Publication in Scopus, Web of Science & UGC CARE Journals

2021-2022

Papers Published in 2021-2022 : 48

Sl. No	Name of the author/s	Title of the paper	Department of the teacher	Name of the Journal	Year of Publication	ISSN Number
1	Dr. Renuga Devi & Ms. Sripriya S A	A survey on influence of working capital management on profitability: Empirical Evidences from 2003 - 2021	Business Administration	Journal of Education: Rabindra Bharati University (UGC Care Approved, Peer Reviewed, and referred Journal)	2021	0972-7175
2	Dr. Valentine Usha Kalaichelvi	A comprehensive study on work stress & Performance of the employees of KLN Engineering Products PVT.Ltd, Hosur District	Commerce	SAMBODHI - UGC CARE	2021	2249-6661
3	Dr. M. D. Lakshmi Priya	The pro-apoptotic and cytotoxic efficacy of polydatin encapsulated poly (lactic-co-glycolic acid) (PLGA) nanoparticles	Biochemistry	Process Biochemistry	2021	1359-5113
4	Dr. Sr. Jaya Santhi .R	Corrosion Inhibition of Mild Steel in 1M HCl Solution by Poly(o-amino thiophenol) and Poly(o-aminothiophenol)/CuO Nanocomposites"	Chemistry	Asian Journal of Chemistry	2021	0970-7077
5	Dr. Sr. Jaya Santhi .R	Corrosion Inhibition efficiencies of Poly meth acrylic acid and substituted poly meth acrylic acid on aluminium in 0.3M NaOH	Chemistry	ECS Journal of Solid state Science and Technology	2021	2162-8769
6	Dr. S. Jhancy Mary	Prospect of poly(2-chloroaniline)-nanocomposite-silica as anode in Li ion coin cell	Chemistry	Asian Journal of Chemistry	2021	0975-427X (Online)

7	Dr. S. Jhancy Mary	Structural, Thermal, and Electrochemical behaviour of poly(2-ethylaniline)-nanocomposite-Fe2O3 and poly(2-ethylaniline)-nanocomposite-SiO2 for antibacterial and anti-oxidant studies	Chemistry	Polymer Science Series B	2022	1555-6123 (Electronic ISSN)
8	Dr. S. Jhancy Mary	Chemically copolymerized poly(2-chloroaniline-co-2-ethylaniline) as an anodic material in Li-ion batteries	Chemistry	Polymer Bulletin	2021	0170-0839
9	Dr. S. Jhancy Mary	Interfacially polymerized and characterized poly(3-chloroaniline) and poly(3-chloroaniline)-nanocomposite Ni Fe2O4 for antimicrobial studies	Chemistry	Materials Today: Proceedings	2022	2214-7853
10	Dr. B. Scholastica Mary Vithiya	Biosynthesis, characterization, biological and photo catalytic investigations of Elsholtzia blanda and chitosan mediated copper oxide nanoparticles	Chemistry	Arabian Journal of chemistry	2021	1878-5352
11	Dr. B. Scholastica Mary Vithiya	Biosynthesis and characterization of Eupatorium adenophorum and chitosan mediated Copper oxide nanoparticles and their antibacterial activity	Chemistry	Results in Surfaces and Interfaces	2022	2666-8459

12	Dr. B. Scholastica Mary Vithiya	Green synthesis of silver nanoparticles by employing the Allium fistulosum, Tabernaemontana divaricate and Basellaalba leaf extracts for antimicrobial applications	Chemistry	Journal of King Saud University – Science	2022	1018-3647
13	Dr. B. Scholastica Mary Vithiya	Green synthesis, characterization and antimicrobial activity of palladium nanoparticles : A Review	Chemistry	Journal of Applied Chemical Science International	2022	2395-3713
14	Dr. B. Scholastica Mary Vithiya	Green synthesis of palladium nanoparticles using aqueous plant extracts and	Chemistry	Journal of King Saud University – Science	2022	1018-3647
15	Dr. B. Scholastica Mary Vithiya	Evaluation of Cu-Ag Bimetallic Nano alloys as Antibacterial, Antidiabetic, Anti-cancerous Drug Biosynthesized from Curcuma aromatic	Chemistry	Asian Journal of Chemistry	2022	0970-7077
16	Dr. B. Scholastica Mary Vithiya	Biosynthesis of chitosan and Eupatorium adenophorum mediated zinc oxide nanoparticles and their biological and photocatalytic activities	Chemistry	Materials Today: Proceedings	2022	2214-7853
17	Dr. V. Sugantha Kumari	Fabrication and evaluation of Nano encapsulated quercetin for wound healing application	Chemistry	Polymer Bulletin.	Jan-22	0170-0839

18	N. Nirmala Devi	A Novel Load Balancing Approach Towards Cloud Computing by Reducing SLA Degradation and Energy Consumption	Computer Science	Indian Journal of Computer Science and Engineering (IJCSE)	2022	0976-5166
19	Dr. Sujatha L.	A coding technique with atomic numbers using the prime cordial labelling on F26A graph	Mathematics	Advances and Applications in Mathematical Sciences	2022	0974-6803
20	Dr. Sujatha L.	Fuzzy Shortest Path Problem with Triangular Intuitionistic Fuzzy Numbers as Arc Lengths	Mathematics	Advances and Applications in Mathematical Sciences	2022	0974-6803
21	V S Munasira Begum	Plants Secondary Metabolites as Medicines: A review	Microbiology	International Journal of Zoological investigation	2022	2454 - 3055
22	Dr. (Sr) Venci X	Photocatalytic effect of CuO nanoparticles flower-like 3D nanostructures under visible light irradiation with the degradation of methylene blue (MB) dye for environmental application	Physics	Environmental Research	2022	0013-9351
23	Dr. (Sr) Venci X	Exploring and fine tuning the properties of one dimensional Bi2S3 Nano rods	Physics	Journal of Alloys and compounds	2022	0925-8388

24	Dr. (Sr) Venci X	Tuning the morphology and band gap of CdSe nanoparticles via solvo thermal method	Physics	Materials today: Proceedings	2021	2214-7853
25	Dr. (Sr) Venci X	Two step synthesis of vanadium pentoxide thin films for optoelectronic applications	Physics	Materials today: Proceedings	2021	2214-7853
26	Dr. (Sr) Venci X	The role of pH in enhancing the capacity of CuO nanoparticles for antibacterial activity	Physics	Materials today: Proceedings	2021	2214-7853
27	N. R. Devi	A review on Ferro fluids with the effect of MHD and entropy generation due to convective heat transfer	Physics	The European Physics Journal Plus	2022	2190-5444
28	Dr. A. Mary Agnes, Ms. Sindhuja G., Ms. Rebecca Vinolia, Ms. A. F. Philomina, Ms. Yasmin M	Qualitative analysis of ethanol and chloroform extract of selected medicinal plants.	Zoology	International Journal of Creative Research Thoughts.	2021	2320-2880
29	Dr. A. Mary Agnes Ms. Rebecca Vinolia	Screening Of Phytochemicals, In-vitro Assessment Of Antioxidant, Anti-Inflammatory, Tlc Profiling And Anticancer Activity Of Aegle Marmelos (L.) Leaves	Zoology	Annals of the Romanian Society for Cell Biology	2021	1583-6258

30	Ms. Sindhuja G Dr. Mary Agnes. A	Gas Chromatography- mass Spectrometry Analysis of Ethanol Extract of Eugenia Jambolana	Zoology	International Journal of System Design Information Processing	2021	2319-9288
31	Dr. Vidhya K	Analysis of physico chemical factors and estimation of total chromium in the water samples collected in TCCL industry and its surrounding area, Ranipet, Tamil Nadu, India,	Zoology	Indian Journal of Ecology	2021	3045-250
32	Dr. Vidhya K	Bioremediation of heavy metal chromium using different varieties of banana peels	Zoology	International Journal of Multidisciplinary Educational Research	2021	2277-7881
33	Dr. Uma Chandra N	Biodiversity of Ostracods In Kozhappalur Lake, Tamilnadu, India	Zoology	Eco. Env. & Cons	2022	1971-765X
34	Dr.R.Gayathiri & Ms S S Prithivi	A study on factors influencing consumer decision making in digital marketing with special reference to mobile application and social media	B.Com(Banking and Insurance)	Utkal Historical Research Journal	2021	0976-2132
35	Ms K Kalaivani	A study on Impact of COVID-19 towards Self Help Group women entrepreneur's with special reference to vellore city	B.Com(Banking and Insurance)	Utkal Historical Research Journal	2021	0976-2132
36	Ms. N. Aswini & Ms. J. Sangavi Preethi	A study on Impact of COVID-19 on Mobile Banking service quality among	B.Com(Banking and Insurance)	Utkal Historical Research Journal	2021	I0976-2132

		customers with special reference to Indian Overseas Bank, Vellore city				
37	Dr. N. KUMARI	Boopaalathirkku Oru Pullangkuzhalil Manitha Neyam	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321788X
38	Dr. N. KUMARI	Soorya Kaanthan Sirukathaigalil Vilimbunilai Maanthargal	Tamil	Semmozhi thamizh Journal	2022	2321-0737
39	Dr. N. KUMARI	Soorya Kaanthan Sirukathaigalil Vilimbunilai Pengal	Tamil	Naveena Thamizh Aaivu	202	2321-984X
40	Dr. G.SENTHIL SELVI	Naaladiyaar Kaattum Manitha Neyam	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788X
41	Dr. K.B. KANIMOZHI	Thirumanthiram Unarthum Manithaneyam	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788X
42	Dr. J. Papeetha	Manithaneya Panbum Thirukkuralin Maanbum	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788X
43	Dr. V.R. Meenakshi	Sanga Ilakiyangalil Manitha Neyam	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2021	2321-788X
44	Dr. E. Gowthama Selvi	Azhagiya Periyavan Sirukathaigalil Manithaneyam	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788X
45	Dr. R. Preetha	Puranaanoottril Manithaneya Sinthanaigal	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788X

46	Dr.G.Shanabagavalli	Thirumoolar Thirumanthirathil Manitha Neyam(Ara Sinthanaik Karuththukkal)	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788x
47	Dr.S.Deepa	Puranaanoottril Manithaneyam	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788x
48	A. Auxilia Mary	Agappadalgalil Egai Panpu	Tamil	Shanlax Peer Reviewed Refereed Scholarly Indexed Quarterly Journal	2022	2321-788X

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Asian Journal of Chemistry; Vol. 33, No. 11 (2021), 2626-2632

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2021.23349

Corrosion Inhibition of Mild Steel in 1 M HCl Solution by Poly(*o*-aminothiophenol) and Poly(*o*-aminothiophenol)/CuO Nanocomposites

U. ANTO MARIA JERALDIN and R. JAYA SANTHI*

PG & Research Department of Chemistry, Auxilium College, Vellore-632006, India

*Corresponding author: E-mail: shanthijaya02@gmail.com

Received: 31 May 2021; *Accepted*: 20 July 2021; *Published online*: 20 October 2021; AJC-20540

The chemical oxidative polymerization of poly(*o*-aminothiophenol) and poly(*o*-aminothiophenol)/CuO nanocomposites were performed in aqueous HCl using ammonium persulfate as an oxidant. The synthesized polymer and its CuO nanocomposites were characterized by employing FT-IR, UV-Vis and XRD analysis. Weight loss and electrochemical techniques were used to investigate the inhibitory performance of poly(*o*-aminothiophenol) and poly(*o*-aminothiophenol)/CuO nanocomposites on mild steel in 1 M HCl solution. The electrochemical impedance spectroscopic method showed a capacitive loop, revealing that the corrosion reaction is governed by the charge transfer mechanism. The inhibitors were of a mixed type, according to polarization measurements. The adsorption process was obeyed by the Langmuir isotherm. The Langmuir adsorption isotherm was also used to derive thermodynamic adsorption parameters.

Keywords: Aminothiophenol, Nanocomposites, Corrosion, Mild steel, Electrochemical studies, Adsorption.

INTRODUCTION

Corrosion that occurs by rupturing of metals is an unpleasant process to nature; therefore, serious efforts are taken to check this phenomenon. Commonly applied three approaches to reduce the corrosion are anodic protection, cathodic protection and protective coatings [1]. Inspite of having many methods to control the metal corrosion, the application of conducting polymers for the inhibition of corrosion is an area which is recently gaining increasing attention [2].

Generally, polypyrrole (PPy), polyaniline (PANI) and their derivatives have been broadly studied because of their easy preparation and stability. The ring-substituted conducting polymers [3] like poly(*o*-toluidine), poly(*o*-anisidine), poly(*o*-chloroaniline) and poly(*m*-toluidine), can improve their anticorrosion performance in aggressive environment than the straight line polymers like PANI and PPy [4-7].

Aminothiophenols (ATP) are interesting electrochemical materials since both amine and thiol have different reactivities and thus provide more reactive sites. The productive use of this molecular assembly can give rise to remarkable morphologies, which leads to multiple applications. Poly(aminothiophenol) (PATP) is considered as one among the most interested conducting polymers and also attracted much interest in many studies with various practical applications because of its high conductivity, outstanding air stability and special physical, chemical properties differentiated with other conducting polymers [8-11]. Conducting polymers/inorganic metal oxide nanocomposites attracted considerable attention because of their physicochemical, electro-optical properties, unique microstructure and their effective usage in sensors, microelectronics and also in constructing nanoscopic assemblies and battery cathodes [12,13]. In the advancement of research in nanoscience, CuO nanoparticles have found multiple applications in various fields [14-17].

In view of these favourable characteristic properties, poly(*o*-aminothiophenol) (PoATP) and poly(*o*-aminothiophenol)/CuO (PoATP/CuO) nanocomposites have chosen for the synthesis and corrosion studies. To our best of knowledge, no reports in literature dealing with the anticorrosion properties of poly(*o*-aminothiophenol) and poly(*o*-aminothiophenol)/CuO nanocomposites on active metals. The main objective herein is to investigate the corrosion process of mild steel in 1 M HCl solution in the absence and presence of different concentrations of PoATP and PoATP/CuO and also to study the adsorption isotherm and mechanism.

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Qualitative analysis of ethanol and chloroform extract of selected medicinal plants.

Author: 1st Sindhuja G, 2nd Rebecca Vinolia, A.F.Philomina.
Corresponding author: Dr.A.Mary Agnes.
Author: Research Scholar, Corresponding author: Associate Professor
PG & Research Department of Zoology, Auxilium College (Autonomous), Katpadi, Vellore-6, TN, India.

Abstract: Medicinal plants have bioactive compounds which are used for curing various human diseases. The phytochemical analysis is important commercially as used by pharmaceutical companies for the production of the new drugs. Phytochemicals are primary and secondary constituents. Primary constituents have chlorophyll, protein, sugar, and amino acid. Secondary constituents contain terpenoids and alkaloids. Medicinal plants have antifungal, antibacterial, anti-inflammatory, antidiabetic and anticancer activities. The present study involves four different medicinal plants *Eugenia jambolana, Cissus quadrangularis, Cassia auriculate, and Gymnema Sylvestre.* The selected medicinal plants have been used for treating various diseases .The main objective of the study is to find out the phytochemical constituents of the selected medicinal plants. The result shows the presence of carbohydrates, tannins, glycosides, amino acids, protein, steroids in selected medicinal plants. Polar and non-polar solvents, Ethanol, and chloroform were used for extraction.

Keywords - Medicinal plants, phytochemical, antidiabetic, anticancer, anti-inflammatory, antifungal.

I. INTRODUCTION

Nature has been a source of medicine for thousands of years and an impressive number of modern drugs have been isolated from natural sources, they are used in traditional medicine. (Anjali.D.Ruikar, 2009). Plants have a limitless ability to synthesize aromatic substances mainly secondary metabolites, of which at least 12,000 have been isolated, a number estimated to be less than 10% of the total (Mallikharjuna, et al., 2007). The synthesized aromatic substances (Metabolites) are used by plants as defensive molecules against predation by microorganisms, insects, and herbivores. However, some of these may involve plant odour (terpenoids), pigmentation (tannins and quinines), and flavor (Capsaicin) (Mallikharjuna, et al., 2007). However, these defensive molecules give plants their medicinal value and also used by human beings because of their great importance in the health care of individuals and communities.

Higher plants, as sources of medicinal compounds, have continued to play a dominant role in the maintenance of human health since ancient times (Ahmed, L.1998). Over 50% of all modern clinical drugs of natural product origin and natural clinical products play an important role in drug development programs in the pharmaceutical industries.

Phytochemical investigations of crude plant extracts show the presence of active principles in the plant parts like bark, leaves, flowers, roots, fruits, seeds. Phytochemicals are non-nutritive plant chemicals that have protective or disease preventive properties. Plants produce chemicals to protect themselves but research works demonstrate that many phytochemicals can protect humans against diseases. Knowledge of the chemical constituents of plants is desirable because such information will be of value for the synthesis of complex chemical substances. In the present work, the qualitative phytochemical analysis was carried out in different medicinal plants

Eugenia jambolana

Eugenia jambolana (E. jambolana) Lam. commonly known as Jamun or black plum is an integral part of the indigenous medicine system of India to treat various diseases. Traditionally all parts of Jamun such as fruits, leaves, seeds and bark are used in Ayurvedic medicine. Jamun plant has been reported for a wide range of medicinal properties such as antioxidant, anti-inflammatory, neuropsycho-pharmacological, anti-microbial, anti-HIV, anti-diarrheal, antifertility, gastro protective, antiulcer and radio-protective activities (Sagrawat H, et al., 2006)

The pulp of theJamun berry contains anthocyanin, delphinidin, petunidin, and malvidin-glucosides, which impart its bright purple color .Both the fruit pulp and seed extracts of the Jamun berry have a long history of medicinal use and they have been extensively studied for their anti-diabetic properties. Despite a growing body of evidence supporting the anticancer properties of anthocyanin-rich berry extracts (Sharma B,et al.,2008)

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Ganesh Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Received 29 January 2021; Accepted 04 March 2021.

Screening Of Phytochemicals, Invitro Assessment Of Antioxidant, Anti-Inflammatory, Tlc Profiling And Anticancer Activity Of Aegle Marmelos (L.) Leaves

Palukuri Yashwanth Kumar[1], Parimalam M[2], Deepak Kumar K[3], Edwin Joseph[4], Deon David[5], Rebecca Vinolia[6*]

[1]Associate Professor, Department of Paramedical and Allied Health Sciences, School of Medical and Allied Sciences, Galgotias University, Greater Noida, Uttar Pradesh.

[2,3]Ph. D Research Scholars, PG and Research Department of Advanced Zoology & Biotechnology, Centre for Environmental and Medical Sciences (LIFE), Loyola College, Chennai.

[4]Ph.D Research Scholar, PG and Research Department of Zoology, CMS College, Kottayam.

[5]M.Phil Research Scholar, PG and Research Department of Advanced Zoology and Biotechnology, Loyola College, Chennai.

[6*]Assistant Professor, PG and Research Department of Zoology, Auxilium College, Gandhi Nagar, Vellore.
*Corresponding author: vrebecca91@gmail.com

ABSTRACT

The current study is aimed to evaluate the efficacy of methanolic extract of *Aegle marmelos* leaves for pharmacological properties. The qualitative phytochemical analysis was determined. The antioxidant and anti-inflammatory properties were analyzed using different assays. The TLC profiling was also determined to study the various phytochemicals. The MCF-7 cell lines were assessed for anticancer property. The phytochemical analysis revealed the presence of alkaloids, flavonoids, phenols, steroids, tannins, saponins, terpenoids and glycosides. The DPPH and ferric antioxidant reducing assay showed that the antioxidant capacity of the methanolic extract of *A. marmelos* leaves increased in a dose dependent manner. The anti-inflammatory activity using protein denaturation assay showed promising results. The TLC analysis exhibited the presence of different phytochemicals and the retention factor was also calculated. The anticancer activity in MCF-7 cell line significantly reduced the viability of the cancer cells in dose dependent manner. Hence, from this study the methanolic extract of *A. marmelos* can furthermore be explored for pharmacological properties.

Keywords: *Aegle marmelos*, antioxidant, anti-inflammatory, TLC, anticancer.

1. Introduction

The medicinal plants are mostly used for curing of human diseases employing phytochemical constituents. Phytochemicals are naturally present in the medicinal plants, leaves, vegetables and roots, which have defense mechanism and protect humans from various diseases **(Rastogi and Meharotra, 1990)**. The herbal medicine have been used continuously in the history for a very long time. The development of medicinal and financial aids of the plants are on rise in some **(WHO, 1998)** developing countries. Traditional systems of medicinal plants have been practiced for thousands of years considering their medicinal value. The plants **(Kaul, 1997)** give mankind a novel medicine combining with different plant extracts.

Some of the useful outcomes ascribed to plants are the treatment done with experimental findings in hundreds of years **(Fakim, 2006)**. The traditional medicine practice are widespread in some countries like India, Japan, Sri Lanka and Thailand. About 40% of the total medicinal **(Jones, 1998)** needs are fulfilled with tribal medicines. The important drugs of the past 50 years, are the revolutionized modern medicinal practice, which are isolated from the various medicinal plants. These phytochemical ingredients show the therapeutic potential of plant drugs. The WHO promotes the medicinal drugs in the national medicinal sector programs, considering the accessibility to the common man. The medicinal plant based

ECS Journal of Solid State Science and Technology, 2021 10 101004
2162-8777/2021/10(10)/101004/7/$40.00 © 2021 The Electrochemical Society ("ECS"). Published on behalf of ECS by IOP Publishing Limited

Corrosion Inhibition Efficiencies of Polymethacrylic Acid and Substituted Polymethacrylic Acid on Aluminium in 0.3M NaOH

J. Devakumar,[1,z] V. Ramesh,[2,z] P. Suresh,[2] P. Anto Mariya Jeraldine,[1] P. Amaladass,[3] and R. Jaya Santhi[1,z]

[1]PG & Research Department of Chemistry, Auxilium College, Vellore 632 006, Tamil Nadu, India
[2]Department of Physics and Nanotechnology, SRM Institute of Science and Technology, Kattankulathur 603 203, Tamil Nadu, India
[3]Department of Chemical Technology, Loyola Academy Degree and PG College, Jeedimetla, Secunderabad 500010, Telangana, India

Polymethacrylic acid (PMAA) and substituted polymethacrylic acid (PMAA/HQ) with para dihydroxy benzene (HQ) were synthesized via free radical polymerization and they were characterized using UV–vis, FT- IR, XRD spectral studies. The UV–vis spectrum of both PMAA and PMAA/HQ shows transitions due to $\pi \rightarrow \pi^*$ at 218 and 306 nm respectively. The XRD analysis of PMAA shows semicrystalline, and the substituted PMAA shows amorphous. The morphology of the polymers determined from the SEM analysis exhibits fractured surface and cluster-like arrangement. The CV studies of PMAA/HQ and pristine HQ show that the redox behavior of HQ has changed in PMAA/HQ due to the polymeric effect. The corrosion inhibition efficiency of the resulting polymer was studied on aluminium in 0.3 M NaOH solution using weight loss, potentiodynamic polarization, and electrochemical impedance spectroscopic techniques, and their results were compared. The adsorption of synthesized polymer shows that the inhibition of aluminium in 0.3 M NaOH has been influenced by Langmuir adsorption isotherm. The anticorrosion and adsorption studies show that the corrosion inhibition potency of PMAA/HQ is more significant than PMAA.
 [DOI: 10.1149/2162-8777/ac2af6]

Manuscript submitted June 18, 2021; revised manuscript received September 3, 2021. Published October 11, 2021. *This paper is part of the JSS Focus Issue on Selected Papers from the International Conference on Nanoscience and Nanotechnology 2021 (ICONN-2021).*

The disintegration on metals or alloys' surfaces due to their interaction with the environment is known as corrosion,[1,2] which has been continued the long-standing challenges predicting the rapid and sustainable deployment of metals.[3] It has been observed that many techniques are used to modify either metal or the environment to control corrosion. In modifying the environment, the processes like deaeration, dehumidification, deactivation of corrosive gases, and utilization of corrosion inhibitors have been reported in the literature.[4,5] Aluminium is non-toxic metal and its unique properties such as recyclability, low weight, corrosion resistance, high thermal and electrical conductivity makes it a valuable material, and makes aluminium and its alloys are extensively utilized in most industries, especially in engineering, the defence industry, aviation, ship-building, food and chemical industries.[6–8] It is a strategic resource whose consumption is a measure of the level of development and industrialization by the countries. For the past 50 years, global aluminium production has been steadily increasing and the highest jump is reported in this millennium. Aluminium and its alloys are said to be passive metals like titanium, chromium and high alloy steels which form a native oxide film on their surface and resist the metal from corrosion. The native oxide film Al_2O_3 formed on the aluminium is thermodynamically stable at the pH range of 4–9.[9,10] However, the native oxide film is thermodynamically unstable in alkaline and acidic medium which results in dissolution of aluminium occurs at the fastest rate. The use of inhibitors have known as one of the best methods to avoid such corrosion and the inhibition potencies of the inhibitor is more when they contain hetero atoms like O, N and S and groups like aromatic, triple bond and double bond.[11–13] Polymer seems to be an advanced corrosion inhibitor in two aspects i) a single polymer replaces many water molecules and assists the process entropically favoured and ii) The presence of multiple binding sites decreases the rate of desorption of polymers on the metal surface.[14–16] In the present study PMAA and Substituted PMAA have been synthesized to examine their inhibition efficiency on pure aluminium in sodium hydroxide solution. The inhibition performance has been assessed using polarization, Impedance and weight loss method and explained their performance on the basis of their structural framework and free energy change of adsorption.

[z]E-mail: devakemis@gmail.com; rameshmano1980@gmail.com; shanthijaya02@gmail.com

Experimental

Materials and methods.—All chemicals received were of analytical grade and used for the experiments without further purification. Methacrylic acid (M.Wt = 86.09 g, Molecular Formula = $C_4H_6O_2$), AIBN (2 methylpropionimide) (M.Wt = 161.24 g, Hydroquinone (M.wt = 110.11 g, M.Formula = $C_6H_6O_2$) were purchased from Sigma-Aldrich. Conc. Hydrochloric acid, Ammonium persulphate ($(NH_4)_2S_2O_8$), and silver nitrate ($AgNO_3$) were purchased from Merck Ltd, Mumbai. For corrosion inhibition studies, pure aluminium (99.95%), the squire shaped specimen with an area of $1cm^2$ was used. The UV–vis spectra were recorded using a Perkin-Elmer Lamba spectrophotometer. Infrared spectra were taken with ABB-MB-3000 FT-IR. The polymer samples for the infrared analysis were employed in the form of pellets with KBr medium. X-ray diffraction analyses were carried out using Bruker AXS D8 Advance diffractometer (radiation Cu Kα, λ = 0.154 nm, 35 kV, 35 mA) at the scan rate of 3° min^{-1}. SEM images of the polymers were taken using the JSM-6390LV model operating at an accelerating voltage of 20 kV.

Synthesis of polymethacrylic acid and Substituted polymethacrylic acid.—Polymerization of methacrylic acid was carried out using the previously reported method[17] and the substituted polymethacrylic acid was synthesized by replacing COOH groups in PMAA using dihydroxy benzene specifically hydroquinone, to carry out this substitution, 1 g of PMAA and 3 g of HQ were dissolved separately in 100 ml ethanol and transferred into a 500 ml flask equipped with a condenser. 0.079 g of $AgNO_3$ was additionally added to this homogeneous mixture and heated to 75 °C, then saturated solution of $(NH_4)_2S_2O_8$ (3.75 g in 10 ml) was added in drop by drop for 90 min finally the reaction mixture was heated constantly at 80 °C for 8 h to optimize the substitution. Then the isolation of substituted PMAA was carried out by consecutive steps: Evaporation of ethanol, filtration of unreacted benzoquinone, casting of the solution and finally drying of cast film in vacuum.[18]

Asian Journal of Chemistry; Vol. 33, No. 11 (2021), 2700-2706

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2021.23371

Prospect of Poly(2-chloroaniline)-Nanocomposite-Silica as Anode in Li-Ion Coin Cell

G. VANI* and S. JHANCY MARY

Department of Chemistry, Auxilium College (Autonomous), Vellore-632006, India

*Corresponding author: E-mail: vanichem2005@gmail.com

[redacted]

[redacted]

In the past few decades, the progress of conducting polymer with inorganic materials for optics and electronics related applications have gained much attention among researchers [1]. Particularly, the most probable conducting polymer was polyaniline due to its ease of preparation, environmental stability, good electrical conductivity and potential usage in rechargeable batteries, photovoltaic cells, sensors, electromagnetic shielding, gas-separation membranes, light-emitting diodes *etc.* [2-4]. Though its potential applications are very wide, serious problems exist which obstruct its practical use. The major drawback of this polymer is solubility and processability. It can then be replaced by synthesizing derivatives in order to obtain materials with improved solubility and processability, enhanced electrochemical and electronic properties [5-7]. Modified polyaniline can be synthesized by (i) introduction of substituents like $-CH_3$, $-C_2H_5$, -halogen and amino groups onto the aromatic rings of the polyaniline chains [8-10] and (ii) copolymerization of aniline and derivatives [11,12].

The halogenated derivatives of polyaniline such as polychloroanilines, polybromoanilines and polyiodoanilines are relatively less investigated. One among the important derivatives of polyaniline is poly(2-chloroaniline) (P2ClAni) and has been studied by few researchers in the recent past. The P2ClAni properties can be fine tuned by a number of ways such as copolymerization, synthesis of blends and composites for applications in the field of hybrid electric devices [13].

Nano-scaled P2ClAni and its effect on oxidant concentration, surfactant type and surfactant concentration were investigated and the results substantiate that the electrical conductivity of doped P2ClAni/SDS50 increased with the monomer: doping ratio of 1:25 possessing the highest electrical conductivity of 10.47 S cm^{-1}, relative to the synthesized P2ClAni without doping [14]. The effect of dodecyl benzene sulphonic acid (DBSA) on the electrical conductivity of P2ClAni and P2ClAni/silk blends has been reported by Linganathan & Samuel [15]. Since P2ClAni-DBSA/Silk has higher dielectric constant than P2ClAni-DBSA and P2ClAni/Silk, it can be used in energy storage devices. Palaniappan [16] studied the effect of temperature on the conductivity and spectral properties of P2ClAni. The methanesulfonic acid doped P2ClAni has been successfully synthesized and shows potential sensing for NH_3 gas [17]. The P2ClAni/SiO_2 nanocomposite was synthesized

Indian Journal of Ecology (2021) 48(5): 1290-1293

Manuscript Number: 3371
NAAS Rating: 5.79

Analysis of Physico-chemical Factors and Estimation of Total Chromium in Water Samples Collected in and around TCCL Industry, Ranipet, Vellore District, Tamil Nadu, India

Vidhya K., Regina Mary R. and Job Gopinath M.[1]

PG & Research Department of Zoology, Auxilium College (Autonomous), Vellore-632 006, India
[1]PG & Research Department of Zoology, Voorhees College, Vellore-632 001, India
E-mail: yonigrace@gmail.com

Abstract: Tamil Nadu Chromate Chemicals Limited (TCCL), Ranipet, Vellore, Tamil Nadu, India was closed in the year 1997. The unused raw materials inside the industry leaches out during rain and contaminate the ground water. The Physico-chemical analysis of the water samples in and around the industry reveals that the total chromium content ranges from 701.311 to 849.569 mg L^{-1} exceeding the maximum permissible limit in three stations and trace amount of Chromium in other stations. There is an increase in various parameters like pH ranging from 6.5 to 9.54, EC ranged from 474 to 4900 µmho cm^{-1}, TDS ranged from 332 to 3430 mg L^{-1}, BOD fluctuates from 9 to 36 mg L^{-1}, COD varies from 128 to 576 mg L^{-1}, chlorides vary from 22 to 1000 mg L^{-1}, sulphate varies from 14 to 1285 mg L^{-1}, calcium ranged from 18 to 363.8 mg L^{-1}, magnesium varies from 11 to 192 mg L^{-1} and free ammonia ranged from 3.64 to 5.68 mg L^{-1}. There is a decrease in fluoride and phosphate concentration. It is evidenced that the chemicals dumped inside the industry has deteriorated the quality of water in and around the Industry.

Keywords: TCCL, Ranipet, Physico-chemicals factors, Chromium

The discharge of huge amounts of metal-contaminated wastewater containing heavy metals like Cd, Cr, Cu, Ni, As, Pb, and Zn, are the most hazardous among the chemical industries (Adeyeye et al 2002). Because of their high solubility in the aquatic environments, heavy metals can be absorbed by living organisms. Once they enter the food chain, large concentrations of heavy metals may accumulate in the human body. If the metals are ingested beyond the permitted concentration, they can cause serious health disorders (Babel et al 2004). Water pollution due to development in technology, continues to be of great concern. With increasing generation of heavy metals from technological activities, many aquatic environments face metal concentrations that exceed water quality criteria (Sanjay Kumar et al 2011). Metal production have decreased in many countries due to strict legislation, improved purification technology and altered industrial activities, in the recent years (Mridul et al 2013). Chromium is the common toxic contaminant in wastewater from electroplating, leather tanning and metal-finishing industries (Prabhu et al 2019). The physiological effects of chromium on the biological system depend upon its oxidation state. Increase in the levels of metal ions and organic pollutants in the environment due to lack of strict enforcement by the regulatory authorities. Tamil Nadu Chromate Chemicals Limited is an industry located in the Chennai Bangalore national highway NH4 near Ranipet Industrial area, Vellore District which produced sodium di chromate for chrome tanning purpose. The industry was supplying sodium chromate to all chrome tanning industries distributed in Pernambut, Ambur, Vaniyambadi and Ranipet of Vellore District. Then the industry was closed in the year 1997, due to the raise of pollution in that area. The raw materials which were needed for the production were left unattended till now. The chemicals from that raw ore were getting leached out by rain water and seeps into the ground water and affects the quality of the ground water (Devi et al 2012), (Nirmala et al 2013). Hence the present work was carried out to estimate the extend of contamination in and around the TCCL industry.

MATERIAL AND METHODS

Study Area is TCCL Industry which is located 3km north east of Ranipet, on the Chennai Bangalore national highways NH4. Water Samples were collected from in and around the TCCL Industry, Ranipet. The study area chosen for the research includes nine stations, three station within the factory and six stations around the factory. Empty distilled water cans were taken, washed and sterilized for the purpose of collection of the water samples. Water Samples were collected from different stations and checked for pH using an electronic pH meter at each station. Station 1, 2, 3, 7, 8 and 9 are Borewell water, Station 4 and 5 are water inside the TCCL

ISSN 1560-0904, Polymer Science, Series B, 2022. © Pleiades Publishing, Ltd., 2022.

FUNCTIONAL POLYMERS

Structural, Thermal and Electrochemical Behavior of Poly(2-ethylaniline)-nanocomposite-Fe_2O_3 and Poly(2-ethylaniline)-nanocomposite-SiO_2 for Antibacterial and Antioxidant Studies

Julia Sebastian[a] and S. Jhancy Mary[a,*]

[a] *Department of Chemistry, Auxilium College, Affiliated to Thiruvalluvar University, Serkkadu, Vellore-632 115, Tamil Nadu, India*

**e-mail: jmarys@auxiliumcollege.edu.in*

Received October 22, 2021; revised February 7, 2022; accepted February 13, 2022

Abstract—Poly(2-ethylaniline) (PEAN), poly(2-ethylaniline)-nanocomposite-Fe_2O_3 (PEAN/Fe_2O_3) and poly(2-ethylaniline)-nanocomposite-SiO_2 (PEAN/SiO_2) are synthesized by emulsion polymerization and characterized by UV–Visible, FTIR spectroscopy, Powder XRD, TGA, DTA, and SEM-EDX. The nanocomposites are amorphous and exhibit a three-step thermal degradation corresponding to the loss of moisture, loss of dopant, and the decomposition of the polymer composites. The electrical conductivity of the semi-conducting emeraldine salt forms of PEAN, PEAN/Fe_2O_3 and PEAN/SiO_2 doped with chloride ions and camphor sulphonate ions are 4.3×10^{-4}, 3.6×10^{-5}, and 4.8×10^{-3} S/cm respectively. PEAN, PEAN/Fe_2O_3 and PEAN/SiO_2 show excellent antibacterial activity against the gram-positive bacteria *Staphylococcus aureus*, moderate activity against *Salmonella typhi* and *Klebsiella pneumoniae*, and weak activity against *Bacillus subtilis* and *Enterococcus faecalis*. These materials are inactive against *Escherichia coli*. The destruction of the bacterial cell membranes due to the stronger interaction between the doped polycation chains and the negatively charged bacterial cell wall, and the release of Fe^{3+} ions due to electrostatic interaction facilitates the binding to the negatively charged bacterial cell membrane. The large surface area and the high content of SiOH groups in nanoporous silica facilitates the attachment with the surface of the bacterial cell walls. The nanocomposites demonstrate relatively good free radical scavenging activity at a concentration of 50 μL.

DOI: 10.1134/S1560090422200040

INTRODUCTION

During the recent decades, biodegradable conducting polymers have received a lot of attention owing to their unique combination of electroactivity and biocompatibility. The electrical conductivity of polyaniline provides electrical signal towards the cells [1, 2]. Polymeric materials possess tremendous biomedical applications due to their high cellular response [3, 4], low toxicity, and strengthened biocompatibility [5]. The antibacterial activity of aniline based bio polymers are widely used in health care, pharmacy, food packaging, and tissue implants with different bacterial strains [6]. The increased processability and solubility of substituted polyanilines, their blends and composites make them potentially useful candidates in the biomedicines. The rigidity and interchain forces are reduced and the solubility of the polymer is enhanced when electron donating groups such as methyl, ethyl, methoxy, ethoxy and amino are substituted by hydrogen of the benzene rings in polyaniline [7]. Polyaniline's antibacterial activity is ascribed due to its ability to function as an electron acceptor or donor. It is caused by the electrostatic adherence between the polymer molecules and bacteria, carrying charges of different signs, and as a result, the bacteria's cell wall breaks down and the intracellular fluid pours out, causing death [8]. Conjugated polymers also have excellent antioxidant activities [9]. The potential risks of free radical damage to the living tissues are quite well understood, however, if left unmanaged, they could perhaps lead to the development of severe diseases. Polyaniline is an outstanding free radical scavenger as it is redox-active and can therefore flip between a continuum of oxidation states [10].

Nanocomposite materials have received a lot of attention due to the advances in mechanical and thermal properties and are particularly potent owing to the large surface-to-volume ratio, which constitutes a significant active surface for interaction with microorganisms [11, 12].

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY EDUCATIONAL RESEARCH
ISSN:2277-7881; IMPACT FACTOR:6.514(2021); IC VALUE:5.16; ISI VALUE:2.286
Peer Reviewed and Refereed Journal: VOLUME:10, ISSUE:4(3), April:2021
Online Copy Available: www.ijmer.in
Digital certificate of publication:http://ijmer.in/pdf/eCertificate%20of%20Publication-IJMER.pdf

BIOREMEDIATION OF HEAVY METAL CHROMIUM USING DIFFERENT VARIETIES OF BANANA PEELS

[1]Vidhya K, [2]Regina Mary R and [3]Job Gopinath M
[2&3]PG & Research Department of Zoology
[1&2]Auxilium College (Autonomous)
Vellore, Tamil Nadu, India

Abstract

The Tamilnadu Chromate Chemicals Limited (TCCL) is a company which produced Chromium for chrome tanning leather industries located in the industrial belt of Ranipet, Vellore District, Tamilnadu. It was closed because of heavy pollution in the year 1997. The chromium ore which was stored in the company is slowly seeping out along with rain water and mixed with ground water aquifers. Hence the present study, attempts to estimate the chromium level in the stagnant water present in and around the industry and remediate using biological waste. The water collected from experimental area was analyzed using AAS, which shows the presence of cadmium, chromium, Manganese, Lead. The biological wastes from banana were selected for the remediation studies as it is one of the chief commercial plants, cost effective and available throughout the year. The different varieties of banana available in the market were procured and the peels were used as bio-adsorbent for remediating the polluted water. Poovan banana peels shows highest adsorption level 92.94% followed by Red Banana peel 92.83%, Karpooravalli banana peel 88.94%, Green banana variety 87.63%, Rasthali banana variety 89.61% and Elachi banana variety 91.25%.

Key words: Heavy Metal Chromium, Bio adsorption, Banana peels.

Introduction

Heavy metals released from industries as effluent pollute the soil and ground water as it seeps into the soil. (Won et al., 2014; Abdi and Kazemi, 2015; Shakoor et al., 2015). Heavy metals are the toxic and non-biodegradable substances when bio accumulated create serious complications to the living organisms. Heavy metal waste has been increased rapidly since the revolution of the industries. The metal from the industrial activities are mobilized and enter into the soil or water and enters the food chain. The metals are necessary for the human beings in the activation of enzymes and enzyme cofactors in trace amounts but accumulation of heavy metals becomes toxic causing adverse effects on the living beings. Beyond a certain level, Chromium it is toxic (Balamurugan et al., 2004), mutagenic (Gili et al., 2002), carcinogenic (Codd et al., 2003) and teratogenic (Asmatullah et al., 1998). Recent studies have revealed that the untreated waste water from the industrial sources affects the water quality of the surroundings and makes the water unfit for consumption.

Banana is otherwise called as Apple of paradise, which is one of the most important crops grown by more than 130 countries in the world belonging to the genus *Musa* (family Musaceae). In India the banana production was about 24.9 million tons while the total world production of Banana during 2012 was about 13 9.2 million tons. Almost all the modern edible bananas come from the two wild species – *Musa acuminata, Musa balbisiana*. The scientific names of bananas are *Musa acuminata*, *Musa balbisiana* depending on their genomic constitution

Several research groups have used raw and chemically treated banana peels for the removal of toxic heavy metal ions from aqueous solutions and industrial wastewater. Banana peel has been used as an adsorbent to remove the metals copper and lead from the wastewater which gave it on to use banana peel as an adsorbent to remove the chromium. Banana peels are used as good biosorbents as it is economical and gives efficient result (Vijayaraghavan and Yun, 2008).

Materials and Methods

The study area selected was the industrial belt of Ranipet, Vellore. Water samples were collected from TCCL industry. Different varieties of banana were chosen and purchased from the local market. Banana varieties chosen for the experiment are Red banana (*Musa acuminate*), Rasthali banana, Elachi banana, Green banana (*Musa acuminate AAA genome*), karpooravalli banana (*Musa acuminate* - ABB genome), yellow poovan banana - (*Musa acuminate* - ABB genome).

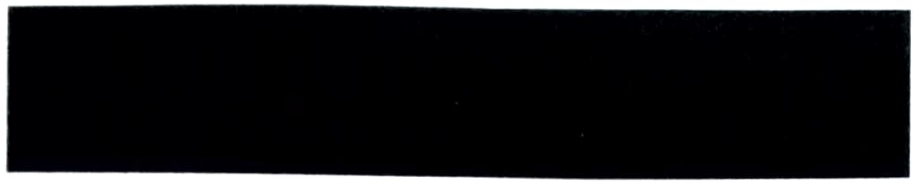

Fig 1 Poovan banan

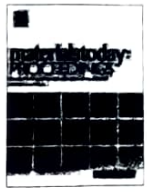

Fig 2 Karpooravalli banana


Fig 3 Red banana


Fig 4 Elachi banana

Materials Today: Proceedings 65 (2022) 42–50





Interfacially polymerized and characterized electroactive Poly(3-chloroaniline) and Poly(3-chloroaniline)-nanocomposite-$NiFe_2O_4$ for antimicrobial studies

G. Vani *, S. Jhancy Mary

Department of Chemistry, Auxilium College, Vellore-6, Tamil Nadu, India

ARTICLE INFO

Article history:
Available online 29 April 2022

Keywords:
Poly(3-chloroaniline)
Metal oxide
Nanocomposite
Antimicrobial properties

ABSTRACT

In recent years, the conducting substituted polyanilines have been developed by many researchers as well as engineering community so that the drawbacks or defects of a particular polymer can be overcome by preparing substituted polymer/blends/composites. The poly(3-chloroaniline) and poly(3-chloroaniline)-nanocomposite-$NiFe_2O_4$ were synthesized by interfacial polymerization technique. The FTIR and XRD techniques revealed an interaction between poly(3-chloroaniline) and $NiFe_2O_4$ particles. The thermal stability was studied by TGA and DSC. The electrical conductivity values of poly(3-chloroaniline) and poly(3-chloroaniline)-nanocomposite-$NiFe_2O_4$ were determined from Nyquist plots and found to be $5.8x10^{-3}$ Scm^{-1} and $4.90x10^{-5}Scm^{-1}$ respectively. The morphology of the nanocomposite was studied by SEM and the elemental composition was determined by EDAX. The antimicrobial activities against bacteria such as *Escherichia coli*, *Staphylococcus aureus*, and *Bacillus subtilis* and fungal strains such as *Candida albicans*, *Aspergillus niger* and *Aspergillus flavus* were studied using agar well diffusion method. The poly(3-chloroaniline) and poly(3-chloroaniline)-nanocomposite-$NiFe_2O_4$ showed good activity against *Staphylococcus aureus* and moderate activity against *Bacillus subtilis*, and *Escherichia coli*. Poly(3-chloroaniline) exhibited excellent activity against *Aspergillus flavus* and moderate activity against *Aspergillus niger*. Poly(3-chloroaniline)-nanocomposite-$NiFe_2O_4$ had good activity against *Aspergillus niger* and moderate activity against *Aspergillus flavus*. Poly(3-chloroaniline)-nanocomposite-$NiFe_2O_4$ showed better antifungal activity against *Aspergillus niger* when compared to poly(3-chloroaniline). Poly(3-chloroaniline) has better activity against *Aspergillus flavus* than the nanocomposite.The redox activity with synergistic bactericidal effect of chlorine and chlorosubstituted polyaniline enhances the biodegradability and biocompatibility leading to functional application as antibacterial agents in biomedicine.

Selection and peer-review under responsibility of scientific committee of the International Conference on Advanced Materials and Mechanical Characterization (ICAMMC 2021).

1. Introduction

For more than a decade now, conducting polymers, a key research area, has raised attention of various researchers due to their economical importance, light weight, good stability and semiconducting nature. These properties pave the way for applications in several areas like low-cost energy storage devices, biomedicine, electrochromic display devices and biosensors etc. Polyaniline is one among the conducting polymers which is potential towards its activity in the field of storage devices [1], since its unique material characteristics and exceptionally good environmental stability are not observed in any of the other conducting polymers. The extended conjugation along the polymer backbone makes the chain rigid resulting in lack of solubility and infusibility, which indicate the main drawback of this polymer. Hence the conjugated polymers, lacked one of the most important and useful properties of polymers, namely their ease of processability. More recently, researchers overcame these problems by focusing on the molecular design, alteration in the monomer structure by introducing various substituents, use of different types of surfactants, selective acid dopants and copolymerization. The incorporation of substituents in the polymer backbone is a common technique to prepare soluble

* Corresponding author.
E-mail addresses: vanichem2005@gmail.com (G. Vani), jhancy2011@gmail.com (S. Jhancy Mary).

https://doi.org/10.1016/j.matpr.2022.04.174
2214-7853/
Selection and peer-review under responsibility of scientific committee of the International Conference on Advanced Materials and Mechanical Characterization (ICAMMC 2021).

Eco. Env. & Cons. 28 (November Suppl. Issue) : 2022; pp. (S133-S139)

ISSN 0971–765X

DOI No.: http://doi.org/10.53550/EEC.2022.v28i07s.023

Biodiversity of Ostracods In Kozhappalur Lake, Tamilnadu, India

Uma Chandra N.[1], Revathi K.[2*], Rekha V.[3] and M. Noornissabegum[4]

[1]Department of Zoology, Auxilium College, Gandhi Nagar, Vellore, T.N., India
[2]Meenakshi Academy of Higher Education and Research, Chennai, T.N., India
[3]Department of Zoology, D.K.M College for Women, Vellore, T.N., India.
[4]PG and Research Department of Zoology, Ethiraj College for Women, Chennai, T. N., India

(Received 7 February, 2022; Accepted 28 April, 2022)

ABSTRACT

The present study is based on planktonic Ostracods collected from Kozhappalur Lake twice a month over a period of one years (January, 2019 to December, 2019). In total, seven species belonging to six genera were identified. The detailed description of Ostracods recorded during this study is presented for substantiating the taxonomic relevance of the study.

Keywords: Ostracods, Kozhappalur Lake, Biodiversity

Introduction

Ostracods are a class of the Crustacea (class Ostracoda), commonly known as seed shrimps which are typically around 1 mm in size varying from 0.2 to 30 mm. Their bodies are flattened from side to side and protected by bivalve-like, chitinous valve. The hinge of the two valves is in the upper region of the body. They are grouped together based on gross morphology. They are found in almost all aquatic environments including hot springs, caves, within the water table, semi-terrestrial environments, in both fresh and marine waters, within the water column as well as on (and in) the substrate (Martens, 2000). Ostracods are sensitive to changes in the water quality and are regarded as valuable bio-indicators therefore they are used in investigation of water quality. Their community structure not only allows estimates of the level of pollution, but also indicates the trend of general conditions over time. If changes in species diversity and population abundances result from either direct or indirect environmental stressors, then the changes in biota may be used to elucidate changes in the environment (Puri, 1964). Living Ostracods are used as bio monitors in wetlands, streams and springs. They form an important component in the food of aquatic microorganism (Kornicker and Sohn, 1971). Today Ostracods are playing an important role in Quaternary climate change research. Ecological and biogeographically databases are being complied from many researchers world wide. Using Geographical Information Systems (GIS) the data can be portrayed spatially. Ostracod databases are the North American Non-Marine Ostracods Database (NANODe) and the Arctic Ostracods Database (Cronin *et al.*, 2002).

Materials and Methods

Samples were collected twice a month from January 2019 to December 2019 from Kozhappalur,

([1]Assistant Professor, [2]Research Director, [3]Assistant Prof., [4]Assistant Prof.)

King Saud University

Arabian Journal of Chemistry

www.ksu.edu.sa
www.sciencedirect.com

ORIGINAL ARTICLE

Biosynthesis, characterization, biological and photo catalytic investigations of Elsholtzia blanda and chitosan mediated copper oxide nanoparticles

Athisa Roselyn Maheo [a,1], **B. Scholastica Mary Vithiya** [a,1,*], **T. Augustine Arul Prasad** [b,2,*], **P. Tamizhdurai** [b,2], **V.L. Mangesh** [c]

[a] *PG and Research Department of Chemistry, Auxilium College (Autonomous), Vellore 632006, Tamil Nadu, India*
[b] *PG and Research Department of Chemistry, Dwarakadoss Goverdhandoss Vaishnav College (Autonomous), Chennai 600106, India*
[c] *Department of Mechanical Engineering, Kathir College of Engineering, Coimbatore 641062, India*

Received 6 November 2021; accepted 19 December 2021
Available online 23 December 2021

KEYWORDS

Copper oxide nanoparticles;
Elsholtzia blanda;
Chitosan;
Green synthesis;
Antibacterial;
Antioxidant;
Congo red;
Photo catalytic activity

Abstract Bio synthesis of nanoparticles using plant parts has gained considerable attention, given the fact that the method is green, environment friendly, cheaper, simple and involves no hazardous substances. The present study involves the green synthesis of copper oxide nanoparticles (**CuO NPs**) using chitosan and the aqueous leaf extract of *Elsholtzia blanda*, an aromatic medicinal herb. The synthesized *E.blanda*-chitosan mediated copper oxide nanoparticles (**CPCE**) and *E. blanda* mediated copper oxide nanoparticles (**PCE**) were subjected to different characterization techniques, Ultraviolet–visible (UV–Vis), Fourier Transform Infrared Spectroscopy (FTIR), X-Ray Diffraction (XRD), Field Emission Scanning Electron Microscopy (FE-SEM), Energy Dispersive X-ray Analysis (EDAX), High Resolution Transmission Electron Microscopy (HRTEM) and Selected Area Electron Diffraction (SAED). The absorbance peaks in UV–Vis spectroscopy at 286 nm and 278 nm for CPCE and PCE respectively indicated the formation of nanoparticles. TEM and SEM employed for studying the surface morphology showed rod-like and spherical morphology bearing average size of 47.71 nm for CPCE and 36.07 nm for PCE. The antibacterial activities of

* Corresponding authors.
E-mail addresses: schol2005@auxiliumcollege.edu.in (B. Scholastica Mary Vithiya), augustine@dgvaishnavcollege.edu.in (T. Augustine Arul Prasad).
[1] (Affiliated to Thiruvalluvar University, Serkkadu, Vellore – 632115, India).
[2] (Affiliated to University of Madras, Chennai -600005, Tamil Nadu, India).

Peer review under responsibility of King Saud University.

ELSEVIER Production and hosting by Elsevier

https://doi.org/10.1016/j.arabjc.2021.103661

Contents lists available at ScienceDirect

Results in Surfaces and Interfaces

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

Biosynthesis and characterization of *Eupatorium adenophorum* and chitosan mediated Copper oxide nanoparticles and their antibacterial activity

Athisa Roselyn Maheo [1], Scholastica Mary Vithiya B. [a], Augustine Arul Prasad T. [b,*]

[a] PG and Research Department of Chemistry, Auxilium College (Autonomous), Vellore, 632006, India
[b] PG and Research Department of Chemistry, Dwarakadoss Goverdhandoss Vaishnav College (Autonomous), Chennai, 600106, India

ARTICLE INFO

Keywords:
Copper oxide nanoparticles
Green synthesis
Antibacterial
Chitosan
Eupatorium adenophorum

ABSTRACT

The biosynthesized metal oxide nanoparticles are of particular interest due to their wide applications in diverse fields. In the present study, copper oxide nanoparticles were successfully synthesized using chitosan and aqueous leaf extract of *Eupatorium adenophorum*. The green synthesized chitosan-plant extract mediated copper oxide (CPC) nanoparticles were characterized by Ultraviolet–visible (UV–Vis), Fourier Transform Infrared Spectroscopy (FTIR), X-ray Diffraction (XRD), Field Emission Scanning Electron Microscopy (FE-SEM), Energy Dispersive X-ray Analysis (EDAX), High Resolution Transmission Electron Microscopy (HRTEM) and Selected Area Electron Diffraction (SAED). The FESEM and HR-TEM shows the synthesized nanoparticles structures as Nano flakes and Nano rods with size ranging between 30 nm–80 nm. EDAX shows the purity of the elemental constitutions. Antibacterial efficacy for the synthesized nanoparticles was tested against two-gram positive bacteria viz. *Enterococcus faecalis* and *Staphylococcus aureus* and two gram negative bacteria viz. *Escherichia coli* and *Salmonella typhi* The maximum zone of inhibition for *E. faecalis, S. aureus, E. coli, S. typhi* were 18 mm, 12 mm, 11 mm and 12 mm respectively. The synergic effects between chitosan and plant extract in determining the shape and size of the nanoparticles are well established.

1. Introduction

Nanotechnology is a fast-emerging field in modern research, involving the synthesis of nanoparticles whose properties exhibit a sea of difference from those of their bulk counterparts. This is due to their size, distribution, and morphology. Nanoparticles with size varying from 1–100 nm find a unique place in nanoscience and nanotechnology as they find their applications in everyday life which includes catalysis, cosmetics, drug delivery, clothing, packaging, optics, information storage, pollution control, automobiles and manufacturing sectors, etc. (Tiquia-Arashiro and Rodrigues, 2016) Nanotechnology aims at producing faster, lighter, cheaper and smaller devices which has greater efficiency while using less raw materials and consuming less energy (Murugesan et al., 2016).

Though synthesis of nanoparticles can be achieved both through conventional chemical method and green method, the latter is widely preferred as it involves little or no toxic substances at all either as precursors or as by products. Green synthesis of nanoparticles involves plant parts, microbes or enzymes. However, use of plant parts prove to be more facile compared to the microbe-mediated synthesis which involves tedious culturing. In the green method, the utility of different plant parts such as flower, fruit, seed, fruit peel, root, bark, stem, leaf, etc. are highly significant. They act as reducing and capping agents since they contain phytochemicals like carbohydrates, polysaccharides, flavonoids, terpenoids and alkaloids which are attributed for their reducing properties (Yulizar et al., 2017).

Metals especially transition metals can form oxides of varied stoichiometry due to their variable oxidation states. Metal oxide nanoparticles, with specific properties like enhanced surface area, biocompatibility, high thermal and mechanical stability, excellent catalytic, magnetic and optical properties are gaining significant ground (Nguyen et al., 2018). This led to them being highly applicable in various important and crucial fields of technology, medicines, industries, agriculture, environmental remediation, etc. There are reports of various metal oxide nanoparticles such as CuO, ZrO_2, TiO_2, CeO_2, Fe_2O_3, FeO, SnO, ZnO, MgO (Khaldakar and Butala, 2017) being synthesized and their properties and applications studied. Among them Copper oxide (CuO) nanoparticles stand prominent owing to their unparalled physical and chemical properties. CuO nanoparticles are excellent p-type semiconductor with a narrow band gap ~1.7 eV (Gebremedhn et al., 2019a). Owing to the fact that CuO nanoparticles find wide applications in

* Corresponding author.
E-mail address: augustine@dgvaishnavcollege.edu.in (Augustine Arul Prasad T.).
[1] Affiliated to Thiruvalluvar University, Serkkadu, Vellore, Tamilnadu, India – 632115.
[2] Affiliated to University of Madras, Chennai, Tamilnadu, India – 600005.

https://doi.org/10.1016/j.rsurfi.2022.100048
Received 25 May 2021; Received in revised form 22 December 2021; Accepted 23 January 2022

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Contents lists available at

Journal of King Saud University – Science

journal homepage: www.sciencedirect.com

Original article

Green synthesis of silver nanoparticles by employing the *Allium fistulosum*, *Tabernaemontana divaricate* and *Basella alba* leaf extracts for antimicrobial applications

S. Vinodhini [a,*], B. Scholastica Mary Vithiya [b,*], T. Augustine Arul Prasad [b]

[a] Department of Chemistry, Auxilium College (Affiliated to Thiruvalluvar University, Serkkadu,Vellore - 632115), Vellore - 632006, Tamil Nadu, India
[b] Department of Chemistry, Dwarkadoss Goverdhandoss Vaishnav College (Affiliated to University of Madras), Chennai - 600106, Tamil Nadu, India

ARTICLE INFO

Article history
Received 1 January 2022
Revised 20 February 2022
Accepted 28 February 2022
Available online 4 March 2022

Keywords
Anti-diabetic
Catalytic
Photocatalytic
Antibacterial
Antifungal
Antioxidant *Allium fistulosum*
Tabernaemontana divaricate
Basella alba
Silver nanoparticles

ABSTRACT

Nanoparticles produced from biological sources are gaining a lot of attention these days , and they have a wide spectrum of uses. The fact that it is both environmentally benign is the key reason for its widespread popularity. Our current study uses a green approach to describe the biological production and characterisation of silver nanoparticles made from a conventional leaf extract. The antibacterial and antidiabetic performance of silver nanoparticles prepared with plant extracts such as *Tabernaemontana divaricate*, ***Basella alba, and Allium fistulosum*** is also assessed in this study. Scanning Electron Microscopy (SEM), and Transmission Electron Microscope (TEM) was utilized to characterise the shape and morphology of produced silver nanoparticles. Silver nanoparticles with sizes of 40 nm, 50 nm and 57 nm were observed to have a solid block-like, rod-like structure. AgNPs show bactericidal action towards both gram-positive and -negative microbes, according to in vitro investigations. Both antidiabetic and antioxidant activity suggest that silver nanoparticle has good ability to inhibit enzymes so it could act as alternative for the conventional drug.

1. Introduction

Metallic nanoparticles (NPs) were of major attention due to its exceptional physico-chemical properties and possible photocatalytic and wastewater treatment benefits (George et al., 2022; Maria Magdalane et al., 2018; Panimalar et al., 2022; Panimalar et al., 2022; Kasinathan et al., 2016). Metallic nanoparticles (MNPs) have distinct properties that are determined by the ways of fabrication and the composition of the precursors which is effect of biologicl and metal oxide nanoparticles (Venkatesh et al., 2018; Simbine et al., 2019; Aziz et al., 2016; Mahmoud et al., 2016; Elbeshehy et al., 2015). Physical methods for preparing AgNPs have been tried, however they are not cost-effective, waste more energy, and require the use of specialised instruments. However, because of toxicity issues, they have limited biological applicability. External stabilisers, some of which are hazardous, are routinely used to improve their stability. The use of biological resources to produce nanoparticles, particularly plants, can eradicate the toxic issue (Mani et al., 2021; Anand et al., 2017; Mani et al., 2021; Mani et al., 2021). Floras were widely available, non-toxic, and simple to manage. Plants also have phytochemicals, might be reducing and capping substances, making the production method simple. Silver (Ag) NPs have gained a lot of attention among all the metallic nanoparticles (Oves et al., 2018; Manikandan et al., 2017). Chemical-based reduction, micro-emulsions, radiation, hybrid-based approaches, photo-chemical reduction and sono-electrochemical, microwave-based systems, and now a green production route have all been developed for the production of AgNPs (Yaqoob et al., 2020; Syafiuddin et al., 2017; Loo et al., 2018; Sanchooli et al., 2018).

However, despite the fact that some of these physiochemical procedures are long-lasting and technically viable, their usage on a broad scale is limited owing to its usage of dangerous chemicals, higher costs, higher energy and time requirements, and strain in wastage purification thorugh photocatalysis technique (Mangala

* Corresponding authors.
E-mail addresses: vinodhinisanjeevee@gmail.com (S. Vinodhini), scholl2005@auxiliumcollege.edu.in (B. Scholastica Mary Vithiya).

Peer review under responsibility of King Saud University.

ELSEVIER Production and hosting by Elsevier

https://doi.org/10.1016/j.jksus.2022.101939
1018-3647/

Journal of Applied Chemical Science International

GREEN SYNTHESIS, CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY OF PALLADIUM NANOPARTICLES : A REVIEW

S. VINODHINI [a], B. SCHOLASTICA MARY VITHIYA [a*] AND T. AUGUSTINE ARUL PRASAD [b]

[a]Department of Chemistry, Auxilium College (Affiliated to Thiruvalluvar University, Serkkadu, Vellore - 632115), Vellore - 632006, Tamil Nadu, India.

[b]Department of Chemistry, Dwarakadoss Goverdhandoss Vaishnav College (Affiliated to University of Madras), Chennai - 600106, Tamil Nadu, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Authors SV and BSMV designed the study. performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author TAAP managed the analyses of the study. All authors read and approved the final manuscript.

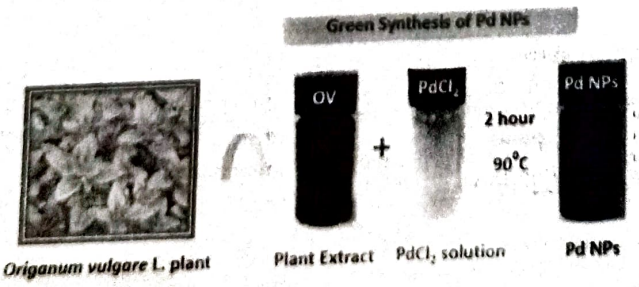
Received: 20 Janaury 2022
Accepted: 23 March 2022
Published: 26 March 2022

Review Article

ABSTRACT

Nanoparticles are ultra-fine particles, thickness within a range of 100 nm in diameter. They are held responsible in enormous fields like diagnosis, bio-imaging, drug delivery, cancer therapy, environmental applications, biosensors, electronics, etc., due to their unique physicochemical properties. Among many noble metals, Palladium (Pd) is one such metal that has gained attention in this review. Plant-based biosynthesis has revealed the possibilities of synthesizing nanometric range palladium particles, their stabilization and impact of varying pH, temperature and concentration mostly on development and morphology with nanoparticles. the biosynthesized particles were determined using UV-Visible spectral analysis, FTIR, SEM, TEM - EDX as well as DLS technique whose findings were in support to the role of phytochemicals operating as reducing and stabilizing agents during the Pd (II) reduction to Pd(0). The antimicrobial activity of palladium nanoparticles (Pd NPs) synthesized from different plant extracts was also studied against various pathogens. The results showed the ability of Pd NPs to make the microbes susceptible by a clear zone of inhibition. Despite of all these experiments, the research demands further extensive study to bring out an exact mechanism for the process of Pd (II) reduction to Pd (0) and mode of action of Pd NPs against microbes.

Graphical Abstract



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

Sc- Signature

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Contents lists available at ScienceDirect

Journal of King Saud University – Science

journal homepage: www.sciencedirect.com

Original article

Green synthesis of palladium nanoparticles using aqueous plant extracts and its biomedical applications

S. Vinodhini [a,*], B. Scholastica Mary Vithiya [a,*], T. Augustine Arul Prasad [b]

[a] Department of Chemistry, Auxilium College (Affiliated to Thiruvalluvar University, Serkkadu, Vellore 632115), Vellore 632006, Tamil Nadu, India
[b] Department of Chemistry, Dwarakadoss Goverdhandoss Vaishnav College (Affiliated to University of Madras), Chennai 600106, Tamil Nadu, India

ARTICLE INFO

Article history:
Received 2 January 2022
Revised 25 March 2022
Accepted 5 April 2022
Available online 9 April 2022

Keywords:
Basella alba
Allium fistulosum
Tabernaemontanadivaricate
Green synthesis
Antimicrobial activity
Antifungal
Palladium nanoparticles

ABSTRACT

In recent years, metallic nanoparticles manufactured by green method have become a popular environmentally beneficial technology. Our current study describes an eco-friendly, biological production of palladium nanoparticles (PdNPs) with leaf extracts from *Allium fistulosum*, *Basella alba* and *Tabernaemontana divaricate*. Fourier transform infrared spectroscopy (FTIR), Ultraviolet–visible (UV–vis) spectroscopy, scanning electron microscopy (SEM), X-ray diffraction (XRD) and transmission electron microscopy (TEM) be used to characterise the produced PdNPs. The results of our SEM examination showed spherical form with a size of of 500 nm, 2 μm and 2 μm, correspondingly, for leaf extracts of *Allium fistulosum*, *Basella alba*, and *Tabernaemontana divaricate* derived PdNPs. In TEM images of all three extracts, the diameter and shape of the generated PdNPs were rather constant. Therefore, PdNPs with diameters ranging from 2 to 5 nm were measured respectively. Finally, all the extracts were evaluated for antioxidant, antifungal and antibacterial activity. The optimized PdNPs were taken for the application of dye degradation process by varying the concentration from 0 to 50 of different aliquots of PdNPs dispersions at different time of 0 to 10 and about 1 mL of congo red ($1x10^{-4}$ M) was mixed with 0.25 mg of PdNPs and kept for continuous stirring at room temperature (RT). The data demonstrated that the effects of duration and concentration were strongly related to the generated functional groups as well as nanoparticles, played an important role in decreasing metal ions and stabilising PdNPs in an environmentally manner.

1. Introduction

Nanomaterial improvement, especially of high quality, is a hot topic in nanoscience and technology these days. Metal techniques have sparked renewed attention due to its fascinating physical, thermodynamic and chemical properties, make great candidates for various applications such as optical electronics, catalysis, and biomedical applications (Azizi et al., 2017; Mani et al., 2021; Parasuraman et al., 2019; Sathiyaraj et al., 2021; Anju et al., 2019). Palladium nanoparticles, commonly known as PdNPs catalysts, have gained a lot of attention because of its useful uses in bioscience, biomedicine, and pharmacy. Because of its increased *surface-to-volume* ratio and enormous external strength, progress in the manufacture of Pd nanoparticles has gained tremendous relevance due to its use in both homogeneous and heterogeneous catalysis (Dauthal and Mukhopadhyay, 2013; Fahmy et al., 2020; Fahmy et al., 2020; Ghosh et al., 2015; Kapdi and Fairlamb, 2014). Electrical and chemical laser pulse ablation, and sonochemical decline procedures are common formulated PdNPs delivery methods. Because the synthetic chemical approaches used to make PdNPs have a punitive effect and reduce palladium's catalyst performance, new synthetic procedures are needed to fulfil a wide variety of possible purposes for the production of PdNPs with regulated size thickness. Metal ions can be reduced to NPs by physio-chemical, enzymatic, and biological processes (Liu et al., 2016; Mittal et al., 2013; Mohana and Sumathi, 2020; Nugroho et al., 2016; Rabiee et al., 2020). Higher radiation and concentrated reduction compounds are used in physio-chemical procedures, polluting the atmosphere and perhaps harming people's health. Nonetheless, the enzymatic approach of nanoparticle processing is superior, although it is more expensive. Due to a need to construct nature-friendly techniques in the processing of nanomaterials, the use of

* Corresponding authors.
E-mail addresses: vinodhunisanjeevee@gmail.com (S. Vinodhini), schol2005@auxiliumcollege.edu.in (B. Scholastica Mary Vithiya).
Peer review under responsibility of King Saud University.

ELSEVIER Production and hosting by Elsevier

https://doi.org/10.1016/j.jksus.2022.102017
1018-3647/

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Asian Journal of Chemistry; Vol. 34, No. 5 (2022), 1183-1188

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2022.23651

Evaluation of Cu-Ag Bimetallic Nanoalloys as Antibacterial, Antidiabetic, Anticancerous Drug Biosynthesized from *Curcuma aromatica*

JASMINE JACOB[1,*], T. AUGUSTINE ARUL PRASAD[1], B. SCHOLASTICA MARY VITHIYA[1], BINDHU THOMAS[1] and R. VASANTH[2]

[1]Post Graduate and Research Department of Chemistry, Dwarakadoss Goverdhan Doss Vaishnav College (Affiliated to University of Madras), Chennai-600005, India

[2]Post Graduate and Research Department of Chemistry, Auxilium College (Affiliated to Thiruvalluvar University, Vellore-632115), India

*Corresponding author: E-mail: jasminejacob215@gmail.com

Received: 3 December 2021; *Accepted*: 6 February 2022; *Published online*: 20 April 2022; AJC-20770

Drug resistant strains are formed due to unsuitable uses of antibiotics and insufficient check of infections. In present years, due to the extensive-antimicrobial properties, metallic nanoparticles and metallo-pharmaceutics are highly proposed. Therefore, the synthesis of bimetallic nanoparticles are exploring towards the evolution of more productive amalgamative antimicrobials composed of combined metals. In this study, the green synthesis of Cu-Ag bimetallic nano-alloys using aqueous extract from the leaves of *Curcuma aromatica* is carried out. Synthesized Cu-Ag nano-alloys were characterized by UV-visible spectroscopy, scanning electron microscope (FE-SEM), transmission electron microscope (TEM-EDAX), cyclic voltammogram (CV). The characterization studies reveals that the biosynthesis produced core-shell Cu-Ag nano-alloys with spherical shape and average diameter size of 15 nm. The synthesized Cu-Ag nanoalloys exhibited antibacterial activity against both Gram-positive and Gram-negative bacteria. The antidiabetic potential of Cu-Ag nanoalloys shows an effective inhibition against α-glucosidase. Anticancerous activity of Cu-Ag nanoalloys indicates its greater efficacy in destroying cancer cells. The biosynthesis of Cu-Ag nanoalloys can be employed in medical and industrial fields on a large scale with cost reductive method.

Keywords: Bimetallic nanoparticles, *Curcuma aromatica*, Antibacterial activity, Antidiabetic activity, Anticancerous activity.

INTRODUCTION

Drug-resistant infectious diseases are fast spread and causes a global health threat in this era. If this continues, then after 50 years around 10 million people die every year due to these drug-resistant infections [1]. As antimicrobial agents, metal nanoparticles are utilized. Tiny particles with different properties and applications are nanoparticles [2]. Noble metal nanoparticles, such as silver, gold, copper, *etc.* exhibits strong antibacterial action against wide range of microorganisms; thus it is used in cosmetics, medical devices, food preservatives, dental resin composites and implants [3]. Bimetallic nanoparticles (combination of two metal elements), show more advantages when compared to mono-metallic nanoparticles and are highly focused due to their distinct optical, electronic, catalytic properties [4]. Biosynthesis of metal nanoparticles provide a new scope due to its simple, stable, eco-friendly, inexpensive methods. In bimetallic nanoparticles synthesis, environment friendly reducing agent, plant extract is utilized. To reduce metal ions into metal nanoparticles, plant phytochemicals with antioxidant or reducing properties are used [5]. In nanoparticles synthesis, the composition of plant leaf extract is also an important factor *i.e.*) each one have different concentration level of phytochemicals [6]. Flavones, terpenoids, ketones, aldehydes, sugars, carboxylic acids and amides are the main phytochemicals in plants, responsible for bioreduction [7]. In theoretical point of view metal ions with stronger reduction potential are reduced faster. Thus in Au-Ag bimetallic nanoparticles which is a well-known system, Au ions are reduced first while Ag ions are reduced later, forming core-shell structure [8]. *Curcuma aromatica*, a traditional medicinal herb, belong to Zingeberaceae family, used for treating biliary disorder, anorexia, cough, diabetic wounds, hepatitis disorders, rheumatism, sinusitis [9]. Around 235 compounds are found in *C. aromatica*, which is categorized under phenolic compounds and terpenoids. *C. aromatica* has 22 diaryl heptanoids, 8 phenyl-

Contents lists available at ScienceDirect

Results in Surfaces and Interfaces

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

Biosynthesis and characterization of *Eupatorium adenophorum* and chitosan mediated Copper oxide nanoparticles and their antibacterial activity

Athisa Roselyn Maheo [1], Scholastica Mary Vithiya B. [a], Augustine Arul Prasad T. [b,*]

[a] PG and Research Department of Chemistry, Auxilium College (Autonomous), Vellore, 632006, India[1]

[b] PG and Research Department of Chemistry, Dwarakadoss Goverdhandoss Vaishnav College (Autonomous), Chennai, 600106, India

ARTICLE INFO

Keywords:
Copper oxide nanoparticles
Green synthesis
Antibacterial
Chitosan
Eupatorium adenophorum

ABSTRACT

The biosynthesized metal oxide nanoparticles are of particular interest due to their wide applications in diverse fields. In the present study, copper oxide nanoparticles were successfully synthesized using chitosan and aqueous leaf extract of *Eupatorium adenophorum*. The green synthesized chitosan-plant extract mediated copper oxide (CPC) nanoparticles were characterized by Ultraviolet–visible (UV–Vis), Fourier Transform Infrared Spectroscopy (FTIR), X-ray Diffraction (XRD), Field Emission Scanning Electron Microscopy (FE-SEM), Energy Dispersive X-ray Analysis (EDAX), High Resolution Transmission Electron Microscopy (HRTEM) and Selected Area Electron Diffraction (SAED). The FESEM and HR-TEM shows the synthesized nanoparticles structures as Nano flakes and Nano rods with size ranging between 30 nm–80 nm. EDAX shows the purity of the elemental constitutions. Antibacterial efficacy for the synthesized nanoparticles was tested against two-gram positive bacteria viz. *Enterococcus faecalis* and *Staphylococcus aureus* and two gram negative bacteria viz. *Escherichia coli* and *Salmonella typhi* The maximum zone of inhibition for *E. faecalis, S. aureus, E. coli, S. typhi* were 18 mm, 12 mm, 11 mm and 12 mm respectively. The synergic effects between chitosan and plant extract in determining the shape and size of the nanoparticles are well established.

1. Introduction

Nanotechnology is a fast-emerging field in modern research, involving the synthesis of nanoparticles whose properties exhibit a sea of difference from those of their bulk counterparts. This is due to their size, distribution, and morphology. Nanoparticles with size varying from 1–100 nm find a unique place in nanoscience and nanotechnology as they find their applications in everyday life which includes catalysis, cosmetics, drug delivery, clothing, packaging, optics, information storage, pollution control, automobiles and manufacturing sectors, etc. (Tiquia-Arashiro and Rodrigues, 2016) Nanotechnology aims at producing faster, lighter, cheaper and smaller devices which has greater efficiency while using less raw materials and consuming less energy (Murugesan et al., 2016).

Though synthesis of nanoparticles can be achieved both through conventional chemical method and green method, the latter is widely preferred as it involves little or no toxic substances at all either as precursors or as by products. Green synthesis of nanoparticles involves plant parts, microbes or enzymes. However, use of plant parts prove to be more facile compared to the microbe-mediated synthesis which involves tedious culturing. In the green method, the utility of different plant parts such as flower, fruit, seed, fruit peel, root, bark, stem, leaf, etc. are highly significant. They act as reducing and capping agents since they contain phytochemicals like carbohydrates, polysaccharides, flavonoids, terpenoids and alkaloids which are attributed for their reducing properties (Yulizar et al., 2017).

Metals especially transition metals can form oxides of varied stoichiometry due to their variable oxidation states. Metal oxide nanoparticles, with specific properties like enhanced surface area, biocompatibility, high thermal and mechanical stability, excellent catalytic, magnetic and optical properties are gaining significant ground (Nguyen et al., 2018). This led to them being highly applicable in various important and crucial fields of technology, medicines, industries, agriculture, environmental remediation, etc. There are reports of various metal oxide nanoparticles such as CuO, ZrO_2, TiO_2, CeO_2, Fe_2O_3, FeO, SnO, ZnO, MgO (Khaldakar and Butala, 2017) being synthesized and their properties and applications studied. Among them Copper oxide (CuO) nanoparticles stand prominent owing to their unparalled physical and chemical properties. CuO nanoparticles are excellent p-type semiconductor with a narrow band gap ~1.7 eV (Gebremedhn et al., 2019a). Owing to the fact that CuO nanoparticles find wide applications in

* Corresponding author.
E-mail address: augustine@dgvaishnavcollege.edu.in (Augustine Arul Prasad T.).
[1] Affiliated to Thiruvalluvar University, Serkkadu, Vellore, Tamilnadu, India – 632115.
[2] Affiliated to University of Madras, Chennai, Tamilnadu, India – 600005.

https://doi.org/10.1016/j.rsurfi.2022.100048
Received 25 May 2021; Received in revised form 22 December 2021; Accepted 23 January 2022

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Polymer Bulletin
https://doi.org/10.1007/s00289-022-04094-5

ORIGINAL PAPER

Fabrication and evaluation of nanoencapsulated quercetin for wound healing application

T. Nalini[1] · S. Khaleel Basha[2] · A. Mohamed Sadiq[3] · V. Sugantha Kumari[4]

Received: 8 August 2021 / Revised: 8 December 2021 / Accepted: 11 January 2022

Abstract

Nanotechnology based platforms have gained new insights into the development of effective modes of drug delivery systems for addressing wounds and related pathologies. Drugs encapsulated in nanodimensioned materials or nanoparticles are becoming a dermatologically attractive and versatile strategy for the development of optimized pharmaceutical formulations. In the current study, we developed gel formulations of Quercetin (Q) loaded alginate (ALG)/chitosan nanoparticle (CSNP) with concentrations 0.01% and 0.075% incorporated into carbopol encoded as Q-ALG/CSNP-G1, Q-ALG/CSNP-G2, respectively, and assessed their wound healing potential when topically applied to open excision wounds on adult Wistar rats. The characterization tests confirmed Q-ALG/CSNP-G2 featured pH, spreadability, extrudability and consistency. The in vitro release profile showed that the optimized Q-ALG/CSNP-G2 released quercetin in a sustained manner of $62.51 \pm 0.72\%$ over the period of 24 h as optimally needed for the wound healing onrush covering the inflammatory and proliferative phases. The in vivo acute dermal toxicity study did not produce any overt indications of toxicity as compared with control rats. The healing time for wounds treated with quercetin was even longer than those treated with Q-ALG/CSNP-G2. Antioxidant assays (SOD, CAT, LPO, and NO) revealed enhanced free radical scavenging ability of Q-ALG/CSNP-G2 gel receiving rats, thus improving healing quality. Furthermore, the restoration of biomarkers hydroxyproline and hexosamine content significantly proved increased re-epithelialization and collagen formation. The histopathological investigations on wounds treated with drug-loaded gel demonstrated efficient healing, as evidenced by the deficit of inflammation, established fibrous tissues, well-organized fibroblasts, and blood capillaries. Combining the unique properties of controlled drug release, enhanced antioxidant and antibacterial effects, the developed Q-ALG/CSNP-G2 were topically effective and showed synergistic wound healing capabilities compared with free quercetin in Wistar albino rats.

Extended author information available on the last page of the article

Published online: 28 January 2022

Materials Today Communications 31 (2022) 103429

Contents lists available at ScienceDirect

Materials Today Communications

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

Nano zinc oxide and nano bioactive glass reinforced chitosan/poly(vinyl alcohol) scaffolds for bone tissue engineering application

P. Narmatha Christy [a], S. Khaleel Basha [b], V. Sugantha Kumari [a,*]

[a] PG and Research Department of Chemistry, Auxilium College (Autonomous), Vellore 632006, Tamil Nadu, India
[b] PG and Research Department of Chemistry, C. Abdul Hakeem College, Melvisharam 632509, Tamil Nadu, India

ARTICLE INFO

Keywords:
Chitosan (CS)
Poly(vinyl alcohol) (PVA)
Nano bioactive glass (nano BAG)
Nano zinc oxide (nano ZnO)
Bone tissue engineering

ABSTRACT

The present study was to develop a hybrid chitosan-based bionanocomposite for potential bone tissue engineering applications. Chitosan (C)/Poly(vinyl alcohol) (P)/nano bioactive glass (B)/nano Zinc Oxide (Z) were fabricated by sol-gel assisted solvent casting method. In this method, several CPBZ nanocomposites have been studied by varying the ratios of nano ZnO (0.05%, 0.1%, 0.2%) to yield CPBZ1, CPBZ2 and CPBZ3 hybrid scaffolds. TEM, FESEM- EDAX, XRD and FTIR analyses were performed to characterize the macrostructure of CPBZ bionanocomposites. Nano ZnO of size 20 nm and nano bioactive glass of size 6–10 nm was synthesized and characterized by TEM analysis. The in vitro bioactivity studies confirmed the formation of apatite minerals that results in direct bone bonding implant. SEM revealed the macroporous structure with a pore size of about 10 μm and hydrophilic rough surface. The phase composition of nano ZnO embedded in CPBZ scaffolds was examined by XRD. The characteristic functional groups and the chemical interactions associated with the organic-inorganic phase were analyzed by FTIR. The results of mechanical studies by a universal testing machine (UTM) demonstrated an increase in the tensile strength and apparent density after the addition of nano bioactive glass and nano ZnO. The integration of nano Zinc Oxide in the polymer matrix increased the swelling ratio up to 298% and maintained the delayed biodegradation behavior around 38%, while the pH remained neutral (7.4). The antibacterial activity evaluated by *Salmonella typhi* and *Enterococcus faecalis* pathogens showed a better zone of inhibition for gram positive *E. faecalis*. The hemocompatibility study proves that the CPBZ nanocomposites are blood compatible and showed a hemolytic ratio of less than 2%. The results demonstrated that the prepared bionanocomposites could act as an extracellular matrix in osteogenic tissue engineering.

1. Introduction

Bioengineered bone tissue is a potential alternative to the traditional use of bone grafts as it can be provided indefinitely and has a low risk of infection and disease transmission [1]. Tissue engineering requires a combination of host cells, biologically active factors, and scaffolds to renovate or replace bone. Bioengineered scaffolds should be able to facilitate cell function and depict the extracellular matrix (ECM). A biocompatible, biomechanically reliable, and biodegradable scaffold with degradation rates similar to new tissue growth and similar to native host tissue is advantageous for tissue engineering. Scaffolds of nanostructures can provide a channel for mesenchymal-derived cells like osteoblasts to grow and differentiate [1,2]. A separate polymer cannot encounter all of the requirements to function efficiently for a natural extracellular matrix. As a result, scaffolds should be woven from various materials to have all of the desired properties to promote cell regulation. So every material has a unique property that contributes to the overall efficacy of the scaffold. Polymeric (both natural and synthetic) and nonpolymeric materials have traditionally been used in the fabrication of scaffolds. Chitosan and poly(vinyl alcohol) are considered attractive materials for tissue regeneration due to their exceptional biocompatibility and desirable chemical structure [3].

Chitosan is of significant interest because of its biocompatibility, biodegradability, osteogenic and broad-spectrum antimicrobial properties. Chitosan contains glucosamine and N-acetyl glucosamine units and is quite similar to glycosaminoglycans, the main constituent of native ECM. Due to its similarity to different glycosaminoglycans, it may bind to growth factors in osseous trabecular tissue and may also be mitogenically active in different kinds of cells like osteoblasts It promotes cell adhesion and proliferation while also acting as an

* Correspondence to: Affiliated to Thiruvalluvar University, Serkkadu, Vellore 632115, Tamil Nadu, India.
E-mail address: suganthak@auxiliumcollege.edu.in (V.S. Kumari).

https://doi.org/10.1016/j.mtcomm.2022.103429
Received 13 October 2021; Received in revised form 12 March 2022; Accepted 21 March 2022
Available online 24 March 2022

2020-2021 Journals

பூபாளத்திற்கொரு புல்லாங்குழலில் மனிதநேயம்

முனைவர் நா. குமாரி
உதவிப்பேராசிரியர்
அக்சிலியம் கல்லூரி, வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முன்னுரை

"கல்தோன்றி மண்தோன்றாக் காலத்தே
வாளொடு முன்தோன்றிய மூத்தக்குடி."

என்றழைக்கப்படுவது தமிழ்க்குடி கடலில் மூழ்கிப்போன இலெமூரியாக் கண்டத்தில் முதன் முதலாக மனித இனத்தைத் தோற்றுவித்த மண் தமிழ் மண்.

"யாதும் ஊரே" யாவரும் கேளிர்"

என்ற பாடல் வரி உலக மண்ணையும் உலக மக்களையும் ஒன்றாக எண்ணி உறவோடு பாடியவன் தமிழ்ப் புலவன். "தன் உயிரைப் போன்றதுதான் மன்னுயிர் அனைத்தும் "என்று தரணிக்கு மனிதநேயத்தோடு சொன்னதும் தமிழ் மண் தான். அத்தகைய தமிழ்மண், தமிழன் நேயம் பற்றி வெ. இறையன்புவின் புபாளத் திற்கொரு புல்லாங்குழல் என்னும் கவிதைத் தொகுப்பில் இடம் பெற்றிருப்பதைப் பற்றி ஆராய்வதே இவ்வாய்வுக் கட்டுரையின் நோக்கமாகும்.

மனிதநேயம்

தனக்காக வாழ்பவன் சுயநலக்காரன். பிற உயிர்களுக்காக வாழ்பவன் கருணையுள்ளவன். அவனே கடவுள். பிற மனிதர்களுக்காக வாழ்பவனே மனிதன். இவன் இறந்த பிறகும் மனிதர்களோடு வாழ்பவன். பிறரை மதிப்பவனே, பிறர் நலம் பேணுபவனே, பிறர் நலம் போற்றுபவனே சிறந்த மனிதநேயம் உடைய மனிதன். தன்னைப் போலவே பிறரும் கல்வியில் உயர்ந்து, பணியில் சிறந்து, வாழ்வில் வளர்ந்து, நலமும் வளமும், பேரும் புகழும் பெற வேண்டும் என்ற எண்ணத்தைப் பல கவிதைகளில் வண்ணமாக்கிக் காட்டுகிறார் வெ. இறையன்பு அவர்கள். இறையன்பைப் போன்றவர்கள் தான் மனிதநேயம் வளர்வதற்கும், பலப்படுவதற்கும் ஒரு பாலமாக இருப்பவர்கள்.

வெள்ளம் மற்றும் கொரோனா நிவாரணம்

தற்பொழுது உலக அளவில், இந்திய அளவில், தமிழக அளவில் பொதுமக்கள் அரசியல்வாதிகள் மத்தியில் பிரபலமான ஒன்று

இராஜா பப்ளிகேஷன்ஸ் ஆய்விதழ்

செம்மொழித் தமிழ்

பன்னாட்டுத் தமிழ் காலாண்டு ஆய்விதழ்

Raja Publications Journal of

Classical Thamizh

(A Quarterly International Tamil Journal)

தொகுதி-10 எண் 1
Vol. 10 No. 1

மார்கழி 2052 - மங்துனி 2053
January - March 2022

ISSN : 2321-0737

சான்றிதழ்

Certificate

This is to certify that Dr. / Mr. / Ms.

கு. நித்தியா
முனைவர் பட்ட ஆய்வாளர் (பகுதி நேரம்), தமிழ்த்துறை, அக்சிலியம் கல்லூரி (த),
காந்தி நகர், வேலூர் - 632006, தமிழ்நாடு, இந்தியா.

முனைவர் நா. குமாரி
நெறியாளர், உதவிப் பேராசிரியர் மற்றும் தமிழ்த்துறைத் தலைவர்,
அக்சிலியம் கல்லூரி (தன்னாட்சி), காந்தி நகர், வேலூர் - 632006, தமிழ்நாடு, இந்தியா.

has Published a paper titled

சூர்யகாந்தன் சிறுகதைகளில் விளிம்பு நிலை மாந்தர்கள்

Sl.No. 35 / 63
Pages : 205-211

Published by
RAJA PUBLICATIONS
No. 10 (Upstair), Ibrahim Nagar, Khajamalai,
Tiruchirappalli - 620 023, Tamil Nadu, India.
Mobile : 9600535241
Website : www.rajapublications.com

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Chief Editor
Dr. M. Sadik Batcha
Associate Professor
PG and Research Department of Thamizh
Jamal Mohamed College (Autonomous)
Tiruchirappalli - 620 020, Tamil Nadu, India
Mobile : 94434 17242, Email : ms_batcha@yahoo.co.in

31

சூர்யகாந்தன் சிறுகதைகளில் விளிம்பு நிலை மாந்தர்கள்

கு. நித்தியா
முனைவர் பட்ட ஆய்வாளர் (பகுதி நேரம்), தமிழ்த்துறை, அக்சிலியம் கல்லூரி (த),
காந்தி நகர், வேலூர் - 632006, தமிழ்நாடு, இந்தியா.

முனைவர் நா. குமாரி
நெறியாளர், உதவிப் பேராசிரியர் மற்றும் தமிழ்த்துறைத் தலைவர்,
அக்சிலியம் கல்லூரி (தன்னாட்சி), காந்தி நகர், வேலூர் - 632006, தமிழ்நாடு, இந்தியா.

ஆய்வுச்சுருக்கம்

சூர்யகாந்தன் சிறுகதைகளில் விளிம்பு நிலையில் வாழும் மக்களின் நிலைப்பாட்டையும் செயல்பாட்டையும் உணர்த்த உள்ளது. சமூக அமைப்பின் மீதான விமர்சனப் பார்வை மற்றும் விளிம்பு நிலையில் வாழும் மக்களின் பழக்க வழக்கங்கள், பின்புலங்கள் வாழ்க்கை முறைகள் இருப்பிடங்கள் சமூகப் படித்தளங்கள் தகுதிகள் பொருளாதார நிலைகள் எனப் பலவற்றை வெளிப்படுத்த உள்ளது. குடும்ப நிலைப்பாடுகள், விளிம்பு நிலையில் வாழும் மக்களின் உணர்வுகள் நடவடிக்கைகள், உறவுமுறைகள், தாழ்வு மனப்பான்மைகள், எதார்த்தங்கள், கதையின் அமைப்புகள் எனப் பலவற்றை உரைக்க உள்ளது.

திறவுச்சொற்கள்

Background setting என்ற இரு சொற்களால் குறிப்பிடப்படுவதைத் தமிழில் பின்புலம், பகைப்புலம் எனப் பல சொற்களால் குறிப்பிடுகின்றனர். ஆங்கில அகராதியில் background என்பதற்கு Information that is needed to understand a problem etc., என்றும் setting என்பதற்கு place and time at which an event occurs or a play novel etc., is set என்றும் பொருள் கூறப்பட்டுள்ளது.

மரபு - பண்பாடு, சமூகப் படித்தளங்கள் - வாழ்க்கைத்தரம், விளிம்பு – அடிமை, வாழ்க்கைத்தரம், எளிமை, சர்வதேச - பன்னாட்டு, பாலியல் - காமம், வன்முறை – அடிமை, திட்டமிடுதல் மற்றும் செயல்படுத்துதல் (Policy making and Execution). மேட்டிமைத்தனம்.

முன்னுரை

சமுதாயத்தில் மாந்தர்கள் உயர்கல்விப் பெற வேண்டும். பொருளாதாரச் சுதந்திரம் பெற வேண்டும். மரபு வழிப்பட்ட சிந்தனைகள் மாற்றம் பெருகுவதற்குச் சமுதாயம் துணை புரிய வேண்டும் என்பதை இவ்வியலின் வழி உரைக்க உள்ளது. சமுதாயத்தில் வாழ்வதற்கு மக்கள் அனைவரும் அதற்கேற்ற தகவமைப்பினை பெற்றுள்ளனர். இதில் பணம், செல்வாக்கு, சாதி இவற்றில் ஏதேனும் ஒன்றில் உயர்ந்தவர்கள் ஒரு சிலரைச் சமுதாயத்திலும் பொது வாழ்விலும் விளிம்பு நிலைக்குத் தள்ளுகின்றனர். அவ்வாறு தள்ளப்பட்ட மக்கள் ஒவ்வொரு நாளும் தங்கள் வாழ்க்கையை, உணர்வை நிலைநாட்டிக் கொள்ளவும் பெரிதும் போராடுகின்றனர். இத்தகைய மக்களையே விளிம்பு நிலை மக்கள் எனலாம்.

விளிம்பு நிலை மக்கள்(subaltern) என்னும் கருத்து 20-ம் நூற்றாண்டில் வரலாறு உருவாக்குவதில் கட்டியமைப்பதில் பெரும் தலைவர்கள் மற்றும் கட்சிகள் மட்டுமே பங்கு பெறுவதில்லை. அடையாளப்படுத்தப்படாத ஏராளமான சிறு சிறு குழுவினரும் அவர்தம் போராட்டங்களும் இவற்றுள் அடங்கும். ஒரு சமூகம் என்று சொல்லும்பொழுது ஆதிக்கம் செய்வோர் மையப்புள்ளியில் இருப்பவராகவும் அச்சமூக வளர்ச்சியில் எவ்வளவு பங்கிருந்தாலும்

Vol. 9 No. 4

புரட்டாசி-மார்கழி 2052
October - December 2021

ISSN : 2321-984X

நவீனத் தமிழாய்வு

(பன்னாட்டுப் பன்முகத் தமிழ் காலாண்டு ஆய்விதழ்)

Journal of

Modern Thamizh Research

(A Quarterly International Multilateral Thamizh Journal)

Arts and Humanities (...), Language Literature and Literary Theory, Tamil UGC Care Listed (...) Journal

Published by

RAJA PUBLICATIONS

No. 10 (Upstair), Ibrahim Nagar, Khajamalai,
Tiruchirappalli - 620 023, Tamil Nadu, India.
Mobile : 9600535241
Website : www.rajapublications.com

30 பகுதி-8
Part -8

சூர்யகாந்தன் சிறுகதைகளில் விளிம்பு நிலையில் பெண்கள்

கு. நித்தியா
முனைவர் பட்ட ஆய்வாளர் (பகுதி நேரம்), தமிழ்த்துறை, அக்சிலியம் கல்லூரி (த), காந்தி நகர், வேலூர் - 632006, தமிழ்நாடு, இந்தியா.

முனைவர் நா. குமாரி
நெறியாளர், உதவிப் பேராசிரியர் மற்றும் தமிழ்த்துறைத் தலைவர், அக்சிலியம் கல்லூரி (தன்னாட்சி), காந்தி நகர், வேலூர் - 632006, தமிழ்நாடு, இந்தியா.

ஆய்வுச்சுருக்கம்

விளிம்பு நிலையில் வாழும் பெண்களின் வாழ்க்கையைப் பெரும்பாலான சிறுகதைகளில் சூர்யகாந்தன் உரைத்துள்ளமையை உரைத்துள்ளது. சமூக நிலையில் பெண்கள், பெண் படைப்புகள், பெண்களின் அடிமை வாழ்க்கை, சமூகக் கட்டுப்பாட்டை மீறுதல், பொதுவுடைமை, பாலியல் நிலைகள், பெண் இயங்குதிசை, பெண்களின் பிரச்சினைகள், தீண்டாமை நிலை, பெண் பாத்திரப் படைப்பின் அருமைப்பாடு என்பனவற்றை வெளிப்படுத்தியுள்ளது. பெண்ணின் வேதனை, சிக்கலை எதிர் கொள்ளும் பெண்கள், பெண் மீதான வன்முறைகள், பெண் விடுதலை மற்றும் ஆணின் தன்னகங்கார மறுப்பு, பெண் நிலை வாதம், பெண்களின் வாழ்க்கைத்தரம், வேலையின்மை, விவசாயக் கூலித் தொழிலாளர்கள், நெருக்கடிகள் எனப் பல்வேறு நிலைப்பாடு களையும் மெய்ப்பிக்கிறது.

திறவுச்சொற்கள்

விளிம்பு – அடிமை, வாழ்க்கைத்தரம், எளிமை, சர்வதேச - பன்னாட்டு, பாலியல் - காமம், வன்முறை – அடிமை, அகங்காரம் - தான் எனும் நிலை.

முன்னுரை

விளிம்பு நிலையில் வாழும் பெண்களின் வாழ்வியலைக் காட்டுகிறது. சமூக நிலையில் பெண்கள், பெண் படைப்பாளர்கள், அடிமை வாழ்க்கை, பொதுவுடைமை, பெண்ணியப் படைப்புகள், பாலியல் தொல்லை, பெண்ணின் இயங்கு திசை, பெண்களின் பிரச்சினைகள், தீண்டாமை, பெண் பாத்திரத்தின் அருமைப்பாடு, பெண்ணின் வேதனை, சிக்கலை எதிர்கொள்ளும் பெண்கள், ஆணாதிக்கமும் பெண் மீதான வன்முறையும் விளக்குகிறது. பெண் விடுதலை மற்றும் ஆணின் தன் அகங்கார மறுப்பு, பெண்நிலை வாதம், வாழ்க்கைத்தரம் என விளிம்பு நிலையில் பெண்களின் தன்மைகளைச் சூர்யகாந்தன் சிறுகதைகள் வழி ஆராய்கிறது.

விளிம்பு நிலையில் பெண்கள்

விளிம்புநிலையில் பெண்கள் நிலை குறித்த ஆய்வுகள் சர்வதேச நிலையிலும் இந்திய அளவிலும் நடந்தேறியுள்ளன. இந்த ஆய்வுகள் சமூகத்தில் பெண்கள் எவ்வாறு ஒடுக்கப் படுகின்றனர் என்பதை விளக்குவதோடு அவர்களின் அடிமைநிலை, பெண் சுதந்திரம், பெண் மொழி, பெண் உடல் குறித்துப் பல்வேறு விவாதங்களை உள்ளடக்கமாகக் கொண்டவையாகவும் உள்ளன. "உலக அளவில் ரோஸலிண்ட் மைல்ஸ், கிளாராஜெட்கின், சிமோன்தே பெவ்வார் உள்ளிட்ட பெண்ணியலாளர்களும் இந்திய அளவில் சாவித்திரி பாய் பூலே முதல் தற்போதைய பன்வாரி தேவி வரை தமிழகத்தில் மூவலூர் இராமாமிர்தம் அம்மையார் உள்ளிட்ட சுயமரியாதை வீராங்கனைகள் ஆற்றிய பணிக்கும் அவர்களது எழுத்துக்களும் முக்கியத்துவம் வாய்ந்தன"[1].

நாலடியார் காட்டும் மனிதநேயம்

முனைவர் கோ. செந்திக்செல்வி
உதவிப் பேராசிரியர், தமிழ்த்துறை
அக்சிலியம் கல்லூரி, காட்பாடி, வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முகவுரை

பதினென் கீழ்க்கணக்கு நூல்களுள் ஒன்றாகத் திகழும் நாலடியார், நானூறு வெண்பாப் பாடல்களைக் கொண்ட நீதி நூலாகும். சமண முனிவர்கள் பாடிய தனித்தனிப் பாடல்களின் தொகுப்பு என்பர். இப்பாடல்களைத் திருக்குறள் போலவே பால், இயல், அதிகாரப் பகுப்புகளுடன் பதுமனார் என்பார் வகுத்துள்ளார். நாலடி என்பது 'ஆர்' விகுதி பெற்று "நாலடியார்" என்றாயிற்று. இதற்கு நாலடி, வேளாண் வேதம், நாலடி நானூறு என்னும் வேறும் பெயர்களும் உண்டு.

"ஆலும் வேலும் பல்லுக்குறுதி
நாலும் இரண்டும் சொல்லுக்குறுதி
பழகு தமிழ்ச் சொல்லருமை நாலிரண்டில்"

என்று வழங்கப்படும் பழமொழிகள் திருக்குறளோடு நாலடியாரின் சிறப்பைப் புலப்படுத்துகின்றது.

"கல்வி கரையில, கற்பவர் நாள்சில
"கல்வி அழகே அழகு"
"ஆராய்ந்து அமைவுடைய கற்பவே, நீர் ஒழியப்
பால்உண் குருகின் தெரிந்து"

போன்ற அடி நாலடியாரின் சிறப்பைக் கூறும் அடிகளாகும். மனிதம் சரிந்து கொண்டிருக்கும் காலக்கட்டத்தில் மனிதநேயத்தின் முக்கியத்துவம் உணரப்பட வேண்டிய ஒன்றாகும் நிலை. மனிதநேயம் Humanity, Humanism, Humanirarian போன்ற சொற்கள் 18ஆம் நூற்றாண்டிற்குப் பிறகு தான் பயன்படுத்தப்பட்டன. தமிழிலக்கியத்தில் 'மனித நேயம்' என்ற சொல் கையாளப்படவில்லை எனினும் மனிதநேயக் கருத்துகள் காணக் கிடக்கின்றன. அற இலக்கியங்களின் எழுச்சிக்கு இதுவே அடிப்படை அங்ஙனமே "நாலடியார் காட்டும் மனித நேயம்" குறித்த செய்திகளை இக்கட்டுரை கண் ஆய்வதே இக்கட்டுரையின் நோக்கமாகும்.

நாலடியார்

மனித நேயம் என்பது மனிதனை மனிதன் மதித்தும் செலுத்தும் அன்பின் வெளிப்பாடு, அன்பு, பண்பு போன்ற செயல்பாடுகள் மனித நேயத்திற்குக் காரணியாக அமைகின்றன.

திருமந்திரம் உணர்த்தும் மனிதநேயம்

முனைவர் கே.பி. கவிதை
உதவிப்பேராசிரியர் தமிழ்த்துறை
அக்சிலியம் கல்லூரி, வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

மனிதநேயம் மனித மனத்தினின்று எழும் அன்பு சார்ந்த நல்
நாடும் உணர்வாகும். தக்கார் தகவிலர் என வேறுபாடு கணிக்கா
அனைவர் பாலும் பொங்கும் அருள் உணர்ச்சி, கருணைப் பொழி
தான் மனிதநேயம். அன்பு, பரிவு, பாசம், அறம் இவையனைத்து
மனிதநேயக் கூறுகளில் அடங்கும். மனிதன் மனிதனை
வாழ்வதற்குரியப் பண்புகளையும் அறநெறிகளையும் நூல்கள் ப
நுவலுகின்றன. அவற்றுள் திருமூலரது திருமந்திரம் ஆகமத்தி
சாரமாக அமைத்திருந்தாலும் அனைவரும் அறியக்கூடிய எளிமையு
இனிமையும் உடைய பாடல்களைத் தன்னகத்தே கொண்டுள்ள
அப்பாடல்களில் மனிதன் கடைப்பிடிக்க வேண்டிய அறங்களை
வாழ்க்கை நெறிமுறைகளையும் மனிதநேயத்தையும் திருமூ
திருமந்திரத்தில் கூறுகின்றார். இந்நூலில் சொல்லப் பெ
அன்புடைமை, உயிர் நிலையாமை, தானச்சிறப்பு, புலால் மறுத்
தனிமனித மதிப்பீடு, சான்றாண்மை ஆகிய பிரிவுகளில் அடங்
அறச்சிந்தனைகளில் பொதிந்து கிடக்கும் மனிதநேயத்தை
காண்பதே இக்கட்டுரையின் நோக்கமாகும்.

திருமூலர்

திருமூலர் அல்லது திருமூல நாயனார் சேக்கிழார் சுவாமிகள்
புகழ்ந்து பேசப்பட்ட 63 நாயன்மார்களுள் ஒருவரும், பதினெ
சித்தர்களுள் ஒருவரும் ஆவார். இவர் சிறந்த ஞானி
விளங்கியவர். திருமூலர் வரலாற்றை நம்பியாண்டார் நம்பி
திருத்தொண்டர் திருவந்தாதியில் சுருக்கமாய்க் கூறுகிறார். இ
வாழ்ந்த காலம் ஐந்தாம் நூற்றாண்டு. இவர் அருளிச் செய்த
திருமந்திரமாலையாகும். இது 3000 பாடல்களைக் கொண்
இதனைச் சைவத்திருமுறை பன்னிரண்டினுள் பத்தா
திருமுறையாய்த் தொகுத்துள்ளனர்.

மனித நேயப் பண்பும் திருக்குறளின் மாண்பும்

முனைவர் இ. பரீதா
உதவிப்பேராசிரியர் தமிழ்த்துறை
ஆக்சிலியம் கல்லூரி, வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முன்னுரை

மனிதநேயம் என்ற சொல்லுக்கு அன்பு, கருணை, இரக்கம், ஈகை, நட்பு, விருந்தோம்பல், பிறரின் துன்பத்தைக் களைதல் என்ற பல பொருள்களைத் தரவல்லது. உலகப் பொதுமறையாம் திருக்குறளும் இந்தக் கருத்தையே முன்வைக்கிறது. திருவள்ளுவர் சமூகத்தை உற்று நோக்கியதன் பயனாலும் உலகம் செய்த உயர் தவத்தாலும் திருக்குறள் போன்ற சிறந்த நீதி இலக்கிய நூல் நமக்கு கிடைக்கப் பெற்றது எனலாம்.

மனிதன் பிறப்பு முதல் வீடுபேறு அடையும் நிலை வரையிலும் பின்பற்ற வேண்டிய வாழ்வியல் கூறுகளை அழகாய் நெறிபடுத்தித் தொகுத்துத் தந்தள்ளமை போற்றுதற்குரியதே. மனித சமூகம் உலகத்தின் இறுதி வரை இதனைப் பின்பற்றி வாழ்ந்தாலே வன்முறையற்ற அமைதியான உலகத்தைப் படைத்திட முடியும். அத்தகைய வலுவான வார்த்தைகளைக் கொண்டுள்ள ஒப்பற்ற கருத்துக் கருவுலமான திருக்குறளில் மனிதநேய மாண்புகள் மிளிர்ந்துள்ளமையை ஆராய்வதே இக்கட்டுரையின் நோக்கமாகும்.

அறநெறியும் மனிதநேயமும்

மனித வாழ்வின் பயனாக வள்ளுவர் கருதுவது பிறருக்கு உதவுதல் என்பதே, மனிதன் செய்யக்கூடிய நல்ல செயல்கள் அனைத்தும் அறம் என்ற கோட்பாட்டில் அடக்க முடியும். மனிதவின் இருவேறு வகைப்பட்ட வாழ்க்கைச் சூழலான அகவாழ்விலும், புற வாழ்விலும் இந்த அறக்கூறுகளைக் காண முடியும். வாழ்வியல் நெறிகளை உன்னதமாக்கிக் கொண்டு வாழ்ந்தவனே தமிழன் என்பதனை நம் இலக்கியச் சான்றுகள் நமக்குப் பறைசாற்றுகின்றன. அவ்வகையில் அறத்தை தம் ஒவ்வொரு முயற்சியிலும் கடைபிடித்து வாழ்ந்த சமூகத்தை வள்ளுவரின் வாய்மொழி உணர்த்தி நிற்கின்றது.

ஒரு மனிதனுக்கு அறம் ஒன்றே மேலான செல்வத்தையும் நன்மையையும் தரக்கூடியது. ஆகையால் முடிந்தவரை எங்கெல்லாம் அறம் செய்ய வேண்டுமோ அங்கெல்லாம் செய்திடல் வேண்டும் என்கிறார் வள்ளுவர், இதனை

ஒல்லும் வகையான் அறவினை ஒவாதே
செல்லும்வா யெல்லாம் செயல் (திருக். 33)

சங்க இலக்கியங்களில் மனிதநேயம்

முனைவர் வெ.ரா. ஜோஸ்
உதவிப்பேராசிரியர், தமிழ்த்துறை
ஆக்சிலியம் கல்லூரி, வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முகவுரை

உலகில் இன்று வாழும் மக்களினங்களுள் தொன்மைச் சிறப்பும், வரலாற்றுச் செழுமையும், பண்பாட்டு மேன்மையும் கொண்டவை ஒப்பற்ற இனம் தமிழினம். நீண்ட நெடிய வரலாறு கொண்ட தமிழினம் சங்க காலத்தில் மனிதநேயத்தை அடிப்படையாகக் கொண்டு மாறுபட்ட இனம் உய்யவும், ஈடேறவும் பல்வேறு படைப்புகளைத் தந்துள்ளது. ஒரு நாட்டின் உயிர்நாடியாக இருப்பது மனிதநேயமே இந்த உலகே நேய உணர்வின் வழி இயங்குகிறது. மனித இனம் வாழ்வாங்கு வாழ்ந்து அவனிதத்தின் வாழ்க்கை செம்மையுற அமைய வேண்டுமாயின் அன்பும், அதன் வழிப்பட்டதாய் அறனும், அதன்வழி மனிதநேயமும் பெற்றிருத்தல் வேண்டும் என்று சங்க இலக்கியங்கள் வியந்தோதுகின்றன. இவ்விலக்கியங்களில் காணலாகும் மனிதநேயச் சிந்தனைகளை விளக்கியுரைப்பதாய் இவ்வாய்வுக் கட்டுரை அமைகிறது

மனிதநேயம்

உலக உயிர்கள் அனைத்தும் அன்பை அடிப்படையாகக் கொண்டு வாழ்கின்றன. அன்பின் முதிர்ந்த நிலையே மனிதநேயம். இதனை உயரியப் பண்பாடாக விளங்கக்கூடியது. நாடு, இனம், மொழி முதலிய எல்லைகளைக் கடந்து நிற்பது. மனித இனத்தின் நாகரிக, பண்பாட்டு வளர்ச்சியோடு பின்னிப் பிணைந்து நிற்பது. இப்பண்பாட்டினால் மக்களிடையே அன்பு வளரும், ஏற்றத்தாழ்வுகள் நீங்கும், ஒப்புரவு நிலைத்தோங்கும், மனித ஆற்றல்கள் உயர்வு பெறும், உலக ஒற்றுமை தழைத்தோங்கும் இத்தகைய மனிதநேயத்தை சங்க இலக்கியங்கள் பெரிதும் போற்றுகின்றன.

புலமைச் சான்றோர் போற்றும் மனிதநேயம்

சங்கப் பாடல்கள் இயற்றிய புலமைச் சான்றப் புலவர்கள் உலகிற்கு அறிவுரைகளாகக் கூறிய அறவுரைகள் மனிதநேய மாண்பினை விளக்குகின்றன. கணியன் பூங்குன்றனாரின்

"யாதும் ஊரே யாவரும் கேளிர்" என்ற வரிகள் ஒருங்கே கோட்பாட்டினை விளக்கி ஒட்டுமொத்த மனித இனத்தையே தம் உறவினராக நினைக்க வைக்கக்கூடிய மனிதநேயத்தை மையமாகக் கொண்டிலங்கவல்லது.

அழகிய பெரியவன் சிறுகதைகளில் மனித நேயம்

முனைவர் ச. செல்லப்பெண்
உதவிப் பேராசிரியர், தமிழ்த்துறை
தக்சிணியப் கல்லூரி, வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முன்னுரை

பத்தொன்பதாம் நூற்றாண்டுத் தமிழ் உரைநடை வளர்ச்சி மாற்றத்தால், மிகுதியும் விரைவாக வளர்ந்து வரும் இலக்கிய வகைகளுள் சிறுகதை முன்னணியில் உள்ளது. நெருக்கடி மிகுந்த இக்கால வாழ்க்கையில் விரைவில் படித்து முடித்து மகிழக் கூடியதாக இருப்பதால் சிறுகதை மக்களிடையே செல்வாக்குப் பெற்று விளங்குகிறது. கட்டுரைகளும், செய்திகளும், நவகச்சுவைத் துணுக்குகளும் வெளியிடும் இதழ்கள் கதைகளையும் வெளியிட விழையும்போது, அதற்கு உதவியாக உள்ளது சிறுகதையே.

சிறுகதைகள் அளவில் சிறியதாயினும் சமுதாயத்தை வெளிப்படுத்தும் வாசகர்களின் உள்ளம் கவர்ந்த இலக்கியமாகத் திகழ்கிறது. கதைக்கு வரும் கதாபாத்திரங்களின் வாயிலாக மன உணர்வுகளை வெளிப்படுத்தி சமுதாயத்தை மேம்படுத்தும் சிறுகதைகள் தமிழில் அதிக அளவில் உள்ளன. அவற்றுள் அழகியபெரியவன் சிறுகதைகளில் காணப்படும் மனித நேயச் சிந்தனைகளை இக்கட்டுரையில் காண்போம்.

எழுத்தாளர் அழகிய பெரியவன்

தி.அரவிந்தன் என்னும் இயற்பெயர் கொண்ட அழகிய பெரியவன் தமிழ்ச் சிறுகதை உலகில் தனித்துவம் பெற்றவர். இவர் தனது வாழ்க்கை சூழல், ஆழ்ந்த சிந்தனை, வாசிப்பு அனுபவம், பயண அனுபவம், நம்பிக்கை, சமூக உறவு, காலத்தின் நிகழ்வு ஆகியவற்றின் துணைகொண்டு கலை மொழியினூடாக கவிதை, சிறுகதை, குறுநாவல், நாவல், கட்டுரை எனப் பல பரிமாணங்களில் தனது கருத்துக்களை இலக்கிய வரலாற்றில் பதிவு செய்து வருகிறார். இந்நூற்றாண்டின் சமூக விடுதலைக்காகவும், தலித் இன மக்களின் விடிவிற்காக அயராது எழுதிவரும் இவர் தமது சிறுகதைகளில் மனித நேயம் என்ற மனித மாண்பினைக் கொண்டு விளிம்புநிலை மக்களின் உரிமைகளைப் பெறும் போராட்ட அவர்களின் வாழ்வியலைப் படம் பிடித்துக் காட்டியுள்ளார்.

மனிதநேயம்

அன்பு, கருணை, இரக்கம், நட்பு, சமூக நலன், உண்மை, நேர்மை போன்றவைகளை மனிதநேயப் பண்புகளாக அடையாளம் காணப்பட்டனை.

புறநானூற்றில் மனிதநேயச் சிந்தனைகள்

முனைவர் ர. [illegible]
உதவிப்பேராசிரியர், தமிழ்த்துறை
நாச்சியப்பா சுவாமிகள் கல்லூரி, கோவிலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முன்னுரை

மனித நேயம் என்பது மனிதர்களிடையே காணப்படும் நேயத்தை கூட்டும். இரு சொற்களின் இணைவால் உருவான இச்சொல்லில் மனிதன் என்ற சொல்லானது மனம் என்ற வேர்ச்சொல்லிலிருந்து தோன்றியதாகும். இத்தகைய மனதை உடையவன்தான் மனிதனாகிறான். மனம் என்ற சொல்லுக்கு நெஞ்சு, விரும்பு ஆகிய பொருளும், நேயம் என்பதற்கு அன்பு, நன்மை, உறவு, பக்தி என்று பொருள்படுகின்றது. நேயம், நேசம் என்ற சொல்லுக்கு அன்பு என்றும் தமிழ்ப் பேரகராதி பொருள் அளிக்கிறது. அன்பு என்பதற்கு ஒருவரின் மனம் நெகிழும்படியாக மற்றொருவர் அவர்போல் வெளிப்படுத்தும் நேசமும் நட்பும் கலந்த உணர்வு என்று க்ரியாவின் தற்காலத் தமிழ் அகராதி குறிப்பிடுகிறது.

மனிதன் தன் அன்றாட வாழ்க்கைமுறையில் சக மனிதனை மட்டுமில்லாமல் எல்லா உயிர்களையும் நேசிக்கிற ஒரு விதப்பண்பு பிறரின்துன்பங்களைப்போக்கி வாழ்கின்ற அமைதியான வாழ்வியல்முறை உலகத்தில் உள்ள எல்லா உயிர்களிடமும் அன்பு காட்டுகின்ற ஒரு உன்னதமான வாழ்க்கை நெறிதான் மனிதநேயம். இதனை மானுட நேயம் என்றும் அழைப்பர். இது இடம், கழல், தேவைக்கேற்ப அன்பாக, கருணையாக, உதவியாக, எளிமையான சொற்களாக வெளிப்படுவதோடு நன்றி மறவாமை, தியாகம், தன்னலம் பாராமை, பகுத்துண்டல் போன்றவைகளின் மூலமாகவும் இப்பண்பைக் காணலாம்.

மனித நேயத்திற்குப் பலர் பலவிதமாக விளக்கமளித்தாலும் மனிதருக்கு மனிதர் செய்ய அறிவுறுத்தும் உதவிக்குறித்த ஒரு மனநிலை. நம்மை நாடி வரும் இரவலர் யாராக இருந்தாலும் நாடு, மொழி, இனம் கடந்து காலம், இடம் எனப் பாராமல் நம்மால் இயன்ற அளவு உதவ வேண்டுமென்று கணநேரத்தில் தோன்றும் ஒரு உணர்வு. அறம், பொருள், இன்பம், வீடு ஆகிய உறுதிபொருளில் அறம் குறித்துப் பேசுவதும் மனிதநேயத்திலே. பொதுவாக தமிழ் இலக்கியங்களின் படைப்பின் நோக்கமே மானிடநேயம் அடிப்படையில்தான். இப்பண்பை அரசன் மட்டுமல்ல அனைத்து மானிடரும் பின்பற்றியுள்ளனர்.

தொல்காப்பிய மாந்தர்களின் மனிதநேயம்

முனைவர் மு. செல்வகுமார்
உ.பெ.மா.பாலாஜி வழக்குரைஞர்
ஜீ-3 ஆளந்த் அடுக்ககம், கோவிந்தன் சாலை
மேற்கு மாம்பலம், சென்னை

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முன்னுரை

ஒரு மனிதன் மற்றொரு முகம் தெரியாத சகமனிதன் தன் கண் முன்னால் துயரப்படும் பொழுது ஓடிச்சென்று உதவி அவனது துயரத்தைப் போக்குதல்,அவனது வருத்தத்திற்கு வருந்துதல் என்பது மனிதநேயம் ஆகும். சாகாவரம் பெற்ற நெல்லிக்கனியைத் தானுண்ணாது புலவர் குலம் தழைக்க, அவர்தம் போன்ற மன்னர்கள் தவறிழைக்கும் பொழுது இடித்துரைத்துத் திருத்த எண்ணி ஒளவைக்கு ஈந்த அதியமான், அஃறிணை உயிரானபசுவினதுகன்றின்உயிருக்காகத் தேர்க்காலில் இட்டுக் கொன்ற மன்னன் மனுநீதி, காயம்பட்ட புறாவின் உடலில் வீணான தசைகளுக்காகத் தன் உடலில் தசையை அரிந்து கொடுத்த மன்னன் சிபிச்சக்கரவர்த்தி, குளிரால் வருந்திய மயிலுக்குத் தான் குளிரைப் போக்கப் போர்த்தியிருந்த போர்வையை அளித்த பேகன், மேலும் படர இடமின்றி வாடிப்போன முல்லைக் கொடிக்குத் தன் தேரைப் படர நிறுத்திவிட்டு நடந்து சென்ற பாரி, வாடிய பயிரைக் கண்டு வாடிய வள்ளலார் என்ற மனிதநேயமிக்க வள்ளல்கள் இடம் பெற்ற இந்த வரிசையில் மனிதன் தன் பெண்டு தன் பிள்ளை என வாழ்ந்து கொண்டிருக்கும் இக்காலகட்டத்தில் பிறருக்காகவும் வாழ்ந்த மனித நேய மனிதர்களைப் பற்றி வாழ்க்கைக்கு விளக்கம் கூறும் இலக்கணமான பொருளதிகாரத்தில் தொல்காப்பியர் சுட்டியுள்ளார்.

தொல்காப்பியர் தம் பொருளதிகாரத்தில் பதினைந்திற்கும் மேற்பட்ட மாந்தர்களைத் தன் நூல் முழுவதிலும் கட்டினாலும் தலைவன், தலைவியின் களவு, கற்பு என்ற இருநிலை வாழ்க்கையிலும் சில மாந்தர்களை மனிதநேயம் மிக்கவர்களாகப் படைத்துள்ளார். அப்பதினைவரில் சிலர் தலைவன் தலைவியரைத் தம்மைப் போல் எண்ணி அவர்கள் மேல் கொண்டிருந்த அளவற்ற அன்பைப் பண்பை அவரவர்களின் மனிதநேயச் செயல்களின் வழி ஆராய்வதே இக்கட்டுரையின் நோக்கமாகும்.

புறநானூற்றில் மனிதநேயம்

முனைவர் க. தீபா
அக்சிலியம் கல்லூரி (தன்னாட்சி)
காட்பாடி, காந்திநகர், வேலூர்

Volume: 9
Special Issue: 1
Month: April
Year: 2022
P-ISSN: 2321-788X

முன்னுரை

"பிறப்பொக்கும் எல்லா உயிர்க்கும்" என்பது ஐயன் வள்ளுவன் வாக்கு. ஏற்றத் தாழ்வில்லா உயிரியல் கொள்கை நடைபயிலும் போது, அங்கே மனிதம் கைகோர்க்கிறது. பிற மனிதர்களிடத்து, அன்பு, கருணை, இரக்கம், ஆகியன பகிரப்படுவதால் தான் இவ்வுலகம் இன்று வரை இயங்கிக்கொண்டிருக்கிறது. உதவி செய்ய இயலும் போதும், இயலாத போதும், சக மனிதர்களிடம் ஒரே தன்மையில் பழகுவதும் மனிதநேயம் தான். எவ்வுயிரும் தம்முயிர் போல் எண்ணி உவக்கின்ற நெஞ்சம் கூட மனிதநேயத்தின் அடையாளம் எனலாம். இதயம் என்பதை சதையாய் நினைத்தால் அவர்கள் வாழ்வு சுகமாய் இருப்பதில்லை. அன்பே நிரந்தரம் என்பதை உண்மையாய் உணர்ந்தால் புண்ணியம் குறையப் போவதில்லை. அப்படிப்பட்ட இந்த மனிதநேயத்தை புறநானூற்றில் புலவர் பலர் பலபாடல்களில் எடுத்தோதியிருக்கின்றனர். அவற்றுள் சிலவற்றைக் காட்சிப்படுத்துவதே இக்கட்டுரையின் நோக்கமாகும்.

மனிதநேயம் என்பது

மனிதர்கள் ஒருவரை ஒருவர் விரும்பும் நேயம் மனிதநேயம். இதில் வேற்றுமை பாராட்டலோ, ஒற்றுமை நிலைதலையலோ வாய்ப்பிருக்கக் கூடாது. ஒரு மனிதன் நல்ல விதம் வாழ்வதற்கு, தன்னைப் பக்குவப்படுத்திக் கொள்வது அவசியம். தன்னை மேம்படுத்திக் கொள்ள பல திறன்களை வளர்த்துக் கொள்வதும் அவசியம். எல்லாவற்றிற்கும் மேலாக, நல்ல பண்புகளோடு சக மனிதர்களை அணுகுவது மிகமிக அவசியம். அவற்றில் தலையானதாக மனிதநேயம் இருக்கும் படியாகப் பார்த்துக் கொள்ள வேண்டும். ஆபத்திலிருப்பவர்களுக்கு மறுஉதவி எதிர்பாராமல் உதவுவது மனிதநேயம். ஓடிக்கொண்டே இருக்கும் காலச்சூழலில், காலத்திற்கேற்றவாறு தம்மைநாம் மாற்றிக் கொள்வதும், அந்த மாற்றம் பிறருக்குப் பாதகமில்லா தன்மையில் இருக்கவேண்டுமென்பதை கவனத்தில் கொண்டு செயல்படுவது மாக இருக்கவேண்டும். இவ்வளவு சிறப்பு மிக்க மனிதநேயம் புறநானூற்றில் மிக அழகாக அணிவகுக்கக் காணலாம்.

அகப்பாடல்களில் ஈகைப்பண்பு

அ. அக்மிலா மேரி
உதவிப்பேராசிரியர், தமிழ்த்துறை
அக்சிலியம் கல்லூரி, வேலூர்

Volume: 9

Special Issue: 1

Month: April

Year: 2022

P-ISSN: 2321-788X

முன்னுரை

"வறியார்க்கு ஒன்று ஈவதே ஈகைமற்றெல்லாம்
குறியெதிர்ப்பை நீரது உடைத்து" (குறள் : 221)

ஈகை என்னும் உயர்ந்த பண்பைத் திருக்குறள் சுட்டிக்காட்டுகிறது. மனித நேயத்தில் மிகவும் மேலோங்கி விளங்குவது ஈகைப்பண்பு. அன்பு என்னும் தாயும், அருள் என்னும் சேயும் இருந்தால் மட்டுமே ஜீவகாருண்யத்தைப் போற்ற முடியும். அனைத்து உயிர்கள் மீதும் அன்பைச் செலுத்தும் நிலை, அது ஈகையாக, கருணையாக, பரிவாக பல்வேறு பரிமாணங்களைப் பெற்றுத் திகழும். அன்பையும், அருளையும் கொடுத்து நேசிக்கும் பண்பைக் கொண்டவனே மனிதநேயம் கொண்ட மனிதன். அகப்பாடல்களில் மன்னர்கள் தம்மை நாடி வரும் இரவலர்களுக்கும், வீரர்களுக்கும் பொன், பொருள், உணவு, ஆடை, இருப்பிடம் அளித்தலும் போன்ற செய்திகள் அக இலக்கியங்களில் பல்வேறு இடங்களில் பயின்று வந்துள்ளன. இக்கட்டுரையானது அகப்பாடல்களில் ஈகைப்பண்பு என்னும் தலைப்பில் ஆராய முற்படுகிறது.

இலக்கியங்களில் ஈகை பெருமிதம்

பண்டைத் தமிழர்கள் அன்பாளர்களாக மட்டுமின்றி தலை சிறந்த கொடையாளர்களாகவும் விளங்கினர் கலித்தொகையில் உலகத்தைப் பாதுகாக்க முயலும், உள்ளத்தை உடையோனாகிய என்னை ஒருவரிடத்தே இரத்தலை முயலும் இன்னாதாகிய வருத்தத்தைச் செய்தாள். இது பிறரினும் மேம்பட்ட கொடையால் வருவது.

"வையம் புரலுக்கம் உள்ளத்தே என்னை இரலுக்கம்
இன்னா இடும்பை செய்தான்" (கலி.பா: 141)

என்பது கொடை மேம்பாட்டால் வந்த பெருமிதமாகும்.

செல்வம் பெற்றவர்கள் அச்செல்வத்தைத் தனது எனக் கருதாமல் செல்வ நிலையாமையை உணர வேண்டும். அந்நிலையாமையை உணர்ந்து பிறருக்கு வழங்குவதில் மகிழ்வு கொள்ள வேண்டும். தன் சுற்றத்தார் வறுமையுடன் வாடி இருக்க, தான் மட்டும் மகிழ்ந்து இருப்பது தவறான செயலாகும். ஈதல் புரியாமல் வாழ்தலைவிட இறப்பதே மேலாகும்.

"ஈதல் இரந்தார்க்கு ஒன்று ஆற்றாது வாழ்தலின்
சாதலும் கூடுமாம் மற்று" (கலி.பா: 61)

என்று கூறுகின்றது கலித்தொகை.

2021-2022

Advances and Applications in Mathematical Sciences
Volume 21, Issue 4, February 2022, Pages 1745-1752

A CODING TECHNIQUE WITH ATOMIC NUMBERS USING THE PRIME CORDIAL LABELING ON F26A GRAPH

MD. SHAHIRA SULTHANA, G. MARGARET JOAN JEBARANI and L. SUJATHA

Department of Mathematics
Auxilium College, Vellore-632006
TamilNadu, India
E-mail: mdshahira.mphil@gmail.com

Abstract

In this paper, a method of generating new graph labeling associated with the existing graph labeling is introduced by assigning non-negative integers assumed by a parameter of any branch of knowledge to the vertices of any graph by maintaining the other conditions of a particular graph labeling. Here by taking the Atomic Number of Elements and the Prime Cordial Labeling, a new graph labeling is obtained and it is named as Prime Cordial Labeling - Chemistry Atomic Number of Elements (PCL-CANE). Any Graph can be checked if it is a PCL-CANE. The graph F26A, a symmetric bipartite cubic graph with 26 vertices and 39 edges is taken for discussion and it is proved to be a PCL-CANE graph. A technique of coding a message with F26A and PCL-CANE using Graph Message Jumbled (GMJ) code is also included as an application.

1. Introduction

The Authors of the paper decided to work on a suitable graph with the existing Prime Cordial Labeling, associating it with any branch in general and Chemistry in particular. The source of enlightment is attributed to 'A dynamic survey of graph labelings', an Electronic Journal of Combinatorics by J. A. Gallian [1], a few Research papers on graph labelings by S. K. Vidya [5] et al and G. Uma Maheswari [7] et al. on coding techniques made the Authors strike at an application.

2020 Mathematics Subject Classification: 34Dxx, 93Dxx.
Keywords: Prime Cordial Labeling, Atomic Number of Elements, F26A Graph, Message Jumbled coding.
Received October 5, 2020; Accepted November 10, 2020

PRINCIPAL
AUXILIUM COLLEGE (Autonomous)
Gandhi Nagar, Vellore - 632 006.
Vellore District, Tamil Nadu.

Advances and Applications in Mathematical Sciences
Volume 21, Issue 4, February 2022, Pages 1687-1701

FUZZY SHORTEST PATH PROBLEM WITH TRIANGULAR INTUITIONISTIC FUZZY NUMBERS AS ARC LENGTHS

L. SUJATHA and N. ANBARASI

Assistant Professor
Department of Mathematics
Auxilium College (Autonomous), Vellore-6
E-mail: sujathajayasankar@yahoo.co.in

M.Sc. Student, Department of Mathematics
Auxilium College (Autonomous), Vellore-6
E-mail: anbarasi2230@gmail.com

Abstract

The shortest path problem is a classical and important network optimization problem in a non-fuzzy network which plays a vital role in many social networks. In this paper, we discuss the shortest path problem from a specified vertex to every other vertex on a network with imprecise arc lengths. A theorem is proposed for the fuzzy shortest path problem where each arc lengths is in the from of take triangular intuitionistic fuzzy numbers. Four different cases of fuzzy shortest path are verified, based on the parameters chosen by the decision makers to point out the conclusion. Suitable numerical example is demonstrated for the proposed approach. Simulation result using C program is included for the general algorithm. Comparison is also made with the existing earlier result.

1. Introduction

Over the past several years, a great deal of attention has been paid to mathematical programs and mathematical models that can be solved through the use of networks. Posing problems on networks not only yields computational advantages, it also serves as a means for visualizing a problem and for developing a better understanding of the problem. It is much easier for a decision maker to draw a picture of what he wants than it is to write

2020 Mathematics Subject Classification: 90B99.
Keywords: Acyclic network, Shortest path problem, Triangular intuitionistic fuzzy numbers, α-cut ranking technique, Decision maker.
Received October 5, 2020; Accepted November 10, 2020

JOURNAL OF EDUCATION: RABINDRABHARATI UNIVERSITY
ISSN: 0972-7175

A SURVEY ON INFLUENCE OF WORKING CAPITAL MANAGEMENT ON PROFITTABILITY: EMPIRICAL EVIDENCES FROM 2003 - 2021

S. Priyadharshini[1], Dr. S. Renugadevi[2], [1,2] Assistant Professor, Auxilium College (Autonomous), Vellore 632 006, Tamil Nadu, India. [1]priyanvi266@gmail.com; [2]dr.renugadevi07@gmail.com

ABSTRACT
Working capital is considered as a major factor in determining the success and financial health of any business enterprise. The requirement of short-term finance has led to the closure of many firms as they have misinterpreted the assessing the working capital.This paper provides a critical review on the variables used for estimation of working capital requirements, methodology adopted and also the relationship of working capital management and profitability. Majority of the research work discussed in this paper authenticates positive impact of receivables management and inventory management on profitability, negative impact of payables management and profitability and ultimately negative relationship between cash conversion cycle and profitability. Finally, this paper focuses on the major pitfalls and evidences that overcome those pitfalls.
Keywords: working capital management, methodology, profitability, pitfalls, research

1. INTRODUCTION

A predominant element that influences corporate finance is working capital as it directly affects the profitability and liquidity of a company.Working capital (WC) is composed of current assets and current liabilities. The magnitude of working capital management is evident in case of manufacturing companies that reports for more than half of its total assets.Inadequate return on investmentcan be the outcome when the amount of current assets are inordinate. (Raheman, A., & Nasr, M. (2007)).

WC is considered as a key factor in determining the performance of the company(Ghosh, D. S. K., & Maji, S. G. (2004)). Also as detailed by rappaport (1986), it is included as one of the elements that influencesthe wealth of the shareholder. The main goal of Working Capital Management (WCM) is to ensure that an organisation can meet its short-term commitments and pay back its operating expenses within the stipulated time frame.Nevgtheless, inefficiency in handling working capital may lead to cash shortage, increased risk and profit reduction (Ujaegbu, U. (2014)).

The extent to which a firm handles its working capital has a direct effect on its liquidity. It is easy to obtain the short-term effects of WCM on liquidity. Cash outflows to suppliers and inflows from customers are influenced by a such. Hence, delayed payment to suppliers leads to increase in payables but cash outflows arise at a latter point in time (Kazner, T., &Wöhrmann, A. (2013)). On the contrary, inflow of cash is hindered if a firm's trade policy grants its customers late settlements. The profitability can be affected by WCM in two ways. It has an effect on a company's sales and thus profits. Secondly, it influences the capital employed and consequently the cost of capital.

Achieving a balance between liquidity and profitability becomes vital when performing the day-to-day activities in a business enterprise. Liquidity is a prerequisite for companies to fulfil their short-term commitments and a successful company will guarantee a steady flow of cash to ensure this criteria. Given its significant position in the business, cash acts as a measure of uninterrupted financial health which makes indispensable for an entity to be operated in a sound and solvent manner(Padachi, K. (2006)). Hence it becomes necessary to adopt a properly structuredworking capital and implement the same to maximise the value of the firm.

2. Objectives of the study

UTKAL
HISTORICAL
RESEARCH JOURNAL

VOLUME: XXXIV 2021

Special Edition

UTKAL UNIVERSITY
NAAC ACCREDITED A+

DEPARTMENT OF HISTORY
UTKAL UNIVERSITY, VANI VIHAR
BHUBANESWAR-751004, (ODISHA), INDIA

Utkal Historical Research Journal, Vol.34 (XXIV), 2021
ISSN : 0976-2132

A STUDY ON IMPACT OF COVID-19 ON MOBILE BANKING SERVICE QUALITY AMONG CUSTOMERS WITH SPECIAL REFERENCE TO INDIAN OVERSEAS BANK, VELLORE CITY.

J. SANGAVI PREETHI

Assistant Professor, Department of commerce, Banking and Insurance, Auxilium College (Autonomous), Katpadi, Vellore-632 006, India

N. ASWINI

Assistant Professor, Department of commerce, Banking and Insurance, Auxilium College (Autonomous), Katpadi, Vellore-632 006, India

ABSTRACT

One of the main factors for the growth of the modern economy is development of Digital technologies in the financial market, one of these is Mobile banking, with the introduction and advancement of mobile technology and devices bank customers get access to mobile banking services at any time and at any place. In the recent period due to spread of COVID-19 Pandemic people prefer to avoid physical visits to banks so they are influenced to adopt Mobile banking services. As personal banking is not suitable during this unusual Lockdown stage of COVID-19 Pandemic this has forced people to use contactless transactions to avoid handling paper money as much as possible. This study seeks an observation to test the impact of Mobile banking quality services among customers. For this purpose, questionnaire has been created and the data is collected through Google forms surveying 100 customers availing mobile banking services from Indian Overseas Bank Vellore City.

Keywords: Mobile banking, COVID-19 pandemic, Customers

INTRODUCTION

Mobile banking is very convenient in today's digital age with many banks and they are offering quality apps too. Customers started using those apps for the purpose of depositing a cheque, to pay bills, to transfer money to a friend, check balance, View statements with the help of mobile phones it has been efficiently use by the customers in order to save their time, money and effort. The Covid-19 Pandemic it has driven the customers to use of mobile banking. It has turned people to use mobile banking wallets more and more in banking sector. Thus, study is entirely focused to evaluate the impact of COVID 19 on Mobile banking service quality among customers from Indian Overseas Bank, Vellore city.

LITERATURE REVIEW

Girish, V. (2020) in their study revealed that the impact of Covid-19 on Mobile Banking Services. A sample of 80 respondents of Bengaluru city was collected through Google forms. The data was examining with the help of frequencies, simple percentage, mean, standard deviation and one sample t-test. The study arises with the conclusion that there is impact of Covid-19 on Mobile Banking Services.

(Sreelakshmi & Prathap, 2020) in their study point out that conducting various Health and awareness campaigns on the threat of Covid-19, would prove to be beneficial in the promotion of mobile banking along with preventive health concerns. They also discuss how important it is to repeat the needfulness for promote individual's belief amongst the customers to utilize the services via online literacy and promotion programs. Their study also pointed out that through the provision of additional features and offerings on a single platform, the adoption of mobile payment services could be further boosted.

OBJECTIVES OF THE STUDY

- To understand customers, shift from physical banking transactions to mobile banking transactions during Covid-19 Pandemic.
- To analyse the impact of COVID-19 towards mobile banking services among the customers.

ISSN 0976-2132

UTKAL HISTORICAL RESEARCH JOURNAL

VOLUME: XXXIV

2021

UTKAL UNIVERSITY
NAAC ACCREDITED A+

DEPARTMENT OF HISTORY
UTKAL UNIVERSITY, VANI VIHAR
BHUBANESWAR-751004, (ODISHA) INDIA

Utkal Historical Review
ISSN : 0976-2132

A STUDY ON IMPACT OF COVID 19 TOWARDS SELF HELP GROUP WOMEN ENTREPRENEUR'S WITH SPECIAL REFERENCE TO VELLORE CITY

K.KALAIVANI
Research Scholar

Dr.T.BHARATHI
Research Supervisor

ABSTRACT

Recent literature addresses the issue of COVID 19 towards entrepreneurship. The purpose of this paper was to extend existing research on the linkages between entrepreneurship problems faced by them and challenges to overcome to achieve their goal. This paper makes an attempt to evaluate the impact of COVID 19 towards Women Self Help Groups at Vellore City. A Cross-sectional research was conducted through a structured questionnaire on 100 women entrepreneurs in the area of Vellore city. Population of study is women who are associated with Self Help Groups (SHG's). These women are married and have at least one child. Results reveal that indicators based on problems faced by them lack of Mental Strength, Lack of Finance, Unfavorable Environment, Risk towards health due to COVID19. The Women Entrepreneurs overcome during COVID 19 by moving forward, finding balance to achieve with a healthy mindset, and selecting the right focus. This study reveal that Women Entrepreneur's are basically strong while doing business but the changes in environment will affect them. The tool in enhancing women entrepreneurship is completely based on their self dependency and motivation given by the family members.

INTRODUCTION:

"Never Give up on a dream even if the progress is slow" – Mahalakshmi Saravanan.

A SHG (self help group) is a community based group with 10-20 members. They are usually women from similar social and economic backgrounds, all voluntarily coming together to save small sums of money, on a regular basis. They pool their resources to become financially stable, by taking loans from their collective savings during the times of emergency or financial scarcity, important life events or to purchase assets.

Ms. Farhat, a Self Help Group member working at Koel Apparel Park, Palamu, Jharkhand encouraged women's self-help groups (SHGs) to fight like foot soldiers against COVID-19 in India. So far, more than 19 million masks have been produced by 20,000 SHGs across 27 Indian states. Women Self Help Groups in India had taken up extraordinary challenges during COVID – 19 Pandemic by producing masks, sanitizers, protective equipments, running community kitchens, creating awareness about banking and financial solutions to far–flung communities. [2]

In Vellore District Micro and Small Entrepreneurs Association (VDMSEA) has welcomed the budget proposal for an increase in subsidy for investments in MSMEs. In a press release, VSMSEA president M.V.Swaminathan said that there is a increase in capital subsidy from ₹25 lakh to ₹50 lakh. Allocation of ₹100 Crore Subsidy on interest rate has been increased from the existing 3% to 5%. This subsidy would give a boost to small business entrepreneurs in the state. [3]

Problems of Women Entrepreneurs: In General Women entrepreneurs encounter two sets of problems, General and specific problems. These are discussed follows. Problem of Finance, Scarcity of Raw Material, Stiff Competition , Limited Mobility , Family Ties, Lack of Education , Male-Dominated Society, Low Risk-Bearing Ability.

REVIEW OF LITERATURE:

Suhali Sultan, Wasim I.M. Sultan (2020) Journal of Small Business and Enterprise Development ISSN: 1462 -6004, published dated on 21st 1October 2020 has reviewed about the Women MSME's in times of crisis: Challenges and opportunities, this study reveals about the CORONA Crisis harms the performance of many women MSME's in terms of production, turnover profit. [4]

1 https://www.researchgate.net/publication/345313192_Women_MSMEs_in_times_of_crisis_challenges_and_opportunities

Process Biochemistry 111 (2021) 210–218

Contents lists available at ScienceDirect

Process Biochemistry

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

The pro-apoptotic and cytotoxic efficacy of polydatin encapsulated poly (lactic-*co*-glycolic acid) (PLGA) nanoparticles

Sankaran Vijayalakshmi [a,1], Aruliah Rajasekar [a,1], Vishnu Priya Veeraraghavan [b], Alaa Yousef Ghidan [c], Tawfiq M. Al Antary [d], Venkatachalam Karthikkumar [e], Lakshmi Priya Malarveni Damodaran [f], Vinayagam Ramachandran [g,*], Ernest David [a,*]

[a] Department of Biotechnology, Thiruvalluvar University, Serkadu, Vellore, 632 115, Tamil Nadu, India
[b] Department of Biochemistry, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, 600 077, India
[c] Nanotechnology and Microbiology, Research and Development Center, The Higher Council for Science and Technology, Amman, 11941, Jordan
[d] Department of Plant Protection, Faculty of Agriculture, University of Jordan, Amman, 11942, Jordan
[e] Department of Pharmacology and Therapeutics, College of Medicine and Health Sciences, U.A.E. University, Al Ain, 17666, United Arab Emirates
[f] Department of Biochemistry, Auxilium College (Autonomous), Vellore, Tamil Nadu, 632006, India
[g] Department of Biotechnology, Institute of Biotechnology, College of Life and Applied Sciences, Yeungnam University, 280 Daehak-Ro, Gyeongsan, Gyeongbuk 38541, Republic of Korea

ARTICLE INFO

Keywords:
Polydatin
PLGA
Apoptosis
Cancer
KB cells

ABSTRACT

Polydatin (POL) is an ingredient of many herbal medications and has pharmacological properties. The present study aimed to determine the antitumor potential of Polydatin loaded poly(lactic-co-glycolic acid) (PLGA) nanoparticles (POL-PLGA-NPs) against the cancerous KB cell line. We evaluated the efficiency of synthesized nanoparticles on cell proliferation and apoptosis markers, in addition to the generation of reactive oxygen species (ROS) and its potential to induce damages on the mitochondrial membrane. Morphological changes in the cells (damage to DNA incurred due to cell lysis) were observed under Ethidium Bromide and Acridine orange staining techniques. The results evidenced the loss of cell viability, increased ROS, altered lipid peroxidation levels, increased DNA damage and loss of mitochondrial membrane potential in target cancerous KB cells. Further, immunoblot analysis quantified the expression of caspases-3, -9 and poly(ADP-ribose) polymerase (PARP) also supports the cell damage. Thus, the findings of the study suggested that POL-PLGA-NPs effectively induced oxidative stress by initiating cellular damage leading to apoptosis in KB cells.

1. Introduction

Nanoparticles (NPs) are solid colloidal particles ranging from 10 to 100 nm and they are designed to get conjugated with therapeutic agents and provide advantages over free drugs, with a prolonged half-life, decreased drug toxicity and increased targeting efficiency, which are considered significant in anticancer research. In the past decades, a variety of biodegradable NPs namely poly (lactic acid) (PLA), poly (lactic-co-glycolic acid) (PLGA), alginate, chitosan, gelatin, dextran, poly-ε-caprolactone, *etc.* are involved as a carrier system for performing *in vitro* and *in vivo* treatment of cancer and tissue engineering systems [1]. Among them, PLGA is one of the most widely used biodegradable polymers since its hydrolysis produces endogenous and easily metabolized monomers of lactic acid and glycolic acid, which join the tricarboxylic acid cycle and are removed as carbon dioxide and water, posing no danger to the biological environment [2]. As far we understood, PLGA NPs could be possibly uptake by KB cells, suggesting that they were mainly transported by folate receptor-mediated endocytosis [3]. Under PLGA's ability to change surface properties and can improve biological material interaction, therefore it is commonly used in drug delivery mechanisms. Furthermore, the United States Food and Drug Administration (FDA) has approved PLGA for clinical use in humans [4], and few PLGA coated drugs are commercial. Available *i.e.*, paclitaxel, doxorubicin, cisplatin, docetaxel, and curcumin, *etc.*, [5]. Adding to it, PLGA is chosen as they are biodegradable, biocompatible, renewable, inexpensive, non-toxic, environmentally friendly, and as effective drug

* Corresponding authors.
E-mail addresses: rambio85@gmail.com (R. Vinayagam), ernestdavid2009@gmail.com (E. David).
[1] Both the authors are equally contributed.

https://doi.org/10.1016/j.procbio.2021.10.033
Received 2 June 2021; Received in revised form 1 October 2021; Accepted 30 October 2021
Available online 2 November 2021

e-ISSN : 0976-5166
p-ISSN : 2231-3850

A NOVEL LOAD BALANCING APPROACH TOWARDS CLOUD COMPUTING BY REDUCING SLA DEGRADATION AND ENERGY CONSUMPTION

N.Nirmala Devi

Assistant Professor, Department of Computer Science, Auxilium College,
Vellore, India.
nirmalamca83@gmail.com

S.Vengatesh Kumar

Associate Professor, Department of Computer Applications (PG),
Dr.SNS Rajalakshmi College of Arts and Science,
Coimbatore, India
gowthamvenkyy@gmail.com

Abstract

The advent development of cloud computing is an on-demand adaptive technology for many IT organizations due to its dynamic scalability and virtualization resources as a global service. There are numerous energy-conscious approaches in existence that attempt to minimize energy consumption and Service Level Agreements (SLAs) degradation of the host. In this paper, we proposed a novel load balancing approach that identifies overloaded or underloaded hosts, and selects the VMs (Virtual Machines) for allocation to the host based on the predicted load. We consider CPU utilization parameter for evaluating host loading which is far enough to compute all the characteristics of Physical Machines (PM) provided to the Linear Adam Algorithm for Overloaded detection followed by Interquartile Range (IQR) method for underloaded detection. The Power-Aware Best Fit Decreasing (PABFD) algorithm sorts the VM in descending order based on CPU utilization. Then those filtered VM is allocated to the corresponding host thereby reducing the energy consumption and SLAs degradation. We evaluate the proposed algorithm through CloudSim-3.0.3 simulation and random datasets with different workloads on a real Planet Lab. After the evaluation, the simulation result of the proposed method indicates a significant performance by reducing the metric parameters such as SLA degradation, number of VM migration, the total number of host shutdowns, and reduce energy consumption.

***Keywords*: CPU utilization, SLA, VM, PM, Adam algorithm, Robust Static Interquartile Range, MMT, CloudSim.**

1. Introduction

Cloud computing has shown immense development in IT infrastructure wherein it utilizes the dissipate resources benefits and provides computing services to end-users. It consists of interconnected homogenous and heterogeneous physical servers which offer on-demand services to the client/users based on the pay-as usage model in a minimal management effort. Therefore, it is requisite to manage the data center effectively due to the large set of computing resources such as CPU, RAM, storage, and bandwidth which consume enormous amounts of energy. Cooling equipment is required to maintain the system's stability and flexibility in cloud computing [1]. Hence, the high-level energy consumption leads to increased costs and CO2 emissions, which induces the number of host shutdowns to maintain the adaptive strategies of SLA (Service Level Agreement) contract among the users and cloud providers. Through virtualization technology, cloud computing resources can be utilized in an optimized manner where it performs the live migration of VM. In the model cloud data center, the VM migrated takes place among the host during the overloaded/underloaded states, reducing the number of hosts and enabling the idle host to power-saving mode. However, the live migration may cause performance degradation and SLAs degradations, which has a massive impact on the QoS due to CPU, RAM, and bandwidth utilization. Therefore, it is crucial to decrease the energy consumption and SLAs cost, which results in NP-hard optimization problems. VM

DOI : 10.21817/indjcse/2022/v13i1/221301121 Vol. 13 No. 1 Jan-Feb 2022

Sr. Venci
9 Papers

ScienceDirect

Materials Today: Proceedings

Volume 36, Part 2, 2021, Pages 459-463

Tuning the morphology and band gap of CdSe nanoparticles via solvothermal method

X. Venci [a b], Amal George [a], A. Dhayal Raj [a], A. Albert Irudayaraj [a], D. Magimai Antoni Raj [a], G. Jayakumar [a], S. John Sundaram [a]

https://doi.org/10.1016/j.matpr.2020.05.096

Get rights and content

Abstract

This work focuses on the preparation of CdSe nanostructures as they have attracted more interest in recent years due to their size and morphology dependent properties. CdSe nanoparticles have been prepared through solvothermal method using Cadmium nitrate and sodium biselenite as precursors and ethylenediamine as solvent. The effect of reaction time on the properties of CdSe especially on the morphology and size have been investigated and reported. With increase in the reaction time, the sizes of the particles are found to increase considerably. The XRD pattern also confirms the improvement in the crystallinity of the prepared samples with increase in reaction temperature. The TEM results show the formation of nanorods like structures in the sample prepared at higher temperature for longer hours.

Introduction

In this world of technology, with ever new inventions and discoveries vast developments had been made in automobiles, electronics, textiles, communications and medicines. Nanoscience and nanotechnology had played a vital role in contributing to these latest technologies [1], [2], [3], [4], [5], [6], [7], [8], [9], [10]. It has indeed brought to light the versatile properties of all the conventional materials when they are reduced to nanoscale [11]. Specifically, in opto-electronic devices the semiconductor nanoparticles owing to their wide range of band gap properties had made an intensive impact and had been used in varied applications. Over the past decades, nanomaterials of II-VI semiconductors have been widely studied by researchers as these types of nanoparticles exhibit a distinctive phenomenon of size dependent properties [12]. Amidst the group of II-VI Semiconductors ZnS, CdS, ZnO, CdSe are prime elements as they yield favourable electronic and optical properties for opto-electronic applications. CdSe nanoparticles, an inorganic compound with direct band gap offer a distinguishable role in optical applications [13].

ScienceDirect

Materials Today: Proceedings

Volume 36, Part 2, 2021, Pages 464-467

Two step synthesis of vanadium pentoxide thin films for optoelectronic applications

Amal George [a], A. Dhayal Raj [a], A. Albert Irudayaraj [a], D. Magimai Antoni Raj [a], X. Venci [b], G. Jayakumar [a], J. Arumugam [a], M. Senthil Kumar [c], S. John Sundaram [a], K. Kaviyarasu [d e]

Show more

https://doi.org/10.1016/j.matpr.2020.05.104

Get rights and content

Abstract

While comparing with other materials, vanadium pentoxide nanostructures have drawn a great attentiveness due to their high stability and vast applications including solar cells, gas sensors, optoelectronic devices and so on. In this current work, V_2O_5 is prepared by solvothermal synthesis at a constant temperature. The prepared vanadium pentoxide powder is again used to deposit vanadium pentoxide thin films by dip coating method. The structural, morphological and optical studies of the prepared vanadium pentoxide thin films are investigated using X-ray diffractometer (XRD), Scanning Electron Microscope (SEM) and UV–Visible Spectroscope (UV–Vis). The x-ray diffraction studies reveal that the crystallites in vanadium pentoxide film have orthorhombic structure. The appearance of nanosphere like structures on the sample surface with increasing film thickness and number of dipping is confirmed from the SEM analysis. The UV–Vis study showed that bandgap of the material is increases with increasing dipping. These studies provide a clear outlook on the properties of vanadium pentoxide thin films.

Introduction

The origination of thin film technology during the twentieth century has empowered a vast range of technological breakthrough in several areas such as, LED's [1], optical coating [2], solar cells [3], gas sensing [4], electronic semiconductor materials [5] and magnetic recording media [6]. This paved for wide attention to the researchers globally [7], [8], [9], [10]. Vanadium oxide has drawn intensive attention due to their fluctuating material properties in accordance with the oxidation state [11], it can form four single valence oxides from V^{2+} and V^{5+}, in the form of VO, V_2O_3, VO_2, and V_2O_5 [12]. When the number of vacancies is filled, the crystallographic shear planes are found to abolish the effects of vacancies altogether. The magnificent properties such as multiple valency, good chemical and thermal stability [13], excellent thermoelectric property, and wide optical bandgap etc, made vanadium pentoxide a favourable material for microelectronic, gas sensing [14], electrochemical [15] and optoelectronic devices [16].

Contents lists available at ScienceDirect

Materials Today: Proceedings

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

The role of pH in enhancing the capacity of CuO nanoparticles for antibacterial activity

D. Magimai Antoni Raj [a], Amal George [a], A. Dhayal Raj [a,*], A. Albert Irudayaraj [a], X. Venci [a,b], A. Arumugam [a], S. John Sundaram [a], H. Joy Prabu [c]

[a] Department of Physics, Sacred Heart College, Tirupattur, Vellore District, Tamil Nadu 635 601, India
[b] Department of Physics, Auxilium College, Vellore, Vellore District, Tamil Nadu 635 601, India
[c] Department of Physics, St. Joseph's College, Tiruchirapalli, Tamil Nadu 620 002, India

ARTICLE INFO

Article history:
Received 10 April 2020
Received in revised form 7 May 2020
Accepted 9 May 2020
Available online xxxx

Keywords:
CuO nanospindle
Monoclinic structure
pH value
Antibacterial activity
Band gap

ABSTRACT

Well structured nano-sized Copper oxide has been prepared by simple reflex method for different pH concentrations. The Prepared samples are subjected to various characterization studies such as XRD, SEM, UV–Vis spectroscopy and FTIR spectroscopy inorder to investigate their crystallite structure, morphology, optical properties and functional vibrations. The structural analysis of prepared CuO samples revealed a monoclinic crystalline structure. The morphology of CuO samples reveals spindle shaped with size distribution ranging from 70 nm to 90 nm. The sample prepared at pH 5 seemed to possess the expected qualities to apply for antibacterial activity. The prepared samples consisting of various amounts of CuO nanoparticles are developed to study the antibacterial activity for different strains of bacteria. The results showed that at the optimized pH concentration, CuO samples calcinated at 400 °C exhibited improved antibacterial activity for E. coli bacteria.

1. Introduction

Fabrication of transition metal oxides at nanoregime has received a greater attention among material science researchers due to its exceptional properties [1–7]. Among the existing transitional metal oxide copper oxide attracted considerable research in recent days. Copper oxide has two forms with respect to its valences such as, cuprous oxide (Cu_2O) and cupric oxide (CuO) [8]. Because of their unique properties such as their environmental friendliness, natural abundance and high optical absorption coefficients, the two oxides have emphasized in various applications like pseudocapacitor electrode, magnetic phase transition, battery application, biocidal activity, antibacterial inhibition analysis, waste water treatment and purification etc. [9–12]. Even though copper complexes exhibit insignificant sensitivity on human tissue, they show good inhibition against bacterial growth [13,14]. Recent research picturises that nanoparticles such as silver, copper, gold, zinc and their oxides maximizes the therapeutic effects [14–17]. Moreover, Copper oxide nanoparticles has drawn a great attention due to its efficient bactericidal activity, adhesion performance. Also copper oxide complexes at nanorange can be a good candidate because of its consumable price.

Further more ionic metal oxides usual molecular configurations, morphology, high surface area and reactive oxygen species promotes oxidative damages to bactericidal cell assembly [16,17]. However much attention has been drawn to tailored to prepare copper oxide nanoparticles with large pore size, surface are and by employing various synthetic methods. In addition different techniques like disk diffusion, broth dilution and microtiter plate based method to determine the zone of inhibition against pathogens [18,19]. Among which agar dilution method is used as an efficient method in determination of antibacterial activity [20,21]. Nabila and Kannabiran, [22], used the extract from actinomycetes to synthesize copper oxide nanoparticles for antibacterial activity against fish and human bacterial pathogens and Sivaraj et al., [23], studied the antimicrobial and anticancer activity of Acalypha indica mediated copper oxide nanoparticles, while Nwanya et. al., have synthesized copper oxide nanoparticles from Fresh Zea maize L. Husks [24].

This research work articulates the preparation of copper oxide by reflux method at varying alkaline and acidic condition and the prepared nanoparticles are incorporated for high surface to volume ratio and reduce size. Further more, the synthesized nanoparticles

* Corresponding author.
E-mail address: dhayalraj03@gmail.com (A. Dhayal Raj).

https://doi.org/10.1016/j.matpr.2020.05.222
2214-7853/

Sambodhi
(UGC Care Journal)
ISSN: 2249-6661
Vol-44 No.-01 (XVIII) January-March (2021)

A COMPREHENSIVE STUDY ON WORK STRESS AND PERFORMANCE OF THE EMPLOYEES OF KLN ENGINEERING PRODUCTS Pvt.LTD, HOSUR DISTRICT

Ms. Valentine Usha Kalachelvi S
Assistant professor Department of Commerce Auxilium College Gandhi Nagar, Vellore

Abstract:

The purpose of this research study on the KLN ENGINEERING PRODUCTS PVT. LTD employees, is to measure the stress, work intensity and its significant impact on their performance in the organization. A very common problem faced by an employee is the 'work stresses. When an individual faces extra-ordinary demands, constraints or opportunities, it is said that they experience a state of tension which is termed as 'STRESS'. The intensity of stress leads to overwhelmed feelings with negative experience. Work Intensity is defined as activity in relation to the capacity for that work. There are many aspects to work intensity which includes multitasking, time poverty, health implications and policy considerations.

HEALTH

Abstract. In Slovenia, work intensity (i.e. temporal,

Work intensity that is temporal, emotional and work-related demands is increasing. In this paper, an opinion about work, family and primary health was conducted on a representative sample of 75 respondents of KLN ENGINEERING PRODUCTS PVT. LTD., Hosur. The key finding is that, employees who experience a higher level of work intensity face excessive stress which in turn deteriorates their mental and physical health condition and emotional imbalance. They are less likely to be able to afford the time needed for health care due to their work obligations.

Keywords: work intensity, health, quality of life, quality

Key words: work intensity, work and emotional imbalance and physical stress

Introduction:

Work is an important economic, social and psychological ingredient of human life. It provides income for employees and their families; it can help them socially with group identification, and can provide satisfaction and a sense of accomplishment, achievement and success (Burke et al., 2010).

Introduction

This study provides an overview of work stress and performance of the employees in KLN ENGINEERING products Pvt., Ltd. Work intensity is measured by different constructs that capture work environment characteristics which results in work-related stress.

Work intensification is associated with radical changes in company organization and economic life. The constraints affecting employees' pace of work have an impact on the discomforts, risks and nuisances to which they are exposed. That impact depends on the precise nature of the constraints and more generally on quality of organization. Different surveys show that employees often struggle to give a better performance with their increased stress level and an imbalance between job responsibilities and family responsibilities.

DEFINITION OF STRESS :

The first and most generic definition of stress was proposed by Hans Selye: "Stress is the nonspecific response of the body to any demand."

Stress refers to the mental and physical condition experienced when individuals adjust or adapt to the environment (Coon & Mitterer, 2007).

According to **Beehr and Newman** (1998), Job stress refers to 'any aspects due to which employees feel uneasiness in a workplace'. Oct 26, 2020. Another definition by Beehr and Newman defines job stress as:"A condition arising from the interaction of people and her job characterized by changes within people and force them to deviate from their normal functioning "From these two definitions, we can simplify the definition of stress to be:"An adaptive response to an external situation that results in physical, psychotically and/or behavioral deviations for organization participants.

INTERNATIONAL JOURNAL OF SYSTEM DESIGN AND INFORMATION PROCESSING (SDIP)

ISSN - 2319 - 9288

Proceedings of 1st International Conference on EMMA-2021 (24.12.2021 to 26.12.2021)

Gas Chromatography-mass Spectrometry Analysis Of Ethanol Extract Of Eugenia Jambolana

Sindhuja G[1, a)] and Dr. Mary Agnes. A[2, b)]

[1]*Research Scholar, Auxilium College (Autonomous) Vellore -632006*
[2]*Associate Professor, Auxilium College (Autonomous), Vellore-632006*

[a)] *sindhusaker@gmail.com*
[b)] *agnesanthony14@gmail.com*

Abstract. Medicinal plants have bio active compounds which used for curing various human diseases. The photochemical analysis is important commercially as used by pharmaceutical companies for the production of new drugs. phytochemicals are primary and secondary constituents.The main objective of the study is to find out the photochemical constituents in Eugenia jambolana. Research and practical use in traditional medicinal systems have found Eugenia jambolana seed extract to be effective in treating leucorrhoea, gastric disorders, fever, diabetes, piles, stomachache, wounds, and dental, digestive and skin disorders. Some compounds in Jamun have antioxidant, antimicrobial, antiallergic, antidiabetic, antihyperlipidemic, anticancer, gastroprotective, hepatoprotective, cardioprotective and radioprotective activity. Two types of extracts are used. One is heated, the other one is not heated. In GC MS 17 major components were found in each extracts. In both method ethanol extract exhibit higher activity but different compound were found.

Paper ID: icemma20210141

Big Data Analysis Schemes: A Review

Pankaj Kumar [1, a)] and Monika [2, b)]

[1,2] *Department of Information Technology Engineering, UIET Panjab University Chandigarh, India 160014.*

[a)] *pankajchauhan.jnv@gmail.com*
[b)] *monikahsp@gmail.com*

Abstract. Big Data is the most modern term that is utilized. The formation of data was increased year on year because of the IoT and Social Networks from the previous few decades. Thus, the term, Big Data is employed for defining the huge data set as the global data is maximized unstably. The DM has directed the solution process gradually. Only part of the Pareto optimal set requires the generation and evaluation, and on the basis of this data the DM is capable of adjusting its preferences because the solution procedure carries on. This process is iterated until the contentment of DM with the Pareto optimal solution. The benefit to employ interactive techniques is that the solution process is guided by the DM and diverse trade-offs can be learned among different solutions. Big Data may comprise of masses of unstructured data for which more analysis is required in real-time in contrast to conventional datasets. The various schemes for the big data management are reviewed in this paper. The schemes of data management are reviewed and analyzed in terms of certain parameters.

UTKAL HISTORICAL RESEARCH JOURNAL

VOLUME: XXXIV

2021

Special Edition

UTKAL UNIVERSITY
NAAC ACCREDITED A+

DEPARTMENT OF HISTORY
UTKAL UNIVERSITY, VANI VIHAR
BHUBANESWAR-751004, (ODISHA), INDIA

Historical Research Journal, Vol.34 (XXIV), 2021
ISSN: 0976-2132

A STUDY ON FACTORS INFLUENCING CONSUMER DECISION MAKING IN DIGITAL MARKETING WITH SPECIAL REFERENCE TO MOBILE APPLICATION AND SOCIAL MEDIA

Dr. RAJASEKARAN GAYATHIRI
Head and Assistant Professor, Department of Commerce (Banking &Insurance), Auxilium College (Autonomous), Vellore, Tamilnadu, India.
gayathri79rajasekaran@gmail.com

SEETHARAM SATHEYASEELAN PRITHIVI
Assistant Professor, Department of Commerce (Banking &Insurance), Auxilium College (Autonomous), Vellore, Tamilnadu, India.

ABSTRACT

Digital marketing is a type of marketing being widely used in this digital era. It promotes both products and services to reach potential consumers using various channels like mobile applications and social media. Now a day's Smartphones plays a predominant rolein business, education, social life etc. People enjoy the benefits of smartphone in various forms in their daily life. It creates more opportunity for the people to get influenced towards digital marketing than the traditional marketing. This paper is an attempt to identify the factors influencing the consumer towards the online shopping through mobile applications and social media.

Keywords: Digital marketing, Smartphone, online shopping, mobile applications, social media.

INTRODUCTION

In today's digital era, Technology plays a vital role in everyone's life. Smartphone become a basic need of youngster. Especially, country like India which is ranked first in the world for highest youth population(Economic Times 2014) has demonstrated the paradigm shift from traditional marketing to digital marketing. Smartphone has transformed the lives of not only young people but also older generation. India is considered as world second largest internet market(Statista-Dec 2019) which has largely dominated by mobile users irrespective of their socio-economic status and their earnings.It is evident that people spend most time on internet for various reason.

This necessitated the marketers to reconstruct their marketing strategy pertinent to digital market. Digital marketing means marketing of product and service through online using internet or other forms of electronic media. Electronic devices like tablets, mobile phone and PC can be used for digital marketing. Digital marketing can be done through SMS, MMS, email, videos, text and images. Digital marketers develop and design the content in the way to attract and influence the net surfer to become a prospective consumer. Initially, digital marketing was done through search engines, social networking sites, mobile applications developed by businesses and various other digital channels (Avantika Monnappa 2021). Digital consumers prefer online purchase as it ismore convenient, flexible, time saving, 24*7 accessibility, easy refund and availability of products at their doorstep.

To gain competitive advantage in this digital arena, it is imperative for the markets to determine the factors influencing the consumer decision in digital marketing. So,this study focusses on "factors influencing the consumer decision in digital marketing with special reference to mobile application and social media."

STATEMENT OF THEPROBLEM

Digital marketing is a type of marketing being widely used all over the world. It promotes both products and services to reach consumers using various channels like mobile applications and social media. It connects people globally to share their purchase experience, product features, comparative price etc. Their feedback and the review either positive or negative influence the prospective consumers while analyzing the product or service before they purchase. The word-of-mouth advertising plays vital role in digital marketing. This compels the marketers to address and resolve