Declaration of the Principal

This is to certify that 42 research papers were published on journals notified on UGC care list during the last five years (2018-2023) and the list is given below.

Principal

Prof. (Dr.) Gimson D. Parambil
Principal
St. Xavier's College Vaikom
Kothavara P.O - 686607

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Certificate

This is to certify that the following article was published by the faculty member of St Xavier's college in regional language (Malayalam) as listed below during the period 2018-23.

Sl No	Year	Name of the Author	Title of the paper	Name of Journal	ISBN number
1	2021	Dr. Rekha A.G	Marunadan Jeevithaththile Sankharshangal Benyamin Novalukalil	Journal of dbct	2348-7984

Principal

Prof. (Dr.) Gimson D. Parambil
Principal
St. Xavier's College Vaikom
Kothavara P.O - 686607

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

List of research papers published in journals notified on UGC care list during the last five years (2018-2023)

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
1	Development, evaluation, and optimization of portable pyrolysis system for the production of biochar from tender coconut huskevaluation, and optimization of portable pyrolysis system for the production of biochar from tender coconut husk	Athira Shaji	Biomass Conversion and Biorefinery	2023	2190-6815
2	Unveiling the Research Impact: A visualization Study of CHATGPT's Influence on the Scientific Landscap	Princy D Nellanat	Journal of Theoretical and Applied Information Technology	2023	1817-3195
3	A study on the Significance of Digital Library in the information retrieval process with special reference to D space, Greenstone and Koha Library Management Softwares	Princy D Nellanat	International Journal of Scientific Research in Engineering and Management (IJSREM)	2023	2582-3930
4	Brand Trust and Engagement in Social Commerce	Dr. Mathew Abraham	International Journal of Consumer Studies	2023	1470-6431

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
5	Silver-Sandwiched Natural Silver-Sandwiched Natural Rubber/St-LDH/MWCNT Hybrid BioNano Composite System as a High Performing Multimedia Laminated Electromagnetic Interference Shield Through a Tripling Mechanism	Dr. Saju Daniel	ACS Sustainable Chemistry & Engineering	2022	14897–14913
6	Are Macroeconomic Indicators Accountable for sectoral stock price behaviours?	Titto Varghese	Economic and Political Weekly	2022	2349-8846
7	Assessment of sublethal toxicity of Hydrocortisome: Physiological and Haematological biomarkers reactions on Anabas testudineus	Blessy V. Rajan	International Journal of Ecology and Environmental Studies	2022	2320-5199
8	India's Mariime securiy policy- An overview	Ancy Davis V	PURANA	2022	0555-7860
9	Malayalam Upanyasom Mein Dalit Chetana	Dr Aparna U Nair	Internaional Journal For Multidisciplinary Research	2022	2582-2160
10	Kalidas Avam Shakespeare Ke Nari: Natakom Ke Vishesh Sandar Mein	Dr. Aparna U Nair	Inernational Journal Of Novel Research And Development	2022	2456-418
11	Malayalam Mein Adhunikikaran Ki Prakriya	Dr Aparna U Nair	Internaional Journal Of Research And Analytical Reviews	2022	2349-5138

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
12	Discontinuance Intention of Online Shoppers due to Techno Stress: An S-O-R Perspective	Dr. Mathew Abraham	IPE Journal of Management	2021	2249-9040
13	Fabrication of La_2O_3/Bi_2O_3/silver orthophosphate Heterojunction Catalyst for the Visible Light Mediated Remediation of Refractory Pollutants	Dr. Subi Joseph	Materials Research Bulletin	Jul-05	0025-5408
14	Effect of MWCNTs on the Wetting Behavior of PP/NR Blends	Dr. Sharika T	Macromolecular Symposia	2021	1521-3900
15	Respiratory stress of salinity on Oreochromis niloticus	Blessy V. Rajan	Uttarpradesh Journal of Zoology	2021	0256-971X
16	Covid-19 Impact: Is Downsizing The Need Of The Hour? Identifying Your Best Employees While Downsizing	Dr. Gimson D. Parambil	Academy of Strategic Management Journal	2021	1939-6104
17	Are NBFC a Challenge to Commercial Banks? A Combined CRAMELS Approach	Titto Varghese	Finance India	2021	0970-3772
18	Flower-like $MoS_2/BiFeO_3$ doped silver orthophosphate catalyst for visible-light assisted treatment of refractory organic pollutants	Dr. Subi Joseph	Elsevier-Applied Materials Today	2021	2352-9407

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
19	Fabrication of Zirconium ferrite doped Ag_3PO_4 composite for the degradation of refractory pollutants: Visible light assisted Z-scheme insight	Dr. Subi Joseph	Materials Science in Semiconductor Processing	2021	1369-8001
20	Spectroscopic, Microscopic, X-Ray Diffraction and Thermal Stability Studies of Stearic Acid Modified Hydrotalcite Formed through Memory Effect.	Dr. Saju Daniel	Macromolecular Symposia	2021	1521-3900
21	Enhanced mechanical and thermal performance of multiwalled carbon nanotubes-filled polypropylene/natural rubber thermoplastic elastomers	Dr. Sharika T	New Journal of Chemistry	2021	1369-9261
22	Shampoos as amosquito Controller - A Preliminary Toxicity study on its lasvicidal Potential	Blessy V. Rajan	Applied Ecology and Environmental Sciences	2021	2328-3920
23	Effect of sublethal concentration of formalin on haematological and biochemical parameter of Oreochromis niloticus	Blessy V. Rajan	Uttarpradesh Journal of Zoology	2021	0256-971X
24	Respiratory stress of salinity on Oreochromis niloticus	Blessy V. Rajan	Uttarpradesh Journal of Zoology	2021	0256-971X
25	Behavioural Biases in Investment Decisions and its Impact on Investment Patterns	Anju T.A.	Carmel Blaze	2021	2349 - 0217

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
26	Marunadan Jeevithaththile Sankharshangal Benyamin Novalukalil	Dr. Rekha A.G	Journal of dbct	2021	2348-7984
27	Digital Branding and Its Factors Affecting Consumer Buying Behaviour	Dr. Gimson D. Parambil	Studies in Indian Place Names	2020	2394-3114
28	Effect of Glass Ceiling on Women Career Advancement	Dr. Gimson D. Parambil	PIMT Journal of Research	2020	2278-7925
29	Rapid sunlight-driven mineralisation of dyes and fungicide in water by novel sulphur-doped graphene oxide/Ag3VO4 nanocomposite	Dr. Subi Joseph	Environmental Science and Pollution Research	2020	0944-1344
30	Novel $La(OH)_3$ Integrated sGO-Ag_3VO_4/Ag Nanocomposite as a Heterogeneous Photocatalyst for Fast Degradation of Agricultural and Industrial Pollutants	Dr. Subi Joseph	Catalysis Science and Technology	2020	2044-4761
31	Chlorine induced Respiratory stress on Oreochromis niloticus	Blessy V. Rajan	Science and Society	2020	0973-0206
32	The Impact of Product Design on Purchase Intention of Semi-Durable Products	Dr. Gimson D. Parambil	The Orissa Journal of Commerce	2020	0974-8482
33	Studies of Vapour Permeation of Chlorinated Hydrocarbons Through Natural Rubber-Clay Nanocomposite Membranes	Dr. Sharika T	International Journal of Membrane Science and Technology	2020	2410-1869

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
34	In situ S-doped ultrathin gC_3N_4 nanosheets coupled with mixed-dimensional (3D/1D) nanostructures of Silver Vanadates for enhanced photocatalytic degradation of organic pollutants	Dr. Subi Joseph	New Journal of Chemistry	2019	1369-9261
35	S-rGO modified sulphur doped carbon nitride with mixed-dimensional hierarchical nanostructures of silver vanadate for the enhanced photocatalytic degradation of pollutants in divergent field	Dr. Subi Joseph	Applied Surface Science	2019	0169-4332
36	Excellent electromagnetic shield derived from MWCNT reinforced NR/PP blend nanocomposites with tailored microstructural properties	Dr. Sharika T	Composites Part B: Engineering	2019	1359-8368
37	Women Entrepreneurial Development in MSME.	Dr. Gimson D. Parambil	Journal of Emerging Technologies and Innovative Research.	2019	2349-5162
38	An Evaluation of Responsible Tourism Initiatives in Kumarakom.	Dr. Gimson D. Parambil	Journal of Emerging Technologies and Innovative Research.	2019	2349-5162
39	Effectiveness of Marketing Assistance Schemes of MSME'S.	Dr. Gimson D. Parambil	Journal of Emerging Technologies and Innovative Research.	2019	2349-5162

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Sl No	Title of the paper	Name of the Author	Name of journal	Year of publication	ISSN Number
40	Study on Socio-Economic Impact of Co-operatives with special reference to Cherthala Taluk	Anju T.A.	Contemporary Commerce Review, P.G & Research Department of Commerce, The Cochin College	2019	2319 - 3638
41	Online Media, Digital Public Sphere and the voice of women	Bibu V N	Journal of Communication and Media Studies	2019	2395 - 1559
42	A Study on Investment Behaviour of Professionals	Dr. Gimson D. Parambil	Journal of Emerging Technologies and Innovative Research.	2018	2349-5162

ST. XAVIER'S COLLEGE VAIKOM 686 607 KOTHAVARA P.O.

Biomass Conversion and Biorefinery
https://doi.org/10.1007/s13399-023-03923-5

ORIGINAL ARTICLE

Development, evaluation, and optimization of portable pyrolysis system for the production of biochar from tender coconut husk

R. Pandiselvam[1] · Athira Shaji[1] · S. V. Ramesh[1] · Neenu Sathyan[2] · M. R. Manikantan[1] · A. C. Mathew[1]

Received: 26 December 2022 / Revised: 2 February 2023 / Accepted: 5 February 2023

Abstract

Tender coconut husk (TCH) is a prominent part of coconut fruit, and it is discarded after consumption of tender coconut water. TCH is made of fibers that comprise lignin (30–42%) and cellulose (54–65%) and also contains traces of tannin and potassium. In this study, development of most feasible and adaptable method for production of biochar from TCH is reported. The method opted for the production of biochar is pyrolysis, and temperature of pyrolysis has a direct correlation with the characteristics of resultant biochar. The main parameters investigated are the size of the reactor, type of fuel, and positioning of the drum. Biochemical parameters of biochar such as moisture content, ash content, pH and electrical conductivity, and total nitrogen content of the product were studied. The results reveal that sample collected from the upper layer of the large-sized reactor kept in upright position and using mature coconut husk as a fuel for biochar production was found to be the best considering the yield and physicochemical properties.

Keywords Biochar · Carbon content · Coconut husk · Pyrolysis · Lignin

1 Introduction

Coconut water is a popular and natural beverage. It contains numerous bioactive components. It is a great rehydrating and refreshing drink that can help to prevent and treat a variety of ailments [1]. India exports coconut water to United Arab Emirates, USA, and UK. The sale of tender coconuts along the highways and cities is most common in India. However, the tender coconut husk (TCH) or exocarp is discarded after consuming water inside, as a waste and large quantum of TCH gets accumulated along the roadsides. Chemical composition of TCH suggests cellulose fibers (44–45%), hemicellulose (7–8%), lignin (37% approx.), pectin (4–4.5%), and waxy substances (3–3.5%) are the major components [2]. Presence of high lignin content in TCH delays the decomposition process causing environmental pollution. In this context, conversion of these cellulosic fibers to value added product such as biochar is imperative to avoid the environmental pollution. It not only ensures safe disposal but also adds value to the TCH since the biochar produced could serve as a very good soil amendment, especially for cultivation of vegetables. Similarly, Maroušek and Gavurová [3] developed silver nanoparticles from coir pith. Coir pith is a lignocellulosic biomass obtained from coconut husk.

Biochar, the solid material formed during the thermochemical decomposition of biomass, is defined, by the International Biochar Initiative (http://www.biochar-international.org/biochar), as "a solid material obtained from the carbonization of biomass." Initially, it was used only in agriculture; however, the range of utility of biochar varies from diverse fields such as animal farming, building sector, decontamination, biogas production soil conditioner, and wastewater treatment [4]. These applications provide a scope for conversion of plant-based raw material to biochar.

Biochar can be produced by the thermochemical degradation of biomass in a zero or limited oxygen environment through the process of pyrolysis. Anaerobic fermentation and pyrolysis are the two major methods of waste

✉ R. Pandiselvam
anbupandi006@gmail.com; r.pandiselvam@icar.gov.in

✉ A. C. Mathew
acmathew@yahoo.com

[1] Physiology, Biochemistry and Post-Harvest Technology Division, ICAR–Central Plantation Crops Research Institute, Kasaragod 671 124, Kerala, India

[2] Division of Crop Production, ICAR–Central Plantation Crops Research Institute, Kasaragod, Kerala 671 124, India

Published online: 11 February 2023

International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 03 | March - 2023 Impact Factor: 7.185 ISSN: 2582-3930

A study on the Significance of Digital Library in the information retrieval process with special reference to D space, Greenstone and Koha Library Management Softwares

Smt. Princy D Nellanat
UGC Librarian, St.Xavier's College Vaikom.

&
Raheeb T
UGC Librarian, MUA College, Pulikkal

Abstract:

The modern libraries and information centers have been adopting a tremendous change in the collection, dissemination and retrieval of information. Present age is an age of information revolution. Speed, time and accuracy are to be taken into account while providing information services. Due to the increased use of web based services, the role and significance of digital library is also increasing. The present research paper examines the relevance of digital library software in the process of information retrieval system with special reference to D Space, Greenstone and Koha Library Management Software.

Key Words: Digital Library, Digital Library Management Software, DSpace, Greenstone, Koha- Information Dissemination-

Introdudction:

A digital library is a 'managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network'.A digital library includes a number of search or navigation aids that both operates within that particular library and allow access to the collection of information connected by network worldwide. Embedding new technology into library services is considered as a digital library service. Digital libraries offer library services in real- time via technology. Stakeholders of libraries are now able to have access to information that previously could not be accessed easily. Also, undoubtedly, the digital environment enables library users to access the stored digital collections online via the internet for teaching, learning, and research.

Features of Digital Libraries

- Library is at the disposal of users that facilitate access of information by just push of a button.
- Information sources is digitised, compressed and stored in textual/numeric, audio, vedio,graphic form.
- Time saving device for user community
- Computer assisted search
- Geographically distributed creating the concept of world as a global village
- Alerts users based on their subject interests.

Received: 28 May 2022 | Revised: 17 April 2023 | Accepted: 28 April 2023

DOI: 10.1111/ijcs.12947

ORIGINAL ARTICLE

International Journal of Consumer Studies WILEY

Brand trust and engagement in social commerce

Ajimon George[1] | Ajay Joseph[2] | Mathew Abraham[3] | Eric Thomas Joseph[1]

[1]Marian College Kuttikkanam (Autonomous), Kerala, India

[2]Bharata Mata College, Thrikkakara, Kochi, Kerala, India

[3]St. Xavier's College, Vaikom, Kerala, India

Correspondence
Ajimon George, Principal and Professor in Commerce, Marian College Kuttikkanam (Autonomous), Kerala 685531, India.
Email: ajimon.george@mariancollege.org

Abstract

With the surge in social media (SM) users around the world, the scope of social commerce (SC) in brand engagement is a prominent area of discussion. The present study empirically investigates the effect of social commerce construct (SCC), multi-dimensional constructs of social presence theory (SPT) and consumer generated content (CGC) on brand trust and brand engagement in SC platforms. An online survey was conducted among 625 Indian consumers who had made more than one purchase using SC platforms in the previous 6 months. Structural equation modelling technique was employed for testing the hypotheses and conceptual model. The results suggest that each element of SCC, SPT and CGC positively contributes to brand trust and engagement. Further, the study provides insight into brand trust and brand engagement in SM, which prompts brand usage intention of the consumers. The insights can be used by managers to create long-term customer relationship management action plans that emphasize brand trust and engagement.

KEYWORDS

brand engagement, brand trust, brand usage intention, social commerce, social presence

1 | INTRODUCTION

Technological improvements in the domain of e-commerce, as well as widespread consumer use of social networking sites, have altered the social media (SM) landscape and firms' involvement with their customers on online platforms (Felix et al., 2017; Muninger et al., 2019). SM platforms enable informal interaction between companies and consumers (Laroche et al., 2012; Shaari & Ahmad, 2017). In 2022, the number of SM users have exceeded more than 4 billion globally (Statista, 2022) and it has changed the conventional trends of branding and brand engagement strategies of companies drastically (Anderson et al., 2016; Karikari et al., 2017). With an upsurge in the number of SM users, brands prudently think how people perceive them, their immediate competitors and the world at large (Pauwels et al., 2013). SM plays an important part in customers' day-to-day purchasing decisions (Gupta, 2019; Norouzi, 2017; Venkateswaran & Sudhahar, 2016) and has become a conduit for brand engagement and brand usage by them (de Vries & Carlson, 2014; Harrigan et al., 2018; Hollebeek et al., 2014; Osei-Frimpong & McLean, 2018). Social commerce (SC) is a new e-commerce trend in which online transactions are linked and embedded to SM actions (Liang et al., 2011) and it converges e-commerce platforms and SM technologies into commercial features to build a huge customer base and economic exchange of goods and services (Tajvidi et al., 2018). Customers' social interactions may affect how they connect with brands, how they plan to spend money and how they actually make purchases in SC (Shen, 2012; Zhang et al., 2017).

Social presence theory (SPT) is used in this study to understand the impact of SM brand engagement on online SC platforms for brand usage. SPT seeks to understand how digital interfaces affect the 'feeling of being with another' during human-computer interactions (Biocca et al., 2003). In order to fit the SC platforms, a multi-dimensional concept of social presence (SP) is proposed in this study to represent the diverse sentiments combined with different IT artefacts on brand usage intention (Biocca et al., 2003; Cui et al., 2013; Karikari et al., 2017; Lu et al., 2016; Tu, 2000). Lu et al. (2016) suggests a multi-dimensional approach to SP stating two advantages. First, it highlights the SP characteristics that have a major impact on users' online behaviours, giving a clearer picture of how social factors influence user perceptions, beliefs and

2022

SPECIAL ARTICLE

Are Macroeconomic Indicators Accountable for Sectoral Stock Price Behaviours?

TITTO VARGHESE, T R GURUMOORTHY

Capital market stability is a crucial ingredient for the smooth functioning of a developing economy. This paper attempts to identify the significant macroeconomic factors affecting prominent sectoral stock indices and helps investors draw up an effective diversification strategy.

Nowadays, stock exchanges have become an important institution for the smooth functioning of any developing economy. The stability of capital market is directly linked to growth indicators of major economies (Titan 2015). A stock market is a secondary marketplace where the securities are purchased and sold by the existing investors and it is a place where businesses issue the shares for the purpose of raising long-term funds for implementing their strategically accepted plans. The main two stock exchanges of India are the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). The company stocks can get affected by the different macroeconomic variables.

The strength of stock markets is one of the hallmarks and facilitators of entrepreneurial progress, which in turn will also infuse sufficient liquidity into the consumer market (Dragota et al 2009). The aim of this paper is to propose a model for investors and to identify the significant factors affecting some of the prominent Indian stock indices. These stock indices represent industry-wise variations in the value of shares listed in the stock markets, that is, the BSE and NSE. This study will help new and existing investors to predict the stock market trends and adopt a diversification strategy during portfolio construction or revision process. The greater the predictability of a stock index, the lesser is the risk associated with investing in indexed or similar stocks and vice versa.

Significance and Objectives

The aim of this paper is to identify the significant factors affecting some of the prominent stock indices and build a model that help investors choose an appropriate portfolio. These stock indices represent industry-wise variations of shares listed in the BSE and NSE. Since monthly data for 11 years after the stock market crash in 2008 was used for this study, the contemporary relevance of the model is much more significant. This study will be useful for the investors who want to identify some basic economic variables that they should focus on while constructing or revising portfolios. Different kinds of investors would find this study useful, especially individual investors, portfolio managers, institutional investors, and foreign investors.

Considering the importance of analysing the relationship of the selected macroeconomic variables on stock market indices, the following objectives are framed:

(i) Analysing predictability of selected sectoral indices using macroeconomic indicators.

Titto Varghese (*tito.135@gmail.com*) is a postdoctoral fellow in the faculty of management, Department of Commerce, Alagappa University, Karaikudi. T R Gurumoorthy (*kirthigurum@yahoo.co.in*) is the dean, faculty of management and professor at the Department of Commerce, Alagappa University, Karaikudi.

International Journal of Ecology and Environmental Sciences 48: 439-447, 2022
ISSN: 2320-5199 (Online); https://doi.org/10.55863/ijees.2022.0439

Assessment of Sub Lethal Toxicity of Hydrocortisone ($C_{21}H_{30}O_5$): Physiological and Haematological Biomarker Reactions on *Anabas testudineus*

REVATHY, R.[1*], A.U. ARUN[2], HELANA JOSE[1], SHALU SOMAN[1], REEMY SARA MATHAI[3] AND BLESSY V. RAJAN[4]

[1]*Department of Zoology, Nirmala College, Muvattupuzha, India.*
[2]*Department of Zoology, St. Peter's College, Kolenchery, India.*
[3]*Department of Zoology, Marthoma College for Women, Perumbavoor, India.*
[4]*Department of Zoology, St. Xavier's College, Vaikom, India.*
E-mail: aneeshrevathyr@gmail.com, drarunkurup@gmail.com, helanajpe93@yahoo.com, shalusoman33@gmail.com, reemysara@gmail.com, blessyvrajan@gmail.com
***Corresponding author**

ABSTRACT

Application of wide range of pharmaceuticals is a serious threat to the environment causing a significant deterioration of aquatic faunal health as well as its survival status. The widespread detection of various types of drugs (antibiotics, non-steroidal anti-inflammatory drugs, beta-blockers, etc.) present in the aquatic ecosystem directly works on physiological parameters at different levels of aquatic organisms especially the bio-indicators and fishes. The experiment was carried out to evaluate the exposure of sub lethal concentration of hydrocortisone on oxygen consumption, gill movement, haematological and percentage of bone calcium of the freshwater fish (*Anabas testudineus*). When compared to control, the exposed fishes exhibit significant alterations in their physiological activity. The rate of oxygen consumption is indirectly proportional to dosage concentration as well as exposure time. Both the rate of gill movement and oxygen consumption were decreased with increasing concentration of hydrocortisone. Under exposure, the significant ($P < 0.05$) decline was recorded in both RBCs and Hb count when compared to control. The percentage of bone calcium level was significantly decreased by the toxicity of hydrocortisone. The current study stipulates that the exposure of sub lethal concentration of hydrocortisone on *A. testudineus* alters the physiological and haematological parameters. The results indicated that the steroid drug, hydrocortisone even at low concentrations causes deteriorative impacts on the health conditions of aquatic organism.

Key words: Hydrocortisone, oxygen consumption, gill movement, haematology, bone calcium, *Anabas testudineus*

INTRODUCTION

Pharmaceutical drugs are chemical substances designed to prevent, diagnose or treat various disorders and helps to promote health. The known biological effects of drugs on both humans and animals enhances its physical as well as mental well –being (More 2016, Karaman 2015). Now a day, the large scale manufacturing of different categories of drugs and its application are very prominent in the field of veterinary, agriculture and aquaculture for providing shelter against various diseases (Saravanan 2014). The classification of drugs are mainly focussed on three factors such as the chemical structure of a particular drug, the way it is used to treat a particular disease condition and its mechanism of action (Karaman 2015). Both the chemically synthesised drugs (termed as "small molecules") and living organism producing drugs (biologics) have advanced treatment capacity (Sarkis et al. 2020). Therapeutic hydrocortisone is a synthetic or semi synthetic analogue of natural hydrocortisone hormone (Florey 1983). Though there are certain therapeutic advantages to hydrocortisone, it create several side effects at various respects such as headache, increased sweating, unusual hair growth on face or body, nausea, weight gain, skin dryness, rashes, Cushing syndrome, hyperglycaemia and seizures etc. The effects of hydrocortisone on various aspects of laboratory animals have been observed by a number of investigators (Sadasivudu 1977, Otomo et al. 1981, Edwards and Burnham 2001). Although there are some studies on the physiological aspects of cortisone (hydrocortisone) on rats, there

INDIA'S MARITIME SECURITY POLICY- AN OVERVIEW

Ancy Davis V.
Assistant Professor, Department of Political Science, St.Xavier's College Vaikom, Kothavara P.O PIN 686607, Kottayam District, Kerala.

Abstract
India has a long coastal area covering 7516.6.km.Maritime security is one of the important parts of India's foreign policy. It is a significant aspect of India's national security due to the emerging expansion of the neighboring powers in the Indian ocean which is considered the "key to India's future" and Indo- pacific region which is the "heart of India's engagement with the world" and also the threats from the non-state actors. It includes the issues in the maritime domain comprising national security, marine environment, economic development and human security and also deals with regional seas, territorial waters, rivers and ports. India's maritime security policy gained new heights in the 21st century. The policy SAGAR- Security and growth for all in the region,region-wide organizations such as the Indian Ocean Naval Symposium(IONS), Indian Ocean Rim Association(IORA), QUAD- Quadrilateral Security Dialogue are the new platforms to ensure maritime security in the region.MALABAR exercises in which India is also a participant reflect the commitment of the participating countries to support a free, open inclusive Indo -Pacific as well as a rule-based international order. The present study analyzes the relevance of the need for a strong maritime security policy, the venues where India engages to strengthen maritime security in the region and the challenges ahead in the journey of achieving maritime security. The study is based on secondary data and is narrative in nature.
Keywords: Maritime security, SAGAR, IONS, IORA, QUAD, Malabar exercises, Indian Ocean, Indo-Pacific.

Introduction

``The future of India will undoubtedly be decided on the sea".[1]
The words of Sardar KM Panikkar reflect the significance of maritime security policy. India has a 7500 km coastline, 1200 islands and 24 million sq km of exclusive economic zones. As an emerging global power, India is looking towards the oceans for our security and economic prosperity in the 21st century. Increased engagement with the world crossed the Indo-Pacific and beyond. Most of the trade occurs through the seas. Being a land power and a sea power, India needs to focus on the maritime domain to combat traditional and non-traditional threats. The Prime Ministers' keynote address at Shangri La Dialogue 2018 focused on Continuities in Indian foreign policy and the significance of the Indo-Pacific.[2]Prime Minister of India chaired the UN Security Council open debate on "Enhancing Maritime Security- A case for international Cooperation in 2021 [3]India has proposed five principles - the removal of barriers to legitimate maritime commerce, the salience of international maritime law, collective efforts in dealing with natural disasters and maritime threats posed by non-state actors, preserving the maritime environment and

ISSN 2249-9040

VOLUME 11 NO 2 JULY-DECEMBER 2021

IPE Journal of Management

INSTITUTE OF PUBLIC ENTERPRISE

ICSSR, MoE, GOI RECOGNIZED CENTRE FOR EXCELLENCE IN RESEARCH

Macromolecular Symposia

www.ms-journal.de

Effect of MWCNTs on the Wetting Behavior of PP/NR Blends

*Sharika T. Nair, Bicy K, Soney C. George, and Sabu Thomas**

Blends of polypropylene (PP) and natural rubber (NR) with different loadings (1, 3, 5, and 7 wt%) of multiwalled carbon nanotubes (MWCNTs) are prepared by melt blending process. Influence of MWCNT concentration and blend ratio on the surface energy characteristics and wetting behavior of PP/NR/MWCNT nanocomposites are investigated using contact angle measurements with water and dimethyl sulfoxide. The surface energy, work of adhesion, spreading coefficient, interfacial energy, and interaction parameter are measured for all composites. It is understood that contact angle value of nanocomposites increases with the increasing MWCNT content and is attributed to the increase in hydrophobic nature of blends due to the presence of hydrophobic MWCNTs. Similar trend of variation of contact angle is found for nanocomposites with different blend ratio. The study also reveals that contact angle and wetting property of the nanocomposite increases with increase in the surface roughness of the sample. Results of contact angle studies show good agreement with the morphology of nanocomposites obtained by atomic force microscopy techniques.

1. Introduction

Polymer blending is a very attractive and convenient method for developing new polymeric materials. Since blending is the mixing of two or more polymers and involves no synthesis of new materials, it is a well-established approach to design materials with synergistic properties and hence has received a great deal of attention. Blending immiscible polymers is one of the most cost-effective methods to develop materials with enhanced properties and performance than existing polymeric materials.

Blending process is greatly dependent on the nature of the interactions and compatibility between the polymer components.[1] The high molecular weight and unfavorable enthalpy of mixing often leads to macro phase separation. However, the final properties of the polymer blends are dependent on morphology generated during processing and interfacial adhesion between blend components. In the case of immiscible polymer blends, the various morphologies developed by mixing two homo polymers in different ratios are matrix-droplet, co-continuous, lamellar, and fibrillar morphology. Presence of weaker interface leads to poor mechanical properties in immiscible blends, hence, manipulation of the interface is a key factor to realize the synergetic properties developed using blending.[2]

More recently, the addition of nanoparticles (NPs) to polymer blends has come under intense study as the NPs can control the morphological features and offer "synergistic" effects in the blends.[3] Addition of NPs to polymer blends can develop versatile materials with improved mechanical, thermal, charge storage, electrical, and magnetic properties. When NPs are mixed with polymer blends with two or more phases, they tend to localize in a preferred phase. The selective localization of NPs in polymer blends are governed by several competitive factors such as the surface energy of fillers and polymer components, melt-mixing process, and the viscosity ratio of the polymer components.[4] In fact, filler selective localization in the polymer blends may cause morphological changes, affecting the final properties and performance of the material.

Carbon nanotubes (CNTs) are a new class of nanomaterial with a wide range of potential applications.[5] In recent years, the use of CNTs as nanofillers in polymer blend has received a great deal of attention from both scientific and industrial community.[6–8] Because of its unique atomic structure with very high aspect ratio, low density, variety of polymer nucleation behaviors, and extraordinary mechanical properties, CNTs are considered as excellent reinforcing agent in nanocomposites.[9] It has been reported that the addition of CNTs into different polymer blends effectively improved properties of polymer blends.[10,11] Research on the fabrication of CNT filled polymer blend nanocomposite has particular interest due to the exceptionally high tensile strength and stiffness achieved by the polymeric materials owing to the presence of CNTs.[12]

The blends of polypropylene and natural rubber (PP/NR) is an industrially important blend, especially in NR producing countries where this thermoplastic elastomer (TPE) rubber can be used for myriad applications. TPEs possess the good processing characteristics of thermoplastics at elevated temperatures with the physical properties of conventional elastomers at service

S. T. Nair, B. K, Dr. S. Thomas
International and Interuniversity Centre for Nanoscience and Nanotechnology
Mahatma Gandhi University
Priyadarshini Hills P.O., Kottayam, Kerala 686560, India
E-mail: sabuthomas@mgu.ac.in
Dr. S. C. George
Department of Basic Science
Amal Jyothi College of Engineering
Koovapally P.O., Kottayam, Kerala 686518, India
Dr. S. Thomas
School of Chemical Sciences
Mahatma Gandhi University
Kottayam, Kerala 686560, India

The ORCID identification number(s) for the author(s) of this article can be found under https://doi.org/10.1002/masy.202000214

DOI: 10.1002/masy.202000214

UTTAR PRADESH JOURNAL OF ZOOLOGY

42(17): 117-122, 2021
ISSN: 0256-971X (P)

RESPIRATORY STRESS OF SALINITY ON *Oreochromis niloticus*

REEMY SARA MATHAI[1], A. U. ARUN[2*], G. HRISHITHA[2], SHALU SOMAN[3], R. REVATHY[3] AND BLESSY RAJAN[4]

[1]Mar Thoma College for Women, Perumbavoor, India.
[2]St. Peter's College, Kolenchery, India.
[3]Nirmala College, Muvattupuzha, India.
[4]St. Xavier's College, Vaikom, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Author RSM managed the analyses of the study and drafted the manuscript. Author AUA designed the study and wrote protocol. Author GH carried out the experiments. Authors SS, RR and BR managed the literature searches. All authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Telat Yanik, Professor, Atatürk University, Turkey.
Reviewers:
(1) Ravindragouda Patil, India.
(2) Abdul Hamid, Halu Oleo University, Indonesia.

Received: 20 June 2021
Accepted: 26 August 2021
Published: 01 September 2021

Original Research Article

ABSTRACT

Oreochromis niloticus (Nile tilapia) commonly found in the freshwater bodies of Kerala was used in this study as the experimental fish so as to determine the effect of salinity on the respiration rate of the fish. The fishes were exposed to different salinities (5ppt, 10ppt, 15ppt, 20ppt) for a period of one hour. The sample with 0ppt salinity was taken as the control. Using Winkler's method, the dissolved oxygen level in the water taken at different intervals (5th minutes, 15th minutes, 30th minutes and 1 hour) from the sample solutions were estimated. In control (0ppt) average oxygen consumption during different time interval was found to be stable at 0.12 mg/ml/g body weight. The dissolved oxygen consumption by fish increased with increasing salinities from 0ppt to 10ppt, then decreased in 15ppt and 20ppt, besides this consumption of Oxygen decreased from 5th minutes to 60th minutes of exposure. The opercular beats of the fish was noted and it was found that in the control (with 0 ppt salinity), the rate of opercular beats was quite steady without a huge rise or fall and the average value noted was 122/minutes. In all other salinities (5, 10, 15 and 20 ppt), the opercular beats was decreased from 1st minute to 60th minute. The rate of opercular beats was lower in the control when compared with 5ppt,10ppt, 15ppt and 20ppt.Even though *Oreochromis niloticus* (Nile tilapia) is very sturdy fish, and tides over stressful environment conditions, salinity changes in this experimental setup caused changes in the respiration rate of the fish. So this study discloses how other less sturdy aquatic fauna could easily succumb to salinity change in their environment.

**Corresponding author: Email: drarunkurup@gmail.com;*

COVID-19 IMPACT: IS DOWNSIZING THE NEED OF THE HOUR? IDENTIFYING YOUR BEST EMPLOYEES WHILE DOWNSIZING

Joel Chacko Roy, Bharata Mata College
Gimson D Parambil, St. Xavier's College & Mahatma Gandhi University

ABSTRACT

As Covid-19 has hit the economy very badly across the globe, revenues have fallen down and it has forced companies to start thinking about downsizing their workforce. The major problem a manager would face while downsizing is to choose which employee should stay rather than which employee should not. This situation arises when a saturation point is reached as a manager has already terminated his less performing employees and then still has to downsize. There comes the question of choosing between his best employees. How can a manager face this challenge and bring out the right output? Or can he make them all stay there? Can he reduce their salaries and keep them all in the lot? Will this affect them mentally and emotionally to bring down their morale? Should the manager right away terminate some so that the rest could draw the same paycheck? This paper discusses the answers to these questions from the literature.

Keywords: Covid-19, Downsizing, Employee Morale, Employee Performance, Workforce, Attrition, Termination, Human Resources

JEL Classification: *M50, M51, M54*

INTRODUCTION

The whole world is entangled with fear and anguish of how the world is going to be in the very next moment. These days while the world is all ears to the spreading of viruses, proclamations of wars, heated debates across continents, killing of people in the top ranks, and much more of that sort. People have lost their peace and are afraid if they will be able to make it to the next meal. And if they are alive till the next meal; lockdowns, economic downfalls, downsizing and much more makes them worried about how to get the next meal. Will there be money in their pockets to enjoy the essentials of life is the question which haunts the minds of many. The fear of losing jobs is more evident now than ever before. 86% of Indians are in fear of losing their jobs due to the Covid-19 pandemic. A rise in the percentage of fear of losing jobs has increased all over the world (Press Trust of India, 2020). Economic downfall due to the outbreak of Covid-19 is the primary reason behind all these. Another recession is on its brink. Nations across the globe are making desperate efforts to boost their economy. Many countries have gone almost into a recession due to Covid-19. As the sale of medical equipment has grown exponentially, countries which make medical equipment have boosted their economy due to the outbreak of Covid-19. As consumption of oil also went down due to lockdowns across the world, the economy of the countries producing oil have also been hit. As always, countries which manufacture weapons try to create tension between countries so that the sales of these weapons will go up which will in-turn help in boosting their economy. Rest of the world is the poor prey

FINANCE INDIA
© Indian Institute of Finance
Vol. XXXV No. 3, September 2021
Pages – 713 - 740

Are NBFCs a Challenge to Commercial Banks? A Combined CRAMELS Approach

TITTO VARGHESE*
T. R. GURUMOORTHY**

Abstract

This study compares NBFCs and Commercial banks operating in India. Secondary data was collected from Annual Reports, CMIE Prowess and Bloomberg database. Financial analysis was performed through banking ratios under CRAMELS rating model. Statistical tools. Overall ranking shows that NBFCs stood at top three positions among all compared Institutions. BAJAJ, MUTHOOT and SHRIRAM Finance secured first, second and third position respectively. Market capitalizations of above three NBFCs were also in the same order of CRAMELS ranking. Capital Adequacy, Risk, Asset Quality, Earnings Quality and Sensitivity were favouring NBFCs, whereas Management Quality and Liquidity were supporting Banks. HDFC and KMB shared fourth position, whereas sixth and seventh Position was for ICICI and AXIS respectively. Overall NBFCs were performing better than private Commercial Banks in India.

I. Introduction

STRENGTH OF A financial system depends on adaptability of financial institutions to the modern banking technologies. Any form of banking institution must introduce new and modern amenities for bringing in ease-of-doing branch banking facilities. NBFCs, the Non-banking financial companies are financial institutions primarily setup for the purpose of reaching unorganized sector with financial literacy. Even though these institutions were not allowed to perform as like of commercial banks, their scope as lead for financial inclusion is increasing their customer base. Recent days have seen increase in the total business of NBFCs over the commercial banks due to approachability and ease of branch banking facilities. Nowadays people prefer NBFCs over banks as they find them safe, efficient and quick in assisting with financial requirements.

* Assistant Professor, St. Xavier's College, Department of Commerce, Vaikom, Kottayam, Kerala 686607, INDIA

** Senior Professor and Head of the Department, Alagappa University, The Department of Commerce, Karaikudi, Tamil Nadu 630003, INDIA

Submitted November 2019; *Accepted* March 2020

Applied Materials Today 21 (2020) 100849

Contents lists available at ScienceDirect

Applied Materials Today

journal homepage: www.elsevier.com/locate/apmt

Flower-like $MoS_2/BiFeO_3$ doped silver orthophosphate catalyst for visible-light assisted treatment of refractory organic pollutants

Thomas Abraham[a], Ragam N. Priyanka[a], Subi Joseph[a], Neena John Plathanam[a], Gigimol M.G.[b], Beena Mathew[a,*]

[a] School of Chemical Sciences, Mahatma Gandhi University, Kottayam 686 560, Kerala, India
[b] Research and Post Graduate Department of Chemistry, St. Thomas College, Mahatma Gandhi University, Pala, Kerala 686574, India

ARTICLE INFO

Article history:
Received 8 August 2020
Revised 17 September 2020
Accepted 24 September 2020

Keywords:
Molybdenum disulphide
Bismuth ferrite
Silver orthophosphate
Pesticides
Dyes
Photodegradation

ABSTRACT

The development of $MoS_2/BiFeO_3$ embedded silver orthophosphate ternary composite for the excellent photocatalytic abatement of refractory pollutants was established. The fabrication of a confounded heterojunction photocatalyst composite for the enhanced treatment of various dyes, pesticides and antibiotic drugs with extra stability and observable reproducibility are possible. The acid dye methyl orange, basic dyes such as methylene blue, rhodamine B and an azo dye acid red 18 were successfully degraded with above 90% degradation efficiency within a very short time period. These results highlighted that the degradation efficiency of the developed composite was 8 times higher than the pure Ag_3PO_4 catalyst. Also, the hazardous herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) was degraded and mineralized within 180 min, the most toxic insecticide acephate was degraded within 60 min and the antibiotic tetracycline was removed in 120 min with acceptable mineralization. All the pesticides and antibiotic formed less toxic degraded products and the products were corroborated with high resolution mass spectrum (HRMS). The radical scavenger experiment reveals that the active species for photodegradation study was photogenerated holes. These are produced by the rapid transfer of electrons through Ag_3PO_4 due to its low recombination tendency. In short, the development of Ag_3PO_4 based ternary composite for the better visible light assisted catalytic degradation of refractory pollutants such as dyes, pesticides and pharmaceutical drugs were carried out with excellent efficiency.

1. Introduction

The discharge of toxic organic dyes and pesticides causes a severe threat to the environment and other bio-organisms. Most of the dyes such as methylene blue (MB), methyl orange (MO), rhodamine 8 (Rh8) and acid red 18 (AR 18) are toxic and cause harm to the environment [1,2]. At the same time, the use of pharmaceuticals and pesticides is increasing day by day due to their inevitable roles in medical field and agricultural industry. The overuse of pesticides may severely affect the surface and groundwater. Organochlorine (OC) compounds such as 2, 4-dichlorophenoxyacetic acid (2,4-D) is a very dangerous herbicide used as a plant hormone regulator in agriculture and its main disadvantage is its very low biodegradability in aqueous solutions and high chemical stability [3,4]. Acephate is an organophosphorus pesticide (OPP) mainly used as an insecticide in agriculture. It is highly toxic and is difficult for biodegradation which corroborates its adverse effect [5]. The pollution regarding pharmaceutical drugs is mainly due to the use of antibiotics such as tetracycline (TC). TC is a broad-spectrum antibiotic used for the treatment of urogenital tract infection, pneumonia and mycoplasma [6]. The enhanced accumulation of these organic dyes causes acute toxicity in aqueous solutions and the excess use of pesticides causes a great threat to living organisms since they may expose to air by volatilization, hydrolysis, oxidation, etc. Hence it is important to develop an efficient catalyst for the proper degradation of these dyes, pesticides and pharmaceutical drugs [7,8]. Photodegradation is an efficient natural method that possesses a good oxidation process, easy handling and evolution of non-hazardous oxidation products [9,10]. Thus, visible light assisted photodegradation methods are adapted for the excellent photodegradation of dyes, pesticides and pharmaceutical drugs [11,12]. Heterogeneous semiconductor photocatalyst was developed for the photodegradation of these organic pollutants. The foremost challenge for the synthesis of catalyst composite is the successful development of a single visible light assisted catalyst for the successful removal of various organic pollutants [13]. Silver-based photocatalyst such as AgBr [14],

* Corresponding author.
E-mail address: beenamathew@mgu.ac.in (B. Mathew).

https://doi.org/10.1016/j.apmt.2020.100849
2352-9407/

Materials Science in Semiconductor Processing 130 (2021) 105797

Contents lists available at ScienceDirect

Materials Science in Semiconductor Processing

journal homepage: http://www.elsevier.com/locate/mssp

Fabrication of zirconium ferrite doped Ag_3PO_4 composite for the degradation of refractory pollutants: Visible light assisted Z-scheme insight

Thomas Abraham, Ragam N. Priyanka, Subi Joseph, Anu Rose Chacko, Neena John plathanam, Beena Mathew *

School of Chemical Sciences, Mahatma Gandhi University, Priyadarsini Hills P. O, Kottayam, 686 560, Kerala, India

ARTICLE INFO

Keywords:
Zirconium ferrite
Silver orthophosphate
Organic dyes
Pesticides
Pharmaceutical
Photodegradation

ABSTRACT

The catalytic abatement of refractory pollutants is inevitable for a healthy environment. Herein, we report a novel magnetic zirconium ferrite ($ZrFe_2O_5$) incorporated silver orthophosphate (Ag_3PO_4) catalyst composite for the successful removal of organic pollutants. The highlight of the work is the in-situ synthesis of the novel magnetic $ZrFe_2O_5/Ag_3PO_4$ catalyst composite which manifests enhanced photodegradation of toxic organic dyes (methylene blue, methyl orange and acid red 18), pesticides (2,4-dichlorophenoxyacetic acid, acephate) and pharmaceutical (tetracycline) within a very short span of time. The degradation studies reveal that the synthesized catalyst shows outstanding degradation efficiency with 4 times higher than the pristine Ag_3PO_4 degradation for the same organic dyes, suggesting the prominence of the newly synthesized composite. This depicts the construction of Z-scheme mechanism for the catalyst activity of the composite. In summary, the work mainly focused on the development of a simple magnetic binary composite based on Ag_3PO_4 for the unmitigated eradication of toxic organic dyes, pesticides and pharmaceutical with well mineralization for future industrial applications with the aid of visible light.

1. Introduction

Photocatalysis is considered as a green method for the mineralization of various toxic organic pollutants. The accumulation of toxic pesticides like hazardous systemic herbicide 2,4-dichlorophenoxiacetic acid (2,4-D), organophosphorous insecticides such as acephate and antibiotic tetracycline may contaminate the surface and ground water [1–5]. The accumulation of synthetic organic dyes such as methylene blue (MB), methyl orange (MO), rhodamine B and acid red 18 dyes in natural water resources pollutes it in a drastic condition [5–11]. Hence for effective environmental protection and energy saving, there rises a role and availability of toxic-free photocatalyst. Several visible light driven photocatalysts with higher activity such as Zr based (ZrO_2, $ZrPO_4$, $ZrFe_2O_5$, $ZrTiO_4$) [12–15] and Ag based (AgBr, Ag_3PO_4, AgCl@Ag, Ag_2CO_3) [16–19] were reported. Nontoxic Fe based photocatalyst finds lots of applications in photocatalytic treatment due to its very low band gap. Besides that the combination of nontoxic Zr and Fe based photocatalyst improves its catalytic activity which supports the practical applications of the photocatalyst due to its low cost and less toxicity. Since the elemental combination of nontoxic Zr and Fe based photocatalyst improves the practical applications of the photocatalyst [15,20–25], better enhancement in the photocatalytic performance of $ZrFe_2O_5$ can be done by doping with low bandgap Ag-based photocatalysts [26–29]. It is well known that the direct bandgap of pure Ag_3PO_4 is 2.43 eV. The very low bandgap supports the separation of photoactive electrons and hole pairs and further boosting the catalytic activity. Thus electron-hole pair separation is possible by the heavy dispersion of the conduction band and the strong inducing effect offered by PO_4^{3-} [30]. The high quantum efficiency of Ag_3PO_4 of about 90% with a wavelength longer than 420 nm is one of its important characteristic features [19]. However, main disadvantage of this Ag_3PO_4 photocatalyst is its photocorrosion processes. The reduction of Ag^+ to Ag will gradually hinder the photoactive holes and electrons and thereby inhibits the catalytic activity. It is briefly described by the following equation.

$$4\,Ag_3PO_4 + 6H_2O + 12\,h^+ = 12\,e^- \rightarrow 12\,Ag + 4H_3PO_4 + 3\,O_2 \quad (1)$$

The imperceptible solubility of Ag_3PO_4 ($K_{sp} = 1.6 \times 10^{-16}$) is attributed for the photocorrosion of Ag_3PO_4 nanoparticles. Due to its least stability and photosensitive property, it cannot be well efficient for practical applications [31–35]. To retain the stability and catalytic

* Corresponding author.
E-mail address: beenamathew@mgu.ac.in (B. Mathew).

https://doi.org/10.1016/j.mssp.2021.105797
Received 12 December 2020; Received in revised form 16 February 2021; Accepted 4 March 2021
1369-8001/

FULL PAPER

Macromolecular Symposia

www.ms-journal.de

Spectroscopic, Microscopic, X-Ray Diffraction and Thermal Stability Studies of Stearic Acid Modified Hydrotalcite Formed through Memory Effect

*Saju Daniel, Padmanabhan Alapat, Nandakumar Kalarikkal, and Sabu Thomas**

Organic modification of layered double hydroxide (LDH) (hydrotalcite) is a remarkable and a very essential step in the field of fabrication of exfoliated LDH polymer nanocomposites for novel multifaceted applications. In this research work, stearic acid (SA) modification of LDH has been conducted successfully by memory effect. The modification of LDH has been confirmed by atomic force microscopic analysis, scanning electron microscopic analysis, transmission electron microscopic analysis, X-ray diffraction analysis, Fourier transform infrared spectroscopic analysis, X-ray photo electron spectroscopic analysis, Raman spectroscopic analysis, energy dispersive X-ray microanalysis, and thermogravimeric analysis. The basal spacing in the SA-modified LDH is found to be 5.03 nm, which is almost double the value of 18 C-C lengths in SA. This indicates the formation of a bilayer of stearate ion in the interlamellar region of LDH in the modified form. Hence, this work is novel as it paved a breakthrough for making organic-inorganic hybrid for drug delivery, gene delivery, controlled pesticide release, etc. with the prolonged delivery time as the interlayer region consisted of double the number of stearate ions in monolayer intercalated LDH.

1. Introduction

Layered double hydroxide (LDH) polymer nanocomposites have currently turned out to be a formidable research area because of amendable properties of LDHs such as low cost, facile and green synthesis, non-toxicity, structural and compositional tunability, high chemical and thermal stability, memory effect, high biocompatibility and potential applications like biomedical, flame retardant, gas barrier, energy, agricultural and food packaging, water purification, etc.[1–3] The three remarkable characteristics of LDHs such as excellent anion exchangeability, compositional flexibility in both anions and cations, and memory effect have been exploited to tune LDHs into nanocomposites and functional hybrid materials for broad-spectrum applications. The fine-tuning of the interlamellar galleries of LDHs with suitable organic anions offer exfoliated LDH polymer nanocomposites with multifaceted applications.[4,5] This organic modification is also an efficient way to tailor the nano space in the intergallery region with functional materials like pesticides, drugs, nucleic acids, enzymes, etc. for vast applications such as controlled pesticide release, drug delivery, gene delivery, biosensors, etc.[6–10] In this point of view, this research work aims to reach a maximum enhancement in the basal spacing of LDH and familiarize all the researchers in this field regarding the possible characterization tools to evaluate the organic modification of LDH qualitatively as well as quantitatively.

LDHs are a new class of two-dimensional inorganic layered nanomaterial, natural or synthetic anionic clay, the general formula of which is $[M^{II}_{1-x}M^{III}_{x}(OH)_2]^{x+}(A^{n-})_{x/n}.yH_2O$ where M^{II} is a divalent ion, M^{III} is a trivalent ion, A^{n-} is an anion and $x = M^{III}/M^{II} + M^{III}$ and its value falls between 0.2 and 0.33 nm for pure LDH.[5,11–13] Hydrotalcite or LDH is the primary and typical member of this family whose structure is comparable to that of brucite. This structure can easily be obtained from the latter by replacing some Mg^{2+} cations with Al^{3+} cations. By doing so, the layers of hydrotalcite gain a positive charge, and intercalation of anions in the interlamellar region neutralizes this positive charge while water molecules in that region stabilize the crystal, thus enhancing the basal space from 0.48 nm in brucite to 0.76 nm in LDH.[5,12,13] Further advancement in the basal spacing is mandatory for the intercalation of huge hydrophobic macromolecular

Dr. S. Daniel, Prof. N. Kalarikkal, Prof. S. Thomas
International and Inter University Centre for Nanoscience and Nanotechnology
Mahatma Gandhi University
Kottayam, Kerala, India
E-mail: sabuthomas@mgu.ac.in

Dr. S. Daniel
St. Xavier's College
Vaikom
Kottayam, Kerala, India

Prof. P. Alapat, Prof. S. Thomas
School of Chemical Sciences
Mahatma Gandhi University
Kottayam, Kerala, India

Prof. N. Kalarikkal
School of Pure and Applied Physics
Mahatma Gandhi University
Kottayam, Kerala, India

Prof. S. Thomas
School of Energy Materials
Mahatma Gandhi University
Kottayam, Kerala, India

The ORCID identification number(s) for the author(s) of this article can be found under https://doi.org/10.1002/masy.202000277

DOI: 10.1002/masy.202000277

NJC

ROYAL SOCIETY OF CHEMISTRY

PAPER

View Article Online
View Journal | View Issue

Cite this: *New J. Chem.*, 2021, **45**, 4963

Enhanced mechanical and thermal performance of multiwalled carbon nanotubes-filled polypropylene/natural rubber thermoplastic elastomers

Sharika T. Nair,[ab] Poornima Vijayan P.,[c] Soney C. George,[ad] Nandakumar Kalarikkal[a] and Sabu Thomas[*ae]

The effects of multiwalled carbon nanotubes (MWCNTs) on the mechanical, dynamic and thermal properties of polypropylene/natural rubber (PP/NR) blends with two different blend compositions were studied. The observations were correlated with morphological attributes. A brittle to ductile transition was observed above a critical concentration of MWCNTs in PP/NR blends, and the required critical concentration depends on the blend composition. It was found that MWCNTs significantly improved the tensile toughness and impact strength of PP/NR blends of both compositions, especially at 5 wt% MWCNTs. The toughening effect of MWCNTs on PP/NR is more pronounced in composites with co-continuous morphologies (50PP/50NR) than that with matrix-droplet (80PP/20NR) morphologies. The dynamic mechanical analysis confirmed the existence of two glass transition temperatures corresponding to PP and NR phases. The increasing T_g of NR phase with increasing MWCNT content indicates the preferential localization of MWCNTs in the NR phase of PP/NR blends. The thermal degradation behavior of developed nanocomposites determined by thermogravimetric analysis (TGA) showed that the thermal stability of nanocomposites was improved and their rate of degradation was reduced, which was attributed to the network-like structure formation of MWCNT in blends.

Received 6th November 2020,
Accepted 3rd February 2021

DOI: 10.1039/d0nj05437b

rsc.li/njc

1. Introduction

A traditional method to improve the performance of immiscible polymer blends is the incorporation of compatibilizers.[1–3] With advancements in nanotechnology, the potential of several nanofillers as compatibilizers for immiscible polymer blends was reported.[4] Despite the fact that nanofillers have been well proved to be efficient reinforcing agents in single polymer matrices, their role in multicomponent polymer blends remains a complex scenario which needs to be explored further.[5] Apart from the dispersion state of the nanofiller, the competitive interaction between the filler and blend components, the selective localization of nanofillers at the blend interface and the nanofiller-induced blend morphology tunes the performance of nanofiller-incorporated immiscible blends.[6–8]

To achieve multicomponent blend systems with well-tuned properties, researchers have attempted several nanofillers to alter the performance of immiscible blends, which includes carbon black,[9] exfoliated clay,[10,11] graphene nanoplatelets[12] and carbon nanotubes (CNT).[13,14] Among these fillers, CNT has been explored more as a third-party filler in immiscible blends, as they have widespread application in electronics, aerospace and biomedical/bioengineering fields, where the electrical, thermal and mechanical properties are important.[15–17] The interface region in polymer blends, where the entanglement density of molecular chains is smaller than that of bulk components is prone to premature failure, which leads to interfacial debonding and slipping.[18] Recent research has evolved the idea of localisation of CNTs at the blend interface or selectively at one blend component, which can significantly improve blend properties.[19–21]

Urquijo *et al.*[22] reported that minor-phase-located CNTs were able to efficiently reinforce a poly(L-lactide)/polycaprolactone (PLA/PCL) blend. The preferential location of CNT in PCL phase enabled the PLA/PCL blend to fully maintain its high elongation

[a] *International and Interuniversity Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Priyadarshini Hills P.O., Kottayam 686 560, Kerala, India. E-mail: sabuthomas@mgu.ac.in*
[b] *Department of Chemistry, St. Xavier's College Vaikom, Kothavara P.O, Kottayam 686607, Kerala, India*
[c] *Department of Chemistry, Sree Narayana College for Women, Kollam, 691001, Kerala, India*
[d] *Centre for Nanoscience and Technology, Amal Jyothi College of Engineering, Koovappally P.O., Kottayam 686518, Kerala, India*
[e] *School of Chemical Sciences, Mahatma Gandhi University, Priyadarshini Hills P.O., Kottayam 686 560, Kerala, India*

Applied Ecology and Environmental Sciences, 2021, Vol. 9, No. 11, 983-987
Available online at http://pubs.sciepub.com/aees/9/11/10
Published by Science and Education Publishing
DOI:10.12691/aees-9-11-10

Shampoos as a Mosquito Controller - A Preliminary Toxicity Study on Its Larvicidal Potential

Reemy Sara Mathai[1,2], A.U. Arun[3,*], Blessy V Rajan[2,4], Shalu Soman[2], Revathy R[2]

[1]Mar Thoma College for Women, Perumbavoor
[2]Nirmala College, Muvattupuzha
[3]St.Peter's College, Kolenchery
[4]St.Xavier's College, Vaikom
*Corresponding author: drarunkurup@gmail.com

Received October 11, 2021; Revised November 13, 2021; Accepted November 26, 2021

Abstract Mosquito Control is important to the community because of the vector potential that exists from mosquitoes in transmitting diseases and the annoyance factor in disrupting outdoor activities. The vector potential of mosquitoes stems from the female's bloodsucking habits. Various mosquito species are capable of transmitting malaria, dengue, yellow fever, filariasis, encephalitis, chikungunya, and Zika viruses and other diseases. Apart from being a nuisance to the public by affecting labor efficiency, depreciation of real estate values, and interference with outdoor activities, they also affect the health of livestock, pets, and wild animal population. Several techniques are used for mosquito control like chemical control, biological control, source reduction, environmental control, genetic control, traps and personal protection. Shampoos being regularly used, the effluent containing the same is being discharged into the open environment. The present study attempts to investigate the larvicidal effects of different shampoos (a means of chemical control) on mosquito larvae. Toxicity studies were carried out using the serial dilution method and LC_{50} was estimated for each of the shampoo type (Superia, Clinic Plus, Dove, Sunsilk) at 24h interval for five days. A comparison of the lethal effect of these shampoos at specific concentrations (0.1, 0.15, 0.2, 0.25, 0.3 and 0.4) was also done. The study reveals that Superia shampoo has the best larvicidal properties ($0.1mlL^{-1}$) compared to Dove ($0.15ml\ L^{-1}$), Sunsilk ($0.15ml\ L^{-1}$) and Clinic Plus ($0.2ml\ L^{-1}$). The low LC_{50} value for a particular shampoo could be attributed to the special combination of ingredients used in its preparation which could be employed for mosquito control. An extensively used cosmetic product could be turned into an effective vector control product with further research in the area.

Keywords: *mosquito, larvicidal effect, shampoo, toxicity, vector control*

Cite This Article: Reemy Sara Mathai, A.U. Arun, Blessy V Rajan, Shalu Soman, and Revathy R, "Shampoos as a Mosquito Controller - A Preliminary Toxicity Study on Its Larvicidal Potential." *Applied Ecology and Environmental Sciences*, vol. 9, no. 11 (2021): 983-987. doi: 10.12691/aees-9-11-10.

1. Introduction

Mosquitoes constitute the most important single family of insects from the standpoint of human health. Due to their high potential to exploit even adverse environmental conditions, mosquitoes can rapidly increase their population [1]. Mosquitoes transmit more diseases than any other group of arthropods and affect millions throughout the world.

Approximately, half of the world's population is at risk of mosquito-borne diseases, with the highest-burden for socioeconomically disadvantaged populations. Urbanization, globalization, climate change, and land-use shifts have each contributed to the re-emergence and expansion of mosquito-borne diseases [2,3].

Mosquito borne diseases are prevalent in more than 100 countries across the world, infecting over 700,000,000 people every year globally and 40,000,000 of the Indian population. WHO has declared the mosquitoes as "public enemy number one" [4] as they act as a vector for most of the life-threatening diseases like malaria, yellow fever, dengue fever, chikungunya fever, filariasis, encephalitis, West Nile virus infection, Zika virus fever, etc., around the globe [5,6,7,8]. They not only can carry diseases that afflict humans, but also transmit several diseases and parasites to birds, dogs, horses, etc. [9] and contribute significantly to poverty and social debility in tropical countries [10]. Therefore, the control of mosquitoes is an important public health concern around the world.

To prevent proliferation of mosquito borne diseases and to improve quality of environment and public health, mosquito control is essential. Chemical, biological, physical, organic and genetic control measures have been employed to control the vector population [11]. Environmental management (through reduction or removal of mosquito breeding sites) is being used along with chemical or microbiological ovicides, larvicides, and pupicides. But these are only moderately effective, due to resistance arising from physiological (e.g., insecticide resistance) [12]

UTTAR PRADESH JOURNAL OF ZOOLOGY

42(11): 53-66, 2021
ISSN: 0256-971X (P)

EFFECT OF SUBLETHAL CONCENTRATION OF FORMALIN ON HAEMATOLOGICAL AND BIOCHEMICAL PARAMETERS OF *Oreochromis niloticus*

A. U. ARUN[1*], V. S. YEDUKRISHNAN[1], SHALU SOMAN[1], REEMY SARA MATHAI[2], BLESSY V. RAJAN[3] AND R. REVATHY[4]

[1]Department of Zoology, St. Peter's College, Kolenchery, India.
[2]Department of Zoology, Marthoma College for Women, Perumbavoor, India.
[3]Department of Zoology, St. Xavier's College, Vaikom, India.
[4]Department of Zoology, Nirmala College, Muvattupuzha, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Author AUA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors VSY and SS managed the analyses of the study. Authors RSM, BVR and RR managed the literature searches. All authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Juan Carlos Troiano, Professor, University of Buenos Aires, Argentina.
Reviewers:
(1) Nermeen Nemr Welson, Beni Suef University, Egypt.
(2) Hanan Hafez Omar, Tanta University, Egypt.

Received: 10 March 2021
Accepted: 16 May 2021
Published: 21 May 2021

Original Research Article

ABSTRACT

Formalin has long been used for traditional treatment of fish ectoparasites, even though it is a highly toxic compound. Besides this, formalin is a one of the major constituent of plywood mill effluent. Perumbavoor, Ernakulam (district) of Kerala is one of the major plywood industrial belt and hundreds of plywood factories have been working in a limited area. All these plywood factories are discharging effluents directly into the nearby water bodies without any proper treatments. Hence a detail study is necessary to evaluate the impact of formalin on aquatic organisms especially fishes. In this ground a study was undertaken to evaluate haematological and biochemical changes resulting from the exposure of *Oreochromis niloticus* to sub lethal concentrations of formalin ($1/80^{th}$ (0.175 ml), $1/70^{th}$ (0.2 ml) and $1/50^{th}$ (0.28 ml) dilution of LC50 of formaldehyde) for a period of 20hrs, 100hrs and 300 hrs. It is noted that with an increase in the concentrations and exposure period, the total count of RBC, haemoglobin, PCV, MCH, MCHC and MCV decreased as compared to that of the control. The WBCs count increased with increase in concentration and exposure period. Blood Glucose level showed an increasing trend with dosage and exposure time. Total Protein, Globulin and Albumin were lower in exposed fish as compared to control. The changes observed in this study indicated that haematological and biochemical parameters can be used as an indicator of formalin related stress in fish. The current work emphasized the necessity to regulate the discharge of formaldehyde from domestic and industrial

**Corresponding author: Email: drarunkurup@gmail.com;*

Behavioural Biases in Investment Decisions and Its Impact on Investment Pattern

Anju T. A.

Assistant Professor, P.G Department of Commerce
St. Xavier's College Vaikom, Kottayam
Email id: anju.ta4@gmail.com

Abstract

Many research studies reveal that, average individual investors take their investment decisions based on emotions and not on logic. Some goes for lesser risky avenues so that at least their principle amount is safe. Thus, it is observed that the investment perceptions of individual investors are different and it depends upon their behaviour. So, it is necessary to study the behavioural biases in investment decisions and its impact on the investment pattern of individual investors. The study covers only six behavioural biases such as overconfidence bias, self-attribution bias, anchoring bias or reference point bias, gambler's fallacy bias, regret avoidance bias and framing effect bias. The research findings would create awareness among individual investors on behavioural bias which influences their investment pattern. It reveals that behavioural biases have a positive effect on investment decisions, where overconfidence biases have greater effect on the same.

ISSN 2348-7984

മരുനാടൻ ജീവിതത്തിലെ സംഘർഷങ്ങൾ ബെന്യാമിൻ നോവലുകളിൽ

Rekha A.G.

Deapartment of Malayalam,
St. Xaviar's College, Vaikkam, Kottayam
rekhamaju2006@gmail.com

ബെന്യാമിന്റെ നോവലുകളിൽ ജീവിതം ക്രമവും കെട്ടുറപ്പുമുള്ള കഥയല്ല അവിച്ഛിന്നമായ പ്രവാഹമാണ്. അതിനോടടുക്കുവാനും അതിന്റെ തുടർച്ചയ്ക്കൊപ്പം മുമ്പോട്ട് നീങ്ങുവാനുമാണ് സമകാലിക എഴുത്തുകാരൻ എന്ന നിലയിൽ ബെന്യാമിൻ തുനിഞ്ഞിട്ടുള്ളത്. അനന്തമായ ജീവിതപ്രവാഹം നോക്കിക്കാണുവാൻ തുടിക്കുന്ന ഒരു ഹൃദയത്തിന്റെ ഉടമസ്ഥനാണ് പ്രവാസിയായ അദ്ദേഹം. വർത്തമാനകാല പ്രവാസജീവിതത്തിന്റെ ചില ദുരന്തങ്ങളും, അതോടൊപ്പം നവമാദ്ധ്യമങ്ങളുടെ കടന്നുവരവ് അറേബ്യൻ ജനതയിൽ വരുത്തിയ പരിവർത്തനങ്ങളും, ജീവിതത്തിൽ ഉണ്ടാക്കിയ വെല്ലുവിളികളും വർത്തമാനകാലത്തിനോടുള്ള പ്രതികരണമായി നോവലുകളുടെ ഭാവശില്പത്തിന് ഇത് മാറ്റ് കൂട്ടാൻ സാധിച്ചു., ആദിമദ്ധ്യാന്തപ്പൊരുത്തമുള്ള ഇതിവൃത്തമാണ് ബെന്യാമിൻ നോവലുകളെ ശ്രേഷ്ഠമാക്കി മാറ്റിയത്.

പുതിയ കാലത്തിന്റെ ആവശ്യങ്ങൾ ഉൾക്കൊള്ളുവാൻ ആ പഴയ രൂപത്തിന് കഴിയില്ല എന്ന തിരിച്ചറിവ് വരുമ്പോഴാണ് സാഹിത്യത്തിൽ സങ്കേതങ്ങളിലും ശൈലിയിലും ഭാഷയിലും മാറ്റം സംഭവിക്കുന്നത്. ഏറെ വ്യത്യസ്തത പുലർത്തുന്ന ആഖ്യാനശൈലിയാണ് കഥയ്ക്കുള്ളിലെ കഥയുമായി കടന്നുവന്ന ഇരട്ടനോവലുകൾ എന്ന വ്യാഖ്യാതി നേടിയ അൽ അറേബ്യൻ നോവൽ ഫാക്ടറിയും, മുല്ലപ്പൂനിറമുള്ള പകലുകളും. അറേബ്യൻ രാജ്യങ്ങളിൽ പൊട്ടിപ്പുറപ്പെട്ട മുല്ലപ്പൂവിപ്ലവത്തെ കേന്ദ്രീകരിച്ച് കഥ പറയുമ്പോൾ, വില്ല്യം സരോയൻ കഥയ്ക്കു നല്കിയ ''ഒരാൾ മറ്റൊരാളോട് പറയുന്ന നാതീദീർഘമായ സംവാദം''[1] എന്ന നിർവ്വചനം അക്ഷരാർത്ഥത്തിൽ നിറവേറുന്നത് കാണാൻ കഴിയുന്നുണ്ട്.

ആഗോളവത്ക്കരണത്തിന്റെയും, മത്സരാധിഷ്ഠിത വിപണിയുടെയും പുതിയ കാലഘട്ടത്തിൽ മനുഷ്യൻ നിലനില്പിനുവേണ്ടി പുതിയ മേച്ചിൽപ്പുറങ്ങൾ തേടുമ്പോൾ അഭിമുഖീകരിക്കുന്ന അതിജീവനപ്രശ്നം ഗുരുതരമാണ്. ''നവാധിനിവേശം കടലുപോലെ പരക്കുമ്പോൾ എല്ലാ ലഘു ആഖ്യാനങ്ങളും അതിൽ ലയിച്ച് സ്വത്വനഷ്ടരായി മാറുന്ന കാഴ്ചയാണ്''[2] വർത്തമാനകാല എഴുത്തിനെ ശ്രദ്ധേയമാക്കി മാറ്റാൻ കഴിഞ്ഞത്. അതിന്റെ പ്രതിധ്വനി ബെന്യാമിൻ കൃതികളിലും നിഴലിക്കുന്നതായി കാണാൻ കഴിയും.

Studies in Indian Place Names
(UGC Care Journal)

ISSN: 2394-3114
Vol-40-Issue-3-February-2020

2020

DIGITAL BRANDING AND ITS FACTORS AFFECTING CONSUMER BUYING BEHAVIOUR

Silgy Joseph Thannippara*
Research Scholar, Bharata Mata College, Thrikkakara
9895969714, email: silgyjoseph@gmail.com
Dr. Gimson D Parambil**
Associate Professor, St. Xaviers College, Vaikom
9447378244, Email: gdparambil@gmail.com

Abstract

Brands have always been the symbolic bearer of quality and differentiation for any products or services. Brands carry a very important position not in its names, signs and symbols but also are bearers of meaning, emotions, history and culture. Through this capacity of brands they are easily followed by people as they create personal identities and social relationships. Advancement in the technology has brought a major change in branding. The availability of products and services digitally has made it important for the companies to establish their brand digitally also. This concept of digital branding does not reduce the power of brands instead elevates it to a much higher level. It varies from digital marketing in the fact that it aims to create connection between the customer and the product. Digital Branding helps to provide support in acquiring customers, maintaining and retaining them and also build a good reputation among various digital venues in the market. It plays a major role in the brand building and consumer buying behavior. Consumer buying behavior is an important factor in marketing and it is very much necessary that the company is able to retain the customer and generate repurchase intention. In the present digital world where everything is purchased and even sold digitally consumers can be retained if companies are able to digitally brand their products or services. This paper aims at studying about what digital branding is, what are the effective ways of digital branding and which are the antecedents of digital branding affecting consumer buying behavior.

Keywords: Digital Branding, Consumer buying behavior, factors, aspects

PIMT Journal of Research
Volume-13, No.-1, (B) (October-December) 2020
PP: 25-28

UGC Care Listed Journal
ISSN No: 2278-7925

EFFECT OF GLASS CEILING ON WOMEN CAREER ADVANCEMENT

*Minnu Jaison **Gimson D. Parambil

*Research Scholar, P.G Department of Commerce and Research Centre, Bharata Mata College, Thrikkakara, Kerala, India

**Associate Professor and Research Guide, P.G Department of Commerce, St. Xavier's College, Vaikom, Kerala, India

ABSTRACT

During the last decade, the presence of women in the work space is drastically increasing. But only a few of them comes in leadership position. The objective of this paper is to review the studies to understand the concept of glass ceiling which is the by-product of gender bias. The study also investigates the barriers of glass ceiling that effect on the career advancement of women. Exploratory research design is used to study the effect of glass ceiling on the career advancement of women. Data for the study is collected from secondary source through systematic review of literature. The study find that glass ceiling still exist globally. Psychological factors, individual factors, societal factors, organizational factors and governmental factors are the barriers that hinder the career advancement of women employees. The findings of the study help in formulating new policies and programs for the career development of women.

KEYWORDS: Glass Ceiling, Barriers, Women Employees

INTRODUCTION

By the dawn of twenty first century enormous changes has witnessed in the status of Indian women. In the past decade the women concentrate and put their all efforts on domestic work and child bearing and child rearing (Williams & Cooper, 2004). Today women established their own identity in all the spheres of life. The social system prevailing in the country now promises an equal opportunity for men and women. With the advancement of women in higher education, successful women entrepreneurs and women working outside the home have resulted in the presence of women in different employment sectors. The mindsets of millennial women have changed drastically.

Nowadays the entry is easier for women in a male dominated working world. Even though the number of women employees in the work force is increasing, but women's access to top position is still limited (Stelter, 2002). As per World Economic Forum (2020) Global Gender Gap Report gender gap tend to increasing with seniority level. Globally, only 36 percent of senior private sector managers and public sector managers constitute women, while the representation of women as leader in business or corporate boards is even limited. Only 18.2 percent of firms are globally led by women. Even in emerging economies like India and China representation of women in senior level is only 13.8 percent and 9.7 percent respectively.Women constitutes a significant portion in the work force of India, but hardly present in the top level management. As compared to men challenges for women employees still exist in work place. Due to certain invisible barriers they can't reach higher position at their work.

One of the emerging concept of human resource management is glass ceiling, a concept that focus on under representation of women in organizations. The term is first used by American work force to explain the barriers of women in American corporates in 1986 by Carol Hymowitz and Timothy D. Schellhradt is popularized through famous Wall Street Journal. However the term was used prior to that by Gay Bryant in 1984 in a book "The Working Women Report". The U.S Department of Labour in 1991 declared that women and minorities facing glass ceiling in their career. The term glass is an invisible one and the ceiling represent the top level. Thus, the term glass ceiling denotes the invisible barriers that thwarts individual from advancing upper level in their organization. This type of gender bias keeps women employee to stick on the floor level. Glass ceiling prevents large number of women from securing prestigious and dream jobs in their career.

LITERATURE REVIEW

The gender gap in authority reflect the existence of glass ceiling which means that women have less authority than men (Baxter &Wright, 2000).Glass ceiling is a symbolic hurdle to career progression not a formal or visible barrier (Barreto et al., 2009). Job ladder, personal policies, inactive employment regulations and gender inequality are the forces that lead to glass ceiling effect. Glass ceiling does exist as another version of gender inequality (Cotter, 2001). While moving to top position women are denied because they give much importance to their family. This resulted in deficiency in their work (Tennant &Tennant, 2008). The lack of awareness of women about the unseen obstacles and difficulties in the work place make their way to top management stagnant (Virakul, 2010).

The lack of upward movement of women in job is either because of individual or personal centered or situational or nature of work environment (Riger & Galligan, 1980). Along with this organizational culture, organizational networking and organizational practices have significant impact on the career growth of women employee (Jauhar &Lau, 2018). Organizational structure and organizational practices and beliefs and traditions influences the employee development (Bombuwela & De Alwis, 2013). Societal factors considered as a major barrier in career advancement of women. Women's perception about themselves and management's perception

Environmental Science and Pollution Research
https://doi.org/10.1007/s11356-019-07569-7

RESEARCH ARTICLE

Rapid sunlight-driven mineralisation of dyes and fungicide in water by novel sulphur-doped graphene oxide/Ag_3VO_4 nanocomposite

Ragam N. Priyanka[1] · Subi Joseph[1] · Thomas Abraham[1] · Neena J. Pathanam[1] · Beena Mathew[1]

Received: 9 October 2019 / Accepted: 20 December 2019

Abstract

A semiconductor photocatalyst was prepared in facile, standard conditions by integrating 1% metal-free, sulphur-doped graphene oxide (sGO) as cocatalyst and Ag_3VO_4 as photocatalyst and characterised via spectroscopic, microscopic and voltammetric techniques. The catalytic activity was performed on notable water pollutants like textile dyes and fungicide employing various techniques. Cationic dyes such as methylene blue and rhodamine B were degraded > 99% with above 90% organic carbon content removal indicating total mineralisation while anionic dyes were degraded 75–80% in 1 h. For the first time, a dithiocarbamate fungicide thiram is degraded to give thiourea as a product in 1 h. Photocatalysis follows pseudo-first order kinetics with rate 3.67, 49.50 and 3.19 times higher than Ag_3VO_4, sGO and GO-Ag_3VO_4 respectively with excellent stability and recyclability. One percent sGO aided excellent carrier separation boosted by electrons and surface defects from sGO, morphology and *n*-*n* heterojunction formation. The catalyst efficiently removed 82.8% of the total organic carbon content of a real water sample from the textile mill under 2-h sunlight irradiation.

Keywords Photocatalysis · Metal-free cocatalyst · Carrier separation · *n*-*n* Heterojunction · Pollutant treatment · Textile industry effluent treatment

Introduction

Water pollution roots serious negative impacts on humans as well as the environment. The sewage from the industrial, agricultural and urban area containing pesticides, fungicides, dyes, paints, and gasoline as well as many kinds of bacteria blends with water in lakes and distresses the ecosystem due to their contamination. To cope with this contamination, several researchers focused on the degradation of contaminants in industrial, agricultural and urban wastewater via photocatalysis, and one of the most powerful systems used for nearly four decades is the inexhaustible sunlight-induced photocatalysis. Quite few visible light active photocatalysts are available where metal-based catalysts are found to be in the apex. In the past few decades, TiO_2 and ZnO were seen as the renowned photocatalysts while they possess several limitations such as wide bandgap energy and fast charge recombination (Ng et al. 2019; Peláez et al. 2012; Cao et al. 2013; Ong et al. 2018; Lee et al. 2016; Mohd Adnan et al. 2016; Bai et al. 2017). To reduce the bandgap for utilising maximum sunlight, silver-based photocatalysts are highly useful owing to their surface plasmon resonance (An et al. 2016; Ta et al. 2019; Zhao et al. 2019a). Among the silver-based photocatalysts, like silver oxides and halides, silver vanadates are found to have a good impact in recent research (González-Zavala et al. 2018; Guo et al. 2018; Chen et al. 2019).

Metal-based photocatalysts are recently used as composites with other photocatalysts called as cocatalysts so as to deal with their limitations such as less solar energy consumption, low life of charge carriers, low quantum efficiency and poor stability (Jiang et al. 2016; Zhao et al. 2002; Li et al. 2018a). Halides, oxides and other salts of metals like Ag, Bi, Fe and Co are the recognised metallic cocatalysts employed in recent years for several applications (Pica 2019; Fan et al. 2015; Cao et al. 2019; Akhundi and Habibi-Yangjeh 2016; Lashkaryani et al. 2019). From the environmental perspective, non-metallic cocatalysts are preferred over metallic since the latter are

Responsible Editor: Suresh Pillai

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11356-019-07569-7) contains supplementary material, which is available to authorized users.

✉ Beena Mathew
beenamsc@gmail.com

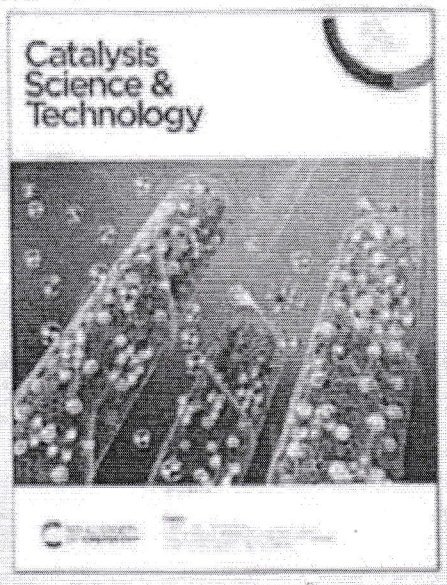
[1] School of Chemical Sciences, Mahatma Gandhi University, Kottayam, Kerala 686560, India

Published online: 10 January 2020

Catalysis Science & Technology

Accepted Manuscript

This article can be cited before page numbers have been issued, to do this please use: P. Ragam N. S. Joseph, T. Abraham, N. J. Puthanam and B. Mathew, *Catal. Sci. Technol.*, 2020, DOI: 10.1039/D0CY00104J.



Sci. & Soc. 18(2) 117-124, 2020

ISSN 0973-0206

Chlorine Induced Respiratory Stress on *Oreochromis niloticus*

Arun A.U.*, Aiswarya Raj[1], Shalu Soman[2], Reemy Sara Mathai[3], Blessy Rajan[4] and Revathy R.[2]

*Department of Zoology, St.Peter's College, Kolencherry, Kerala
[1]Department of Zoology, St.Peter's College, Kolenchery, Kerala
[2]Department of Zoology, Nirmala College, Muvattupuzha, Kerala
[3]Department of Zoology, Marthoma College for women, Perumbavoor, Kerala
[4]Department of Zoology, St.Xavier's College, Vaikom, Kerala

Received on 3 November 2020; Accepted on 10 December 2020

Abstract

The present emphasis on environmental preservation and human health is resulting in an increased use of chlorine for disinfection and waste water treatment. Increased use of chlorine and present study of chlorine toxicity in aquatic organisms have emphasized the need for close scrutiny of present disinfection procedures. Breathing rate of *Oreohromis niloticus* in control was found to be stable and the average value in a minute was 123. It was noted that as the dosage concentration of chlorine increases the rate of gill movement decreases gradually. A significant negative correlation was noted between dosage concentration and gill movement. The average gill movement varied from 123 in the control to 64 in 20 ppt. It was found that as the concentration of chlorine increases the amount of oxygen consumption is also increases. Average value showed a clear trend of increased rate of oxygen consumption with that of increased level of chorine in the medium. The oxygen consumption was varied between 0.0117 mg/ml/gm body weight in control to 0.01975 mg/ml/gm body weight in 20 ppt of Chlorine.

Key words: Chlorine, *Oreochromis niloticus*, Oxygen consumption, Gill movement, Breathing rate

Introduction

Water is essential to sustain life, and a satisfactory (adequate, safe and accessible) supply must be available to all. Improving access to safe drinking-water can result in tangible benefits to health. Every effort should be made to achieve a drinking-water quality as safe as practicable. The destruction of microbial pathogens is essential and very commonly involves the use of reactive chemical agents such as chlorine. Disinfection is an effective barrier to many pathogens (especially bacteria) during drinking-water treatment and should be used for surface waters and for groundwater subject to faecal contamination (WHO, 2006). Chlorine is the most widely used primary disinfectant and is often used to provide residual disinfection in the distribution system. The near universal adoption of this method can be attributed to its convenience and to its highly satisfactory performance as a disinfectant, which has been established by

ISSN : 0974 - 8482

Promoting Research

The ORISSA JOURNAL OF COMMERCE

U.G.C CARE Listed, Group-I, A Peer Reviewed and Referred Journal

Volume XXXXI | July-September 2020 | Issue No – III

A Publication of Orissa Commerce Association

Journal's Website: www.ojcoca.org, E-Mail id: malay@ojcoca.org

Studies of Vapour Permeation of Chlorinated Hydrocarbons Through Natural Rubber-Clay Nanocomposite Membranes

Sharika Nair[1,2], Jogitha PG[1], Sreelakshmi Rajeevan[1], Soney C George[1,2,*]

[1]*Centre for Nanoscience & Technology, Dept of Basic Sciences, Amal Jyothi Engineering College, Kanjirapally, Kerala, India*

[2]*International and Interuniversity Centre for Nanoscience & Nanotechnology, Mahatma Gandhi University, Kottayam, P.D Hills P.O India*

Abstract: Natural Rubber/ clay nanocomposite membranes were prepared by blending on a two-roll mill followed by compression moulding in a hydraulic press. Vapour permeation studies were conducted with various chlorinated hydrocarbons for the characterization of membrane. Special attention has been given to the effect of clay concentration, type of clay, size of penetrant and type of vulcanization on the vapour transport behaviour of composites. It was found that permeability is low at higher clay concentration and also the permeability coefficient decreases with increase in penetrant size. Peroxide vulcanized membrane exhibit lowest vapour permeability than conventionally and efficiently vulcanized membrane, which can be attributed to the higher crosslink density of peroxide vulcanized membranes. The effect of clay concentration on the sorption and diffusion behaviour of composites is also investigated.

Keywords: Natural rubber, Clay, Vapour permeation.

INTRODUCTION

Vapour permeation is an efficient membrane-based process has now emerged as new industrial technology and is considered as an alternative to pervaporation process. Compared to pervaporation, the effective membrane area requirement is lower for vapour permeation process [1]. Also, the feed is a vapour and not a liquid, so there is no phase change or significant temperature difference across the membrane. The permeation of vapours through an organic membrane, such as a polymer film, is a complex process that consists of four processes: the sorption of vapour molecules on the surface of the membrane; the dissolution of the vapours inside the membrane; the diffusion through it; and, finally, the desorption of vapours from the other surface of the membrane [2]. The establishment of a chemical potential gradient due to the difference in the partial pressures of permeate across the membrane is the driving force for the mass transfer of permeate from the feed side to the permeateside of the membrane [3]. The investigation on permeability and selectivity of a membrane is important to determine the structure-property relationship in polymer nanocomposites and is found to be a good technique for characterizing the composites [4]. Hence it helps to determine the fundamental functions for practical applications of the composite membrane. Permeability determine the usage of polymer as a barrier material for various applications. Besides these advantages, a study of solvent vapour permeation offers direct practical conclusions for the understanding and rational design of volatile organic components (VOC) vapour recovery from contaminated air streams, opportunities for energy saving, solvent reuse, and can also be used for separation of azeotropic mixture [5]. In order to obtain a good permeation rate and a high degree of separation for a feed mixture, it is essential to choose the right membrane as well as the optimum operating conditions [6].

Polymer-clay nanocomposites are hybrid composite materials in which the clay particles are dispersed in polymer matrix [7]. Nanoclays, such as montmorillonite, hectorite, bentonite etc. provide nanoscale dispersion of the inorganic phase within the polymer matrix and have been widely used as an inorganic reinforcement for polymer matrices [6]. For true nanocomposites, the clay nanolayers must be uniformly dispersed (exfoliated) in the polymer matrix, as opposed to being aggregated as tactoids or simply intercalated [8]. When nanolayers have been exfoliated, the improvement in properties can be seen as an increase in tensile properties, as well as enhanced barrier properties, decreased solvent permeability, and increased thermal stability and flame retardance [9]. Nanoscale structure effects and the interaction between inorganic and organic materials are responsible for these enhanced properties in polymer matrix [10]. A multitude of packaging and adhesive applications have rendered

*Address correspondence to this author at the Centre for Nanoscience & Technology, Dept of Basic Sciences, Amal Jyothi Engineering College, Kanjirapally, Kerala, India; Tel: 944 78 70 319;
E-mail: soneygeo@gmail.com

E-ISSN: 2410-1869/20

NJC

PAPER View Article Online

Cite this: New J. Chem., 2019, 43, 10618

In situ S-doped ultrathin gC_3N_4 nanosheets coupled with mixed-dimensional (3D/1D) nanostructures of silver vanadates for enhanced photocatalytic degradation of organic pollutants†

Subi Joseph,[a] Sinoj Abraham,[b] Ragam N. Priyanka,[a] Thomas Abraham,[a] Arya Suresh[a] and Beena Mathew[a]*

A novel plasmonic Z-scheme sulphur doped $gC_3N_4/Ag_3VO_4/\beta$-$AgVO_3$/Ag (SGA-x) hybrid quaternary photocatalyst was successfully fabricated via the ultrasonic assisted Kirkendall effect and diffusion processes followed by low temperature phase conversion. The obtained samples were characterized by X-ray diffraction, scanning electron microscopy, transmission electron microscopy, UV-vis diffuse-reflectance spectroscopy (UV-vis DRS) and X-ray photoelectron spectroscopy. The photocatalytic activities of the obtained photocatalysts were measured by degradation of methylene blue (MB), methyl orange (MO) and 2,4-dichlorophenoxy acetic acid (2,4-D) under visible-light irradiation. Among the composites with various levels of β-$AgVO_3$, SGA-7 exhibited the highest degradation efficiency with 95.45% MB degradation for 30 min which was about 1.47 times higher than that of S-gC_3N_4/Ag_3VO_4 (SGA). The inter-particle electronic coupling in hollow nanoflower leads to self-narrowing of the band gap of Ag_3VO_4. Moreover, electrochemical impedance spectroscopy (EIS) and photoluminescence (PL) spectral analysis indicate that the introduction of a minute amount of β-$AgVO_3$ by low temperature phase conversion of Ag_3VO_4 could efficiently promote the separation efficiency of photogenerated charge carriers. This enhanced photocatalytic activity is attributed to the synergistic effects of heterostructured semiconductor photocatalysis, increased surface area, improved utilization of solar light due to a hollow structure, decreased photocorrosion and the surface plasmon resonance (SPR) of Ag nanoparticles (NPs). Besides, trapping experiments implied that holes and $^{\bullet}O_2^-$ were the predominant active species during the degradation process. A possible combination of conventional and Z scheme mechanisms of enhanced photocatalytic activity of SGA-7 is proposed.

Received 15th March 2019,
Accepted 6th June 2019

DOI: 10.1039/c9nj01353a

rsc.li/njc

Introduction

Semiconductor photocatalytic processes have shown great potential as a low-cost, environmentally favourable, and sustainable treatment technology, to align with the "zero" waste scheme, capable of surmounting two global problems of the whole world i.e. "Energy and Water". Traditional photocatalysts such as TiO_2, ZnO, and SnO_2 are active exclusively in the ultraviolet region due to their wide band gap (~3.0 to 3.4 eV) and are capable of utilizing only 5–7% of the solar spectrum. Visible-light-responsive photocatalysts attract great attention because they can harvest and potentially utilize more sunlight than conventional photocatalysts. The engineering of both the morphology and chemical composition by designing a heterojunction is of significant importance in enhancing the photocatalytic activity.

In the carbon nitride family, 2D metal-free graphitic carbon nitride (g-C_3N_4) has received much attention due to its interesting electronic properties, potential catalytic activities, high in-plane nitrogen content and ecofriendly features, which has been investigated in the field of photocatalysis, CO_2 reduction and other energy conversion processes.[1–3] Although g-C_3N_4 is visible light active, its photocatalytic activity is low due to the high recombination rate of photogenerated electron–hole pairs. The band gap of g-C_3N_4 is about 2.7 eV, which can absorb visible light up to 430 nm. The efficiency can be proliferated by decreasing the band gap by doping with non-metals.[4–6] Since the electronegativity of sulphur is lower than that of the substituted carbon or nitrogen atom, the dopant anion has a radius comparable to that of the

[a] School of Chemical Sciences, Mahatma Gandhi University, Kottayam 686560, Kerala, India. E-mail: beenamathew@gmail.com
[b] Mechanical Engineering Department, University of Alberta, Edmonton, Alberta, Canada T6G 2V4. E-mail: sinoj@ualberta.ca

† Electronic supplementary information (ESI) available: XRD patterns showing the formation of β-$AgVO_3$, HPLC chromatograms for the degradation of MB, MO and 2,4-D, comparison of the photocatalytic activity of SGA-7 with previous literature, TOC, and the scavenger effect. See DOI: 10.1039/c9nj01353a

Applied Surface Science 495 (2019) 143478

Contents lists available at ScienceDirect

Applied Surface Science

journal homepage: www.elsevier.com/locate/apsusc

Full length article

S-rGO modified sulphur doped carbon nitride with mixed-dimensional hierarchical nanostructures of silver vanadate for the enhanced photocatalytic degradation of pollutants in divergent fields

Subi Joseph[a], Sinoj Abraham[b], Thomas Abraham[a], Ragam N. Priyanka[a], Beena Mathew[a,*]

[a] School of Chemical Sciences, Mahatma Gandhi University, Kottayam 686560, Kerala, India
[b] Mechanical Engineering Department, University of Alberta, Edmonton, Alberta T6G 2V4, Canada

ARTICLE INFO

Keywords:
Photocatalysis
Hollow nanoflowers
Kirkendall effect
Surface Plasmon resonance
S-rGO
gC_3N_4

ABSTRACT

A sheet on sheet (2D/2D) structure of highly conductive S-rGO on S-gC_3N_4 promote effective transfer of electrons for Cr(VI) reduction and subsequent degradation of organic pollutants. The photocatalytic activity of the 2D/2D hybrid material is significantly increased by the decoration of α-Ag_3VO_4 hollow nanoflowers through extensively assisted Kirkendall effect. The inter-particle electronic coupling in hollow nanoflower leads to self-narrowing of the band gap. The in-situ fabrication of β-$AgVO_3$ nanowires to form a quaternary catalyst enhanced the photocatalytic activity and corrosion inhibition by supporting a combined conventional and Z-scheme mechanism. This enhanced photocatalytic activity is due to the synergistic effects of heterostructured nanomaterials photocatalysis, increased surface area, improved utilization of solar light due to hollow structure, decreased photocorrosion and the surface plasmon resonance(SPR) of Ag^0. The photocatalytic activities of S-gC_3N_4/S-rGO/Ag_3VO_4/$AgVO_3$(50O-80A-x) composite photocatalysts were measured by the degradation of methylene blue (MB), methyl Orange(MO), 2,4-dichlorophenoxy acetic acid(2,4-D) and Cr(VI) reduction under visible-NIR irradiation. Electrochemical impedance spectroscopy (EIS) and photoluminescence (PL) spectral analysis indicated that the in-situ formation of β-$AgVO_3$ from Ag_3VO_4 could efficiently promote the separation efficiency of photogenerated charge carriers. Our present work indicated that the photocatalytic activity can be significantly enhanced by judiciously designing the semiconductor nanomaterials.

1. Introduction

The deterioration of biological, chemical and physical characteristics of water through natural and anthropogenic activities became harmful to human beings, plants, and animal communities. Water contamination due to organic pollutants and heavy metals is a matter of great concern as they have many adverse effects. Among the organic pollutants and heavy metals, pesticides, organic dyes and hexavalent chromium (Cr (VI)) are highly toxic. Pesticides like 2,4-dichlorophenoxy acetic acid (2,4-D) [1] and organic dyes are generally stable to light, heat and oxidizing agents. They induced various cytotoxic, genotoxic, mutagenic and carcinogenic effects. The minor occurrence of them in surface water might cause a detrimental effect on aquatic life. Contamination by chlorinated compounds is one of the most serious environmental problems. Apart from other common heavy metals, chromium primarily exists in two oxidation states, Cr(VI) and Cr(III) [2]. Cr(VI) had been classified as more carcinogenic, soluble and mobile than Cr(III). The majority of treatment methods employed at the present time utilize geofication of Cr(VI) by its reduction to Cr(III) and formation of insoluble Cr(III) compounds which were then removed. Plenty of methods like chemical precipitation [3], adsorption [4,5], membrane filtration [6,7] and photocatalysis have been reported for the wastewater treatment. Among them the most effective, economical, and environment-friendly "green" route for the treatment of wastewater is photocatalysis.

As a visible-light-responsive polymer, graphitic carbon nitride has attracted considerable attention because of its high chemical and thermal stabilities, characteristic layered structure, high surface area, easy synthesis, and low cost. Because of the high electrical conductivity, high surface area, great mechanical strength, rich surface chemistry, and optical absorption properties, graphene could improve the photocatalytic performance of gC_3N_4 [8–10]. Doping of GO with sulphur, which has the similar electronegativity of carbon, is effective in modifying the electronic arrangement of graphitic lattice by introducing

* Corresponding author.
E-mail addresses: [illegible]@alberta.ca (S. Abraham), [illegible]@gmail.com (B. Mathew).

https://doi.org/10.1016/j.apsusc.2019.07.220
Received 6 March 2019; Received in revised form 23 July 2019; Accepted 25 July 2019
Available online 27 July 2019
0169-4332/

Composites Part B 173 (2019) 106798

Contents lists available at ScienceDirect

Composites Part B

journal homepage: www.elsevier.com/locate/compositesb

Excellent electromagnetic shield derived from MWCNT reinforced NR/PP blend nanocomposites with tailored microstructural properties

T. Sharika [a,d], Jiji Abraham [a], Mohammad Arif P [a], Soney C. George [a,b], Nandakumar Kalarikkal [a], Sabu Thomas [a,c,*]

[a] International and Interuniversity Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Priyadarshini Hills P.O., Kottayam 686 560, Kerala, India
[b] Centre for Nanoscience and Nanotechnology, Amal Jyothi College of Engineering, Koovapally P.O., Kottayam, Kerala 686518, India
[c] School of Chemical Sciences, Mahatma Gandhi University, Priyadarshini Hills P.O., Kottayam 686 560, Kerala, India
[d] Department of Chemistry, St.Xavier's College Vaikom, Kothavara P.O, Kottayam 686607, Kerala, India

ARTICLE INFO

Keywords:
Natural rubber
Polypropylene
Selective localization
Droplet morphology
Co-continuous morphology
EMI shielding

ABSTRACT

Blends of polypropylene (PP) and natural rubber (NR) with different loadings (1,3,5 &7 wt%) of multiwalled carbon nanotubes (MWCNTs) were prepared by melt blending process to design a nanocomposite with tunable electromagnetic interference (EMI) shielding performance. Scanning electron microscopy (SEM) studies show that the addition of MWCNTs changes the droplet morphology into quasi co-continuous morphology for PP/NR 80/20 (wt/wt) blend system. However there is a refinement in the co-continuous morphology of PP/NR (50/50) by the addition of MWCNTs. The effects of the blend morphology and selective localization of MWCNTs on the dielectric, electrical properties and EMI shielding performance were systematically investigated. The largely enriched dielectric performance originates from the interfacial polarization of MWCNTs within the polymer. It is understood that the shielding performance significantly enhanced due to the selective localization of MWCNTs in the NR phase that provided high conductivity and heterogeneous dielectric media with multiple interfaces. The blend nanocomposites show a shielding effectiveness of ca.29 dB at 3 GHz for 7 wt% of MWCNT loading.

1. Introduction

Electromagnetic interference (EMI) is a major concern in the present era because of the radiation emitted from electrical equipment and devices are ubiquitous sources of severe pollution. Since these radiations are harmful to human beings and can damage precise electronic circuitry, developing a material that can block these EM radiations became an urgent necessity for the researchers [1]. Thus rapid growth in electronic equipment and telecommunication devices has led to the demand for high performance electromagnetic interference (EMI) shielding materials [2,3]. A good shielding material must be capable to shield both incoming and outgoing radiation [4] And their ability to block electromagnetic waves depends on materials electrical conductivity, permittivity and permeability. Use of metals as conventional shielding materials is very much restricted because they have disadvantages like high density, high cost, processing difficulty, and chance for corrosion. Further, EM radiation is not fully eliminated because EM waves are reflected from the metal surface and interfere with nearby devices, causing further interference. Recently, polymer composites have gained popularity because of their light weight, resistance to corrosion, structural flexibility, superior processability which can be further tuned based on user needs compared with traditional metal based structures [5].

Polymeric materials are transparent to electromagnetic radiations because of their electrically insulating and non-magnetic nature. The best strategy to overcome this problem consists of dispersing electrically conductive fillers or intrinsically conducting polymers within polymer matrices. Attenuation of EM wave by polymer composites is through combination of absorption, reflection, and multiple reflections rather than reflection which is dominant in the case of metals [6]. Even though addition of very high concentration of conducting reinforcements helps to attain very high electrical conductivity it deteriorates the overall mechanical performance of the composites. Moreover for better processing and cost saving the realization of a high shielding effectiveness at a low filler loading is desired. In this context incorporation of MWCNT can lead to a revolutionary change owing to their ability to form three dimensional interconnected network structures at very low loadings.

* Corresponding author. International and Interuniversity Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Priyadarshini Hills P.O., Kottayam 686 560, Kerala, India.
E-mail address: sabupolymer@yahoo.com (S. Thomas).

https://doi.org/10.1016/j.compositesb.2019.05.009
Received 21 November 2018; Received in revised form 30 March 2019; Accepted 5 May 2019
Available online 6 May 2019

WOMEN ENTREPRENEURIAL DEVELOPMENT IN MSME

Ajay Joseph*
Dr Gimson D Parambil **

*(Assistant Professor, Bharata Mata College, Thrikkakara and Research Scholar Nirmala College Muvattupuzha)

**(Associate Professor, St Xaviors College Vaikom and Research Guide, Bharata Mata College, Thrikkakara)

Abstract

Promotion of Women Entrepreneurship is a vital issue for several countries including India. Micro, Small and Medium Enterprises (MSMEs) play a vital role in the development of Women entrepreneurs. This paper focus on the role played by MSMEs in encouraging and developing women as entrepreneurs. MSMEs aims to enhance competitiveness, technology improvement, adoption of best manufacturing practices, marketing of products, employment generation for building women entrepreneur. The study throws lights to the problems faced by the women and how MSMEs helps them to overcome those problems. Sample sizes of 50 respondents were selected for the study. The findings of the study shows that increased participation of MSMEs help to women entrepreneur to overcome the problems faced by them.

Key words: Women Entrepreneurial Development, Micro Small and Medium Scale Enterprises, Problems of Women Entrepreneurs.

Introduction

The micro, small and medium scale enterprises (MSMEs) have been generally acknowledged as the bedrock of the industrial development of any country. The micro, small and medium enterprises (MSMEs) sector in India has a very pivotal role to play in the development of the country. In India, MSMEs are the second largest source of employment after agriculture. They account for almost 40 per cent of industrial production, 95 per cent of the industrial units, 34 percent of the exports and manufacture over 6000 products. This sector produces a mélange of industrial **products** such as food products, beverage, tobacco and goods produced from it, cotton textiles and wool, silk, synthetic products, jute and jute products, wood and wood products, furniture and fixtures, paper and goods produced from it. Other services also include machinery, apparatus, appliances and electrical machinery. This sector also has a large number of growing service industries.

Women Entrepreneurs: Current Scenario

Entrepreneurship amongst women has been a recent concern. Women Entrepreneurs may be defined as the women or a group of women who initiate, organize and operate a business enterprise. Government of India has defined women entrepreneurs as an enterprise owned and controlled by a women having a minimum financial interest of 51% of the capital and giving at least 51% of employment generated in the enterprise to women. Like a male entrepreneurs a women entrepreneur has many functions. They should explore the prospects of starting

AN EVALUATION OF RESPONSIBLE TOURISM INITIATIVES IN KUMARAKOM

Ajay Joseph*
Dr Gimson D Parambil **

*(Assistant Professor, Bharata Mata College, Thrikkakara and Research Scholar Nirmala College Muvattupuzha)

**(Associate Professor, St Xaviors College Vaikom and Research Guide, Bharata Mata College, Thrikkakara)

Abstract

Responsible Tourism conceived with three kinds of responsibilities which are termed as the 'triple bottom-line' - economic responsibility, social responsibility and environmental responsibility. Responsible Tourism encompasses all forms of tourism and seeks to minimize negative economic, environment and social impacts. It generates greater economic benefits to local people and enhances the well-being of local communities. The concept of responsible tourism show successful developments in social, economic and environmental sphere of tourism in Kerala. Kumarakom was honored by Ministry of Tourism, Govt of India for the best Responsible Tourism initiative in Kerala and it also bagged the national award for rural tourism. Kumarakom became a model for other destinations with their initiatives with strong support from local self-government, kudumbasree groups, farmers and industry partners. The study attempts to evaluate the various initiatives that stimulated the growth of responsible tourism in Kumarakom and the level of satisfaction among the local people as regards various responsible tourism initiatives.

Key Words: Responsible Tourism, Socio Economic Factors.

Introduction

Responsible Tourism conceived with three kinds of responsibilities which are termed as the 'triple bottom-line' - economic responsibility, social responsibility and environmental responsibility. Responsible Tourism encompasses all forms of tourism and seeks to minimize negative economic, environment and social impacts. It generates greater economic benefits to local people and enhances the well-being of local communities. The concept of responsible tourism show successful developments in social, economic and environmental sphere of tourism in Kerala. Kumarakom was honored by Ministry of Tourism, Govt of India for the best Responsible Tourism initiative in Kerala and it also bagged the national award for rural tourism. Kumarakom became a model for other destinations with their initiatives with strong support from local self-government, kudumbasree groups, farmers and industry partners. The study attempts to evaluate the various initiatives that stimulated the growth of responsible tourism in Kumarakom and the level of satisfaction among the local people as regards various responsible tourism initiatives.

2019

EFFECTIVENESS OF MARKETING ASSISTANCE SCHEMES OF MSME'S

Ajay Joseph*
Dr Gimson D Parambil **
*(Assistant Professor, Bharata Mata College, Thrikkakara and Research Scholar Nirmala College Muvattupuzha)
**(Associate Professor, St Xaviors College Vaikom and Research Guide, Bharata Mata College, Thrikkakara)

Abstract

Micro and Small (MSEs) play an important economic role in many countries. The purpose of this is to know the effectiveness of Marketing Assistance Scheme towards the MSME's in Ernakulum and Thrissur districts. Marketing Assistance Scheme is enriched with various programs to uplift the MSME's such as enabling buyer-seller meet, conducting different kinds of exhibitions for the promotion and marketing of their products and services. Sample sizes of 50 respondents were selected for the study. So from the study it is observed that MSME's marketing issue is not solved with the emergence of Marketing Assistance Scheme because of the lack of awareness and coverage about this scheme. So from the study it is observed that MSME's marketing issue is not solved with the emergence of Marketing Assistance Scheme because of the lack of awareness and coverage about this scheme. Making proper awareness about this scheme can uplift the functioning of various MSME's situated in Ernakulum and thrissur districts.

Key words: MSMEs, Marketing Schemes, Problems, Effectiveness

Introduction

MSE's have been regarded as the engine of economic growth and development all over the world. Today, MSE's constituting nearly about 90% of the total enterprises in most of the economies (mainly developing economies) which creates marvelous employment opportunities and are accounting major share of exports & industrial production. In India, MSE is generally referred to as MSME i.e Micro Small Medium Enterprises. This sector plays an important role in the growth in the growth of GDP in the economy as it creates employment opportunities at lower cost. In India, MSMEs are the second largest source of employment after agriculture. They account for almost 40 per cent of industrial production, 95 per cent of the industrial units, 34 percent of the exports and manufacture over 6000 products. This sector produces a mélange of industrial products such as food products, beverage, tobacco and goods produced from it, cotton textiles and wool, silk, synthetic products, jute and jute products, wood and wood products, furniture and fixtures, paper and goods produced from it. Other services also include machinery, apparatus, appliances and electrical machinery. This sector also has a large number of growing service industries.

A STUDY ON SOCIO-ECONOMIC IMPACT OF CO-OPERATIVES WITH SPECIAL REFERENCE TO CHERTHALA TALUK

Mrs. Anju T. A.
Asst. Professor,
St. Xavier's College, Vaikom.

ABSTRACT

Co-operative movement in India is considered to be one of the largest movements in the world. The most important challenge faced by the developing countries is to reduce the existing levels of poverty, unemployment and inequalities of income and wealth. For achieving these objectives, social and economic development is one of the important instruments. The co-operative movement has been recognized as an important instrument for the socio-economic development of the rural masses and poor.Socio-Economic progress of our country largely depends upon the co-operative societies, as majority of the population lives in villages. The present study has been carried out to know the socio-economic impact of co-operatives of beneficiaries with special reference to Cherthala Taluk. There are number of co-operative organisations functioning at Cherthala and many families are actively involved in it and enjoying its benefits. It is found that both social and economic factors have positive effect but the social factors have greater effect on the quality of life of beneficiaries.

contents

Editor's Note

History Research Journal

ISSN: 0976-5425

Vol-5-Issue-6-November-December-2019

Use of Scholarly Communication Networks and Social Networking Services in Research in Mahatma Gandhi University, Kottayam, Kerala

Princy D Nellanat
Librarian, Mar Athanasius International School, Kothamangalam
Ernakulam, Kerala, India

Abstract

In sociology, social interaction is the process by which a member/ members of society act and react to other members. It includes the action that is done and the reaction that is received. While interaction signifies a wider purview, communication is more specific that involves exchange of information. Prior to modern communication technologies, people used either broadcast media, such as television, radio and newspapers, or private communication tools like telephone. But these methods lack group-based interactions. With the advent of the internet, this polarisation between public and private media started to change.

Social media has not only affected the daily modes of interaction between individuals, but has also influenced teaching, learning, and research. Social media websites and messaging applications, which allow personal as well as group interaction, improved the communication between the faculty members, and research scholars across the globe. Along with research collaboration tools like Authorea, Dropbox Paper, Google Docs, Overleaf, PubPub etc. and scholarly communication networks like ResearchGate, Academia.edu etc., popular social networking services like Facebook, Twitter, LinkedIn etc. and messaging applications like WhatsApp, Telegram etc. more or less plays a vital role in scholarly communication. The study aims to analyze the usage and impacts of social media among the research scholars under Mahatma Gandhi University, Kottayam. Review of literature, collection of data from primary and secondary sources, etc. are the key references of the study.

Keywords: social media, research, collaboration tools, scholarly communication

---

"Man is by nature a social animal; an individual who is unsocial naturally and not accidentally is either beneath our notice or more than human. Society is something that precedes the individual. Anyone who either cannot lead the common life or is so self-sufficient as not to need to, and therefore does not partake of society, is either a beast or a god. "

A STUDY ON INVESTMENT BEHAVIOUR OF PROFESSIONALS

2018

Dr Gimson D Parambil *
Ajay Joseph**
Vipin Joseph***
*(Associate Professor, St Xaviors College Vaikom and Research Guide, Bharata Mata College, Thrikkakara)
**(Assistant Professor, Bharata Mata College, Thrikkakara and Research Scholar Nirmala College Muvattupuzha)
***(Student, St Xaviors College Vaikom;)

Abstract: ***This study deals with the Investment Behaviour of Professionals with special reference to Ernakulum. According to Henry Ford "The highest use of capital is not to make more money, but to make money do more for the betterment of life". This study aims to understand the difference in perception of professionals to various investment alternatives. The present study cover various factors related to investment behaviour such as the level of awareness, motivational factors, factors influencing the investment decisions, the long and short term goals of investment and recent trend of investments of professionals . The study reveals the fact that the majority of the respondents have only low level of savings. Besides, they are given more importance to bank deposit and government securities. The short term goal of investment is return and long term goal is children future. So there is high scope for innovative financial products among the professionals.***

Key words: Investment, Professionals, Interest Rate, Return.

Introduction

Investment is an economic activity carried down with the objective of getting return. It is the commitment of funds which have been saved from current consumption with the hope that some benefits will accrue in future. Thus, it is a reward for waiting for money. So the first step to investment is savings.

The main factors influencing investment are safety, return, growth of capital, risk, liquidity, tax benefits and convenience. Various investment options are available with differing risk-reward trade -offs. An understanding of the core concepts and a thorough analysis of the options can help investor create a portfolio that maximizes returns while minimizing risk exposure.

Statement of the Problem

The main issue related with investment is to make a decision about how much to invest and where to invest. While investing money the investors are having a lack of awareness about the investment alternatives. The investors have to pay more attention to safety, liquidity, returns, risks, tax benefits and so on in addition to amount of investments. They should exercise their skill, knowledge and experience in choosing the investment opportunity. The above factors will confuse the investors while investing the money.

Scope of the Study

This project aims to study the behavioral pattern of investment among the professionals. The present study covers level of awareness about various investment alternatives, factors influencing investment decisions, investment portfolio and the long and short term goals of investment.

Objectives of the Study

The objectives of the study are:

- To study the investment preferences of professionals.
- To study the various factors influencing investment.
- To study about the satisfaction level of respondents.

Hypothesis

1. H_0: There is no significant difference between goals of investment
2. H_0: There is no significant difference between various investment avenues.
3. H_0: Social factors have no significant relation to quality of life.
4. H_0: Economic factors have no significant relation to quality of life.
5. H_0: Economic factors have no significant relation to social factors.

Methodology

Primary data have been collected by using Google form from samples of 110 respondents. The respondents were professionals employed in various companies in manufacturing, trading and service sectors who are employed at Ernakulum District.
Secondary data is collected from various reports, books, journals, records, etc. and various websites.

Tools for Analysis

The collected data were classified, tabulated and analyzed by using statistical and mathematical tools and techniques like percentages, mean, mode and standard deviation, Correlation analysis, Freedman's test was used to test the hypothesis. The statistical results were derived with the help of the software called Statistical Package for Social Sciences (SPSS).

Review of Literature

Panjali and Kasilingam (2015) state that lifestyle is an important factor which influences the investment behavior of the people. **Rastogi (2015)** strongly supports the presence of behavioral aspects in investment decisions of the investors. **Shah and Verma (2011)**, reveals that it is important to analyze the sentiments of the investors in valuation of the stocks. **Chandra and Kumar (2012),** pointed out the fact that Indian individual investors are more prone to psychological biases while making financial decision making. **Sireesha and Laxmi (2013) and Prabha and Malarmathi (2015)** states that reference groups plays an important role in making investment in