor and Neem (*Azadirachta indica*) Extract on the Microstructure and Anti Microbial Activity of Nano Scale Hydroxyapatite towards Dental Applications

S. Sudhaparimala^{1*} and R. Usha¹

DOI: 10.9734/bpi/rtcams/v2/11269D

ABSTRACT

Hydroxyapatite (HA) is a naturally occurring important osteo dental mineral in humans. Synthesis of the biomineral of hydroxyapatite in the nano scale as a versatile ceramic having an adhesive property, as a tissue transplant, dental implant is an ongoing research. The research reports have mainly focused on enhancing various properties of hydroxyapatite by making as nanocomposites for multifunctional applications. There is a need for making use of biowastes, (animal or sea wastes) that can be the potential precursors with abundant minerals for the fabrication of HA. The research study focusses on the conversion the seawaste/ seashell (*Crassostrea virginica* seashell) into hydroxyapatite followed by further modification with neem (*Azadirachta indica*) extract for enhanced anti-microbial activity. The study provided a road map in two aspects one being, locating the rich natural resources (sea) in the country and another being efficient tapping of such resources as the precursors for the fabrication of biomedicated materials. The highlight of the study is the comparison of the assynthesized material (from the green source) with the sample synthesized from a purely synthetic resource. The comparison in terms of microstructure, morphology, anti-microbial activity provided many cues to synthesis- structure- activity relationship of HA. The effective change in surface morphology and the ratio of Ca to P (Ca/P) of HAp is an important step towards tooth and bone replacement upon modification The benefit of addition of further antioxidant natural extracts to HA depends on the condition of *in situ* or *post* preparation of HA. The screening of antimicrobial properties (*Streptococcus mutans* bacteria and *Candida albicans* fungi) of the synthesized HAp's gave satisfactory results. Ultimately the research study contributes towards the efficient design of multifunctionality to the bio mineral of HA. It will benefit the field of dentistry and orthopedics.

Keywords: Biomaterial; hydroxyapatite; sea waste; wet precipitation, oyster shell; antimicrobial activity Azadirachta indica.

1. INTRODUCTION

Hydroxyapatite (HA) $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ is one of the widely used replacement bioceramics in terms of bone and tooth substituent due to its high corrosion resistance, better compressive strength, porosity, low density and low weight [1] Porous morphology of HA and β -TCP (Tri calcium phosphate) are attractive for bone regeneration and good growth property. HA is the best alternative for bone and tooth replacement because of its similarity in terms of chemical structure, crystallography, morphology and Ca/P ratio of 1.67 with that of humans [2,3,4,5]. HA is also used for non-medical application in terms of packing column in chromatography, gas sensors, and catalysts [6].

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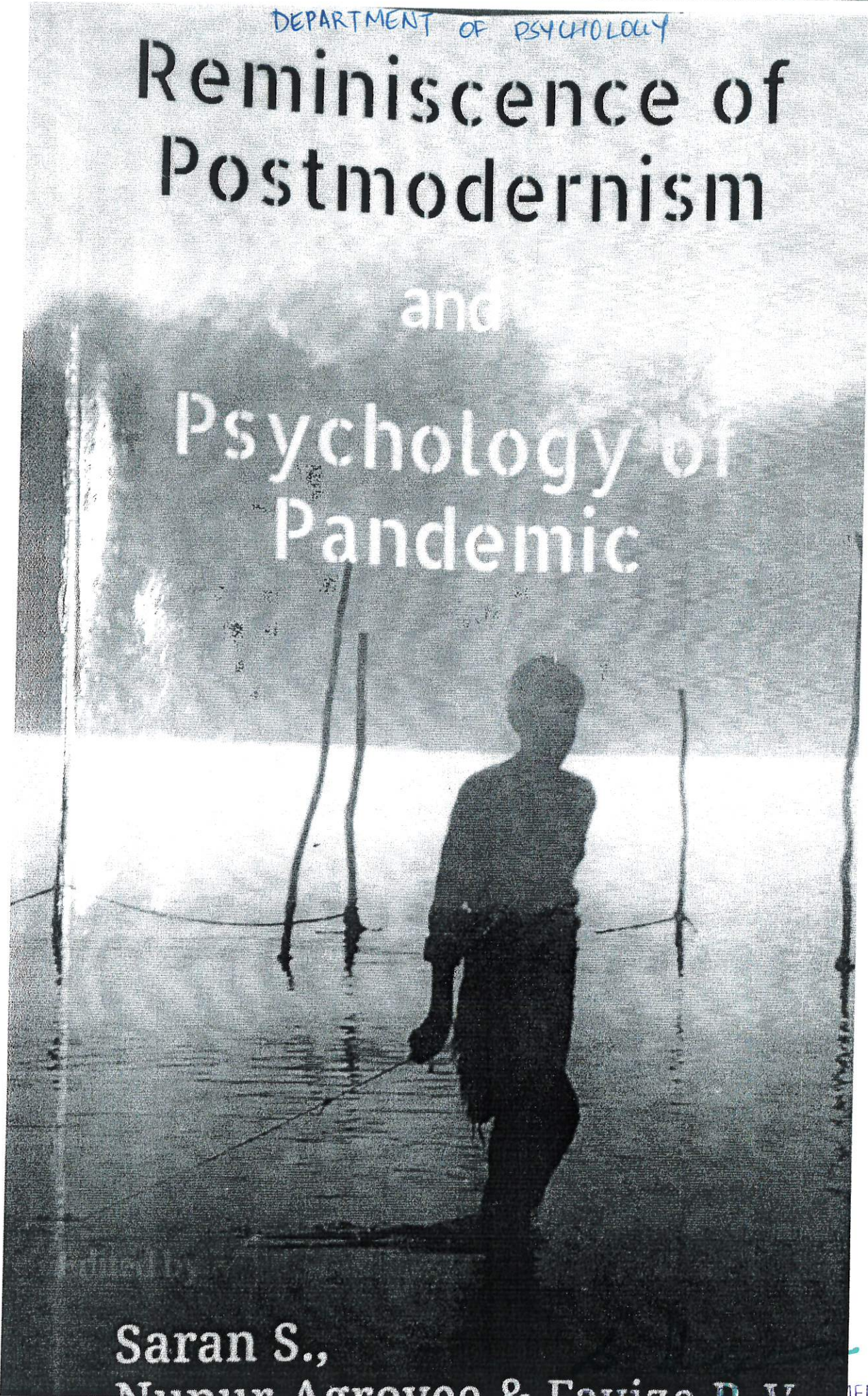
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DEPARTMENT OF PSYCHOLOGY

Reminiscence of Postmodernism

and

Psychology of Pandemic



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REMINISCENCE
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PSYCHOLOGY OF
PANDEMIC

SARAN S. | NUPUR AGROYEE
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CHAPTER XIV

SCREEN TIME AND SLEEP QUALITY AMONG COLLEGE STUDENTS DURING THE COVID-19 PANDEMIC

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Chennai, Tamil Nadu

Dr.K. Jayanthi Rani⁽²⁾

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• • •

This survey research aims to examine the association between screen time and quality of sleep among students from different colleges in India. A total of 104 respondents with 90 female and 14 male participants of ages between 18-23 years were participants of this study through the purposive sampling technique. The Pittsburgh Sleep Quality Index was employed to measure the sleep quality of the participants. The variable screen time was measured as a self-report of participants' screen usage in the past 24 hours. The survey results were then analysed using a Chi-Square test of significance and compared using cross-tabulations. Results indicated that although a majority of the participants had increased amounts of screen time and poor sleep quality, the number of participants that had both poor sleep quality and above-average duration of screen


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usage was less than half the total number of respondents. It can be stated that despite this study indicating an increased usage of screen time among college students, it does not provide grounds to establish a significant relationship between screen time and sleep quality. Keywords: Sleep Quality, Screen Time, COVID-19.

Getting good sleep is an essential part of a students' life. An ideal night's sleep is when the person does not face any daytime sleepiness or dysfunctions. Sleeping 6-7 hours each night correlates with longevity and cardiac health in humans (Rowland. R., 2002). Getting adequate sleep can result in improved memory functioning. Studies have indicated that sleep can enhance a students' memory of newly learned information (Kalat, J. W., 2015).

Sleep can provide additional insight into a problem and aid in the finding of creative solutions. The lack of enough sleep can lead to poor concentration levels, an increased vulnerability to illness and lapses of attention. Sleep deprivation is the major cause of accidents by workers and poor performance by college students. Evidence suggests that a considerable proportion of health care workers experienced mood and sleep disturbances during the pandemic (Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P, 2020). Higher levels of intolerance to uncertainty, COVID-19-related worry, loneliness, as well as more severe depressive symptoms, are all predictive of insomnia (Voitsidis, P., Gliatas, I., Bairachtazi, V., Papadopoulou, K., Papageorgiou, G., Parlapani, E., Syngelakis, M., Holeva, V., & Diakogiannis, I, 2020). Screen time includes activities like watching TV, working on a computer, or playing video games, that are done in front of a screen. It is a sedentary activity as the person involved in it is physically inactive

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The book "Reminiscence of Postmodernism and Psychology of Pandemic" gives a meta-analysis of writing and writing pedagogy theory and research, distinguishing discourses in Post-Covid Digital Era, Cultural Studies and Postmodern Studies. It introduces and describes a framework for analysing educational data regarding writing pedagogy in which linkages are formed between perspectives on language, perspectives on writing, perspectives on learning to write, perspectives on teaching writing, and perspectives on writing evaluation. A core notion that writing consists of applying knowledge of a set of linguistic patterns and rules for sound-symbol interactions and sentence formation underpins much of literacy education policy and practise. At its most extreme, this is the view that writing is a single, context-free activity in which all writing follows the same patterns and principles regardless of text type. A pandemic can impede a community's ability to bury the dead according to accepted cultural and religious practices. during times of pandemic, some ethnic minorities may experience more adverse psychological consequences than members from the majority culture

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Cloud Based “Energy Aware” Routing Protocol for Predetection and Its Prevention of Fault Tolerance

A. Manimuthu, Peterjose, L. Selvam, P. Manikandan, S. Mathivilasini, and D. Sridevi

Abstract In the Modern computer era Energy consumption major issues in all the network. Several researchers have developed numerous methods to avoid the fault tolerance. However so far researchers have not found the absolute solution for detection of the problem and avoid the fault for routing protocol. In this paper, we have designed a protocol, named DBTR that can used to select the next node if failure accrue, and check's fault tolerance and gives absolute solution.

Keywords Real time · Fault tolerance · WSN effecting network lifetime · Wireless sensor and actuator networks (WSANs) · Routing protocol Kautz graph

1 Introduction

The objective of this paper in brief is explained with the definition of importance of energy efficient pre-fault detection in WSNs. We propose a disseminated important productive steering calculation for WSNs that takes mind adaptation to internal failure of the network. At that point, we propose a circulated steering calculation called DBTR (Dispersed blame tolerant directing calculation) that considers important utilization of the CHs yet additionally their adaptation to non-critical failure. The commitments of this work include:

A hypothetical study of the Kautz diagram for its relevance in WSANs to meet the important proficiency and ongoing correspondence requirements in overlay support and steering. A Kautz diagram installing convention that uses Kautz charts to the

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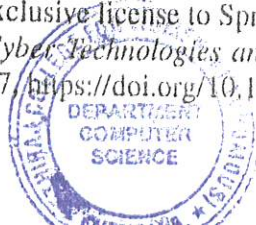
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Handwritten signature of D. Sridevi and date 30/8/23.

International Conference on "Narratives, Self and Identities: Traditions and Innovations" on 30th & 31st Aug, 2021

Shared Social Identity in Social Media leading to Social Support: A Study on LGBTQ Online Communities

Dr. P.V. Sangeetha, Assistant Professor, Department of Visual Communication, Ethiraj College for Women, Chennai

Abstract

Social media offers an active platform for its every user irrespective of their gender, religion, language, etc. People of similar interest meet here freely and form groups to interact with each other, and stay connected. This groups have often led to online campaigns which rise for the rights of the people concerned. People who are not active in offline find the online social networking sites as a suitable space for them due to its privacy and connectivity features. LGBTQ is a marginalized community who still strives to have their own identity in the society. Social media offers them a safe platform to share their views and stories with the people of same interest. This shared social identity often leads the community to support each other in many ways. The present paper analyses the scope of shared social identity in social media leading to social support with reference to the LGBTQ pages in Facebook. Content analysis of two prominent LGBTQ Facebook pages has been done. Posts for a period of one month, analyzed to find its nature, user engagement and to assess the kind of support the members are exploring the most. Though the pages are less in number, they all strive to create an awareness among the users regarding the rights of LGBTQ communities and support them with motivational and inspirational stories of their peer group around the world.

Keywords: Shared social identity, social support, LGBTQ, social media, Facebook

1. Introduction

LGBTQ refers to lesbian, gay, bisexual, transgender and Queer. The term is an adaptation of the initialism LGB which denoted the term 'gay' in the late 1980s. However, the term 'gay' couldn't represent all those whom it represented; hence it was replaced by LGBT to emphasize a diversity of sexuality and gender identity-based cultures. It refers to anyone who is non-heterosexual or non-cisgender, instead of exclusively to people who are lesbian, gay, bisexual, or transgender (Shankle, 2006).

Social media are interactive computer-mediated technologies that facilitate the creation or sharing of information, ideas, career interests and other forms of expression via virtual communities and networks (Kietzmann & Kristopher, 2011). Social media offers an active platform for its every user irrespective of their gender, religion, language, etc. People of similar interest meet here freely and form groups to interact with each other, and stay connected. This groups have often led to online campaigns which rise for the rights of the people concerned. People who are not active in offline find the online social networking sites as a suitable space for them due to its privacy and connectivity features.

Facebook, the largest social network, is founded on 1 February 2004 with over 400 million users. Anyone above 13 years of old can create an account using a valid e-mail id.. More than 90% of college students use Facebook (Ellison et al., 2007, Wiley & Sisson, 2006). Some of the features of Facebook includes, posts, comments, status update, share and message. A post may be a written text, photo or video by a Facebook user which appears on user's timeline as well. A *status update* is also a post, which will appear in the *news feed* of Facebook friends of the user. News feed will update the friends of the user regarding his activities in the Facebook. Facebook allows it users to respond to the posts of their friends in the form of comment. We can also message a friend privately using its 'message' option.

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Chapter 26

Scenic Evaluation of the Hills for Tourism Development – A Study on the Hills of Tamilnadu, India



K. Katturajan and H. Sivasankari

Abstract Hill areas are the places of tourist attractions mainly for the climate and landscape. The study area of Tamilnadu has both Western ghats and Eastern ghats mountain ranges which accommodates six major hill stations with several tourist spots in each of them.

This work evaluates the impact of hill areas in the development of tourism. The assessment is done in two ways the physical and the tourist. Physical factors taken into consideration are slope, aspect and altitude which are collated with the tourist factors like the tourist flow and the number of tourist spots in each hill stations to analyze the impact of hill areas in the tourism development.

The GIS software is used to analyze the physical factors and the tourist components such as tourist flow and number of tourist spots in the hill stations are obtained from the tourist office.

It is found that both the geographical factors and the tourist factors are directly related with one another, when there is an increase in the scenic beauty there are a greater number of tourist spots in the hills which attracts larger number of tourists.

There are numerous Geographical features which when converted into tourist attractions will attract a greater number of tourists there by paving a way for the economic development of a country.

Keywords Altitude · Aspect · Slope · Tourist flow · Geotourism

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அரங்க மல்லிகாவின் கவிதைகள் இழந்த சொர்க்கத்தை மட்டும்
பதிவுசெய்து புலம்புவதில்லை; இன்றைய காலத்தைக்
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திரும்பத் திரும்ப இருப்பைக் குறித்தே இக்கவிதைகள்
பேசுகின்றன. காலம் கடந்தும் இக்கவிதைகள் காலத்தை ஒட்டியே
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- கவிஞர் யுகபாரதி



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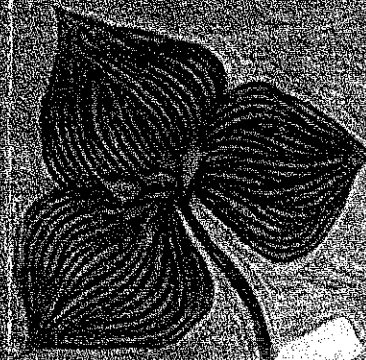
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மொழிபெயர்ப்பாளர்
முனைவர். இரெ. மிதிலா

சென்னை காயிதே மில்லத் அரசு மகளிர் கல்லூரியில் இளங்கலை தமிழிலக்கியமும் சென்னைப் பல்கலைக்கழகத் தமிழ் இலக்கியத் துறையில் முதுகலை தமிழிலக்கியமும் பயின்றவர். சென்னைப் பல்கலைக்கழகத் தமிழ் இலக்கியத் துறையில் பேராசிரியர் வீ. அரசு அவர்களின் மேற்பார்வையில் 'தமிழ்ப் பெண் எழுத்துகளின் வரலாறு 1901-1950' என்ற தலைப்பில் ஆய்வு செய்து முனைவர் பட்டம் பெற்றவர். இவரது முனைவர் பட்ட ஆய்வேடு 'பெண் எழுத்து' என்ற பெயரில் அடையாளம் பதிப்பகத்தின் வெளியீடாக 2010இல் நூலாக வெளிவந்தது. கவிஞர் குட்டிரேவதியின் 'பனிக்குடம்' இதழில் உதவி ஆசிரியராகப் பணியாற்றியவர். சென்னை கம்பன் கழகம் வழங்கும் 'தமிழ் நிதி' விருது பெற்றவர். சென்னை எத்திராஜ் மகளிர் கல்லூரி தமிழ்த்துறையில் தற்பொழுது உதவிப் பேராசிரியராகப் பணிபுரிந்து வருகின்றார்.

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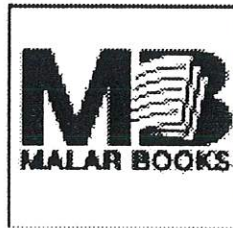


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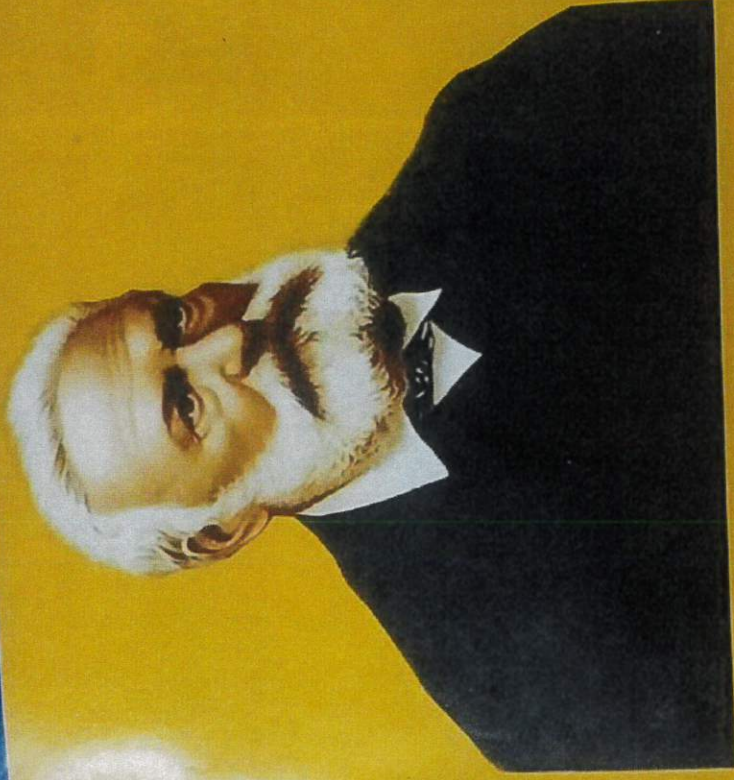

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Le Contexte

Pendant les confinements successifs qui avaient lieu en 2020 et 2021, je me sentais comme un dinosaure (comme plusieurs de mes collègues). Habituee à l'usage de ma voix et d'un morceau de craie (*Chalk and talk* comme on dit en anglais), mes cours de FLE, durant et organisés autour des activités traditionnelles de discussions, questions / réponses, jeux de rôles et parlorios vidéos ou des enregistrements audio. Les chansons existaient seulement comme moyen de divertissement. Je ne les explorais que en tant qu'outil pédagogique. A la suite de mars 2020, soudain, mon monde était bouleversé. Je devais convertir les cours en présence aux cours en ligne. Je devais apprendre à faire travailler mon ordinateur et apprendre de manipuler de nouveaux outils qui ont été vite transformés d'ornements pédagogiques en nécessité quotidienne. Mais le cauchemar auquel je me suis confronté comme mes compatriotes en enseignement de FLE, était autre dans cette question dotée : comment faire parler les étudiantes en cours virtuels ; surtout quand les micros ne marchent pas, quand les connexions internet sont difficiles et quand les étudiantes préfèrent entrer les cours virtuels, éteindre leurs micros et caméras en disparaissant aux confins que conques de leurs résidences.

Les initiatives

Plusieurs activités ont été identifiées et mises en œuvre – tâches orales où les étudiantes devaient parler d'un thème ou bien ou faire une lecture guidée d'un document et m'envoyer un enregistrement audio/vidéo via WhatsApp. Mais, vite, il devenait clair que ces activités étaient faites seulement par les étudiantes motivées. Les autres (au moins 80% de la classe) étaient trop timides.

Nous avons vite constaté que les étudiantes aiment parler (plutôt râler) du confinement. Et elles aiment bien les chansons. Pourquoi pas alors, créer des cours autour des chansons liées au confinement ? Nous avons eu l'idée de leur introduire aux chansons dans l'initiative de les pousser à parler de leurs propres situations et de leurs rêves. Nous avons vu que ces chansons ont poussé un plus grand pourcentage des étudiantes à interagir en classe. Cette présentation dévoilera 3 telles chansons choisies pour faire parler les étudiantes. Nous présenterons 2 chansons de HK, qui appartiennent au genre Pop et reggae qui est devenue célèbre en France suite à leur sorties pendant le confinement.

1. Nous on veut continuer à danser encore (https://www.youtube.com/watch?v=g48_U2T3QRE) et
 2. Laissez-nous travailler (<https://www.youtube.com/watch?v=13DDTcd0M>)
- Les deux de la pandémie du Covid-19 en 2020, un spectacle du groupe dont HK est membre est annulé car déclaré « non-essentiel »). A ce moment-là, il crée la chanson *Danser encore* qui est vite devenue une chanson reprise par plusieurs groupes surtout en Europe et en France. Bien sûr la chanson a engendré une polémique.
- i. D'une part, HK représentait ceux qui voulaient chanter, danser, travailler avec les arts afin de vivre en dominant du bonheur aux autres. Et, si on suivait les règles strictes du confinement, les arts étaient non-essentiels !
 - ii. D'autre part, on prohibait les autres les concerts culturels et la vie des sorties pour diminuer les risques associés aux clusters de contagion.

Les vidéos mêmes de HK (nous avons fournis les liens You tube ci-dessous) souvent montraient les gens chantant et dansant en groupe, sans soucis du distancement social ni masques. Alors, ces vidéos étaient un point de départ excellent pour faire parler mes étudiantes de leurs coins et de leur faire parler. Certes, je devais aussi prendre la décision de sortir de l'ère des mesures, et d'utiliser toutes mes forces pour apprendre littéralement à danser (manipuler avec grâce et habileté la technologie) dans les cours virtuels.

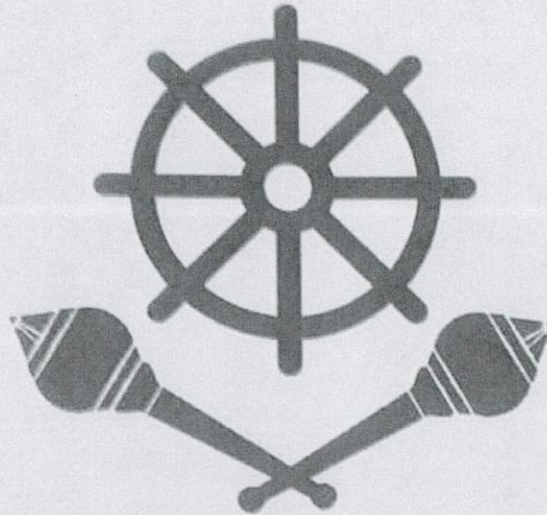
Les cours ont été divisés en 4 grandes parties

- i. Discuter la situation actuelle chez elles
- ii. Parler de ce qu'elles voulaient faire
- iii. Demander leurs opinions sur les activités essentielles et non-essentielles
- iv. Il y avait des règles à suivre – tous devaient parler sur le thème en français, soit en anglais, soit en tamil. Mais à la fin de la tâche devaient écrire ou dire une ou deux phrases sur le thème en français. Les résultats étaient encourageants : les cours se terminaient plus des émetteurs virtuels mais devenaient des cours animés avec des discussions guidées vers une conclusion pédagogique.

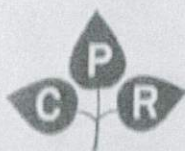
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The smart healthcare system (SHCS), being the predominant, quite needy application of the Internet of things (IoT), ensures the prompt delivery of healthcare services in rural and sub-urban areas where basic medical

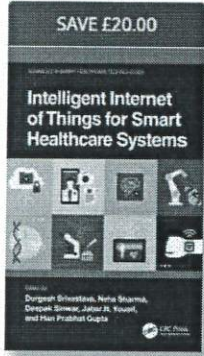
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