



**THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN (AUTONOMOUS),
Sivakasi**

(Affiliated to Madurai Kamaraj University, Reaccredited with "A" Grade by NAAC,
College with Potential for Excellence by UGC & Mentor Institution under UGC PARAMARSH)

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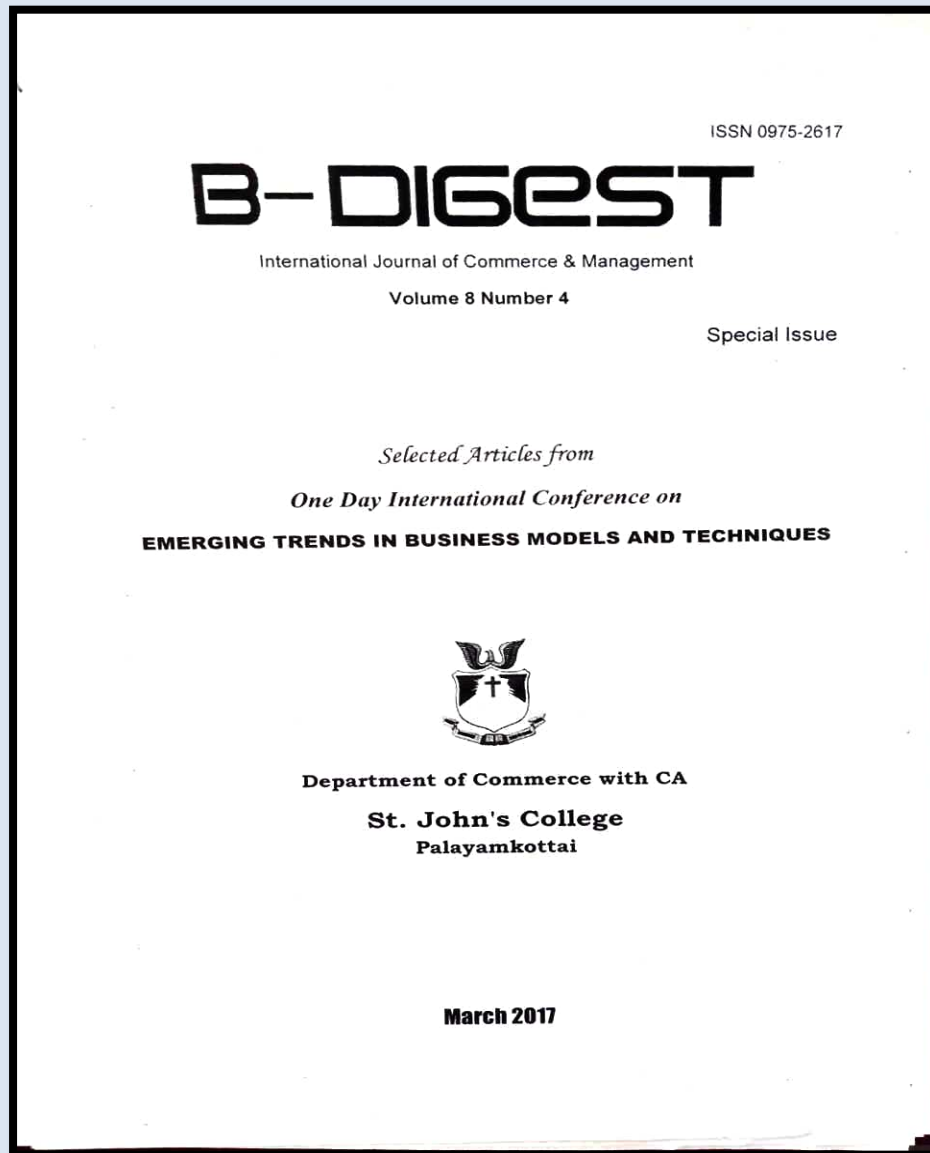


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Name of the Teacher : Dr.(Ms).M.S.Yasmeen Beevi

**Name of the Proceedings : International Conference on Emerging Trends in business
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**A STUDY ON POLICYHOLDERS ATTITUDE TOWARDS MOTOR INSURANCE IN
ORIENTAL INSURANCE COMPANY LIMITED IN SIVAKASI**

Dr. (Ms) M.S. Yasmeen Beevi,
Assistant Professor in Business Administration,
S.F.R.College,
Sivakasi.

P.Kanchana,
M.Phil Scholar,
S.F.R.College,
Sivakasi.

Introduction

When man is engaged in earning his livelihood, he has to encounter many risks. Some of the risks are expected and some others are quite unexpected. Whatever may be the risk, it will have far reaching impact on the well-being of the individual. In a civilized society, many systems have been evolved to guard against such risks. Under certain circumstances avoidance of risk is beyond the control of an individual.

Life Insurance and General Insurance are not one and the same. They vary in certain aspects. In the former the liability for the Insurance Company arises on the death of the insured or the maturity of the policy whichever is earlier. In other words the insurance company has to pay money either to the insured or his legal representatives. But in general if no damage arises, no money need to be paid to the insured and the entire amount of premium received by the insurance company is a gain for it. Thus while the liability to pay the amount is certain for life insurance company, it is contingent for a general insurance company.

The review of literature shows that there are many studies on motor insurance

1. **Shriram General Insurance Company Limited (2009)**, in the article "Motor Insurance" has stated that Shriram General Insurance covers Package Policy Which covers loss or damage to vehicle by Natural Calamities and Manmade Calamities, Personal Liability and Property Liability. The additional features of their policies are Electrical and Electronic Accessories, Bi-fuel system, Personal Accidents, Legal Liability towards employees and Towing charges.

2. **Inderjit Singh et al (2003)**, in their book titled "Insurance Principles and Practice" has stated that a study on insurance has become indispensable for the business and through insurance one can cover various risk of business. It is an important tool to control the various risk.

Objectives

The present study has the following objectives.

- To study the origin and growth of the public sector General Insurance Companies.
- To study the performance of the Oriental Insurance Company Ltd in handling different type of Motor Insurance Policies.
- To ascertain the view of the policyholders as to settlement of claims by the public sector General Insurance Companies.
- To elicit the opinion of policyholders on the performance of the public sectors General Insurance Companies.

Data and Methodology

The present study is an empirical one based on the survey method. The primary data have been collected from the policyholders who have taken general insurance policies from any branch of Public Sector General Insurance Company in Madurai Region namely Oriental Insurance Company Ltd. For

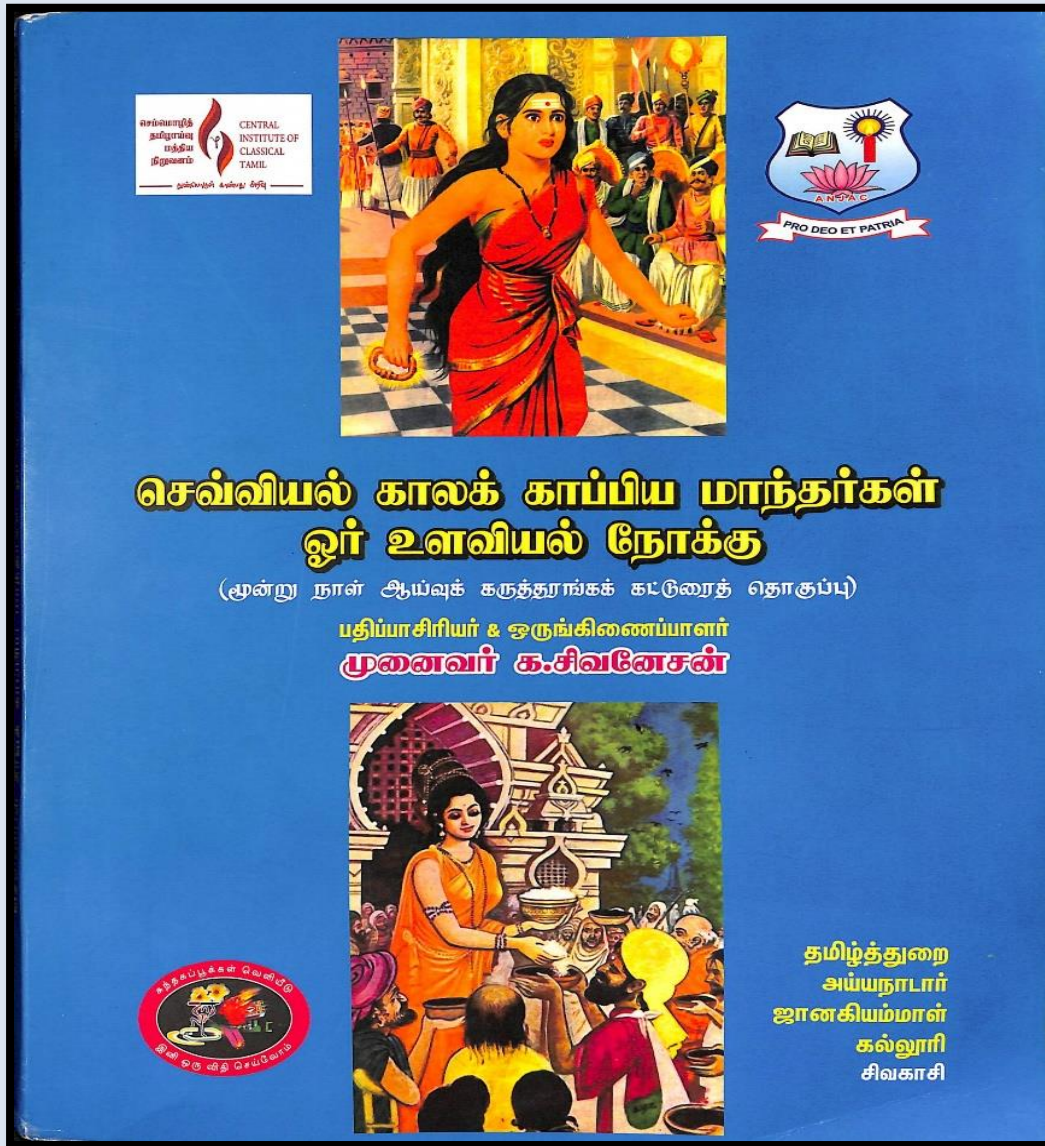


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Name of the Teacher : Mrs.K.Valarmathi

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உளவியல் நோக்கு**



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திருமதி கு.வள்ளமதி,
உதவிப்பேராசிரியர்,
தமிழ்த்துறை,
எஸ்.எ.பி.ஆர்.மகளிர்.கல்லூரி,
சிவகாசி.

‘சிலப்பதிகாரத்தில் அவலமாந்தர்கள்’

முன்னுரை :

ஐம்பெருங்காப்பியங்களுள் முதன்மையானது, ‘சிலப்பதிகாரம்’ ஆகும். சிலப்பதிகாரமும் மணிமேகலையும் ஒற்றுமைப்பண்புகளால் ‘இரட்டைக்காப்பியங்கள்’ என்று போற்றப்படுகின்றன. இன்பமும், துன்பமும் நிறைந்த மனித வாழ்க்கையில் நடைபெறும் நிகழ்ச்சிகளை மையப்படுத்தியே இலக்கியங்கள் படைக்கப்படுகின்றன. இலக்கியங்களில் கதைமாந்தர் படுகின்ற துன்பநிலையைக் கண்டு வாசகர்கள் இரக்கம் கொள்கின்றனர். இந்தத் துன்பநிலையே ‘அவலம்’ என்று கூறப்படுகின்றது. குடிமக்கள் காப்பியமான சிலப்பதிகாரத்தில் பெரும்பான்மையும் அவலம் இடம்பெற்றுள்ளதால், இது ‘அவலக்காப்பியம்’ என்றும் அழைக்கப்படுகின்றது. ஒரு காப்பியத்தில் முதன்மை மாந்தர், துணைமாந்தர் என்று மாந்தர்கள் பலர் இருப்பர். இளங்கோவடிகள் தோற்றுவித்த மாந்தர்கள் அவர் நினைத்த செயலை வெற்றியோடு செய்து முடித்துவிடுகின்றனர். சிலப்பதிகாரத்தில் இடம்பெற்றுள்ள மாந்தர்களில் பலர் - முக்கியமாக முதன்மை மாந்தர்கள் ‘அவலமாந்தர்’களாகவே காணப்படுகின்றனர். அவர்களைப் பற்றி ஆராய்வதே இங்கு நோக்கமாகின்றது.

அவலம் என்பதற்கு ‘வருத்தம்’ அல்லது ‘துன்பம்’ என்று பொருள் கொள்ள முடியும். இதனை ஆங்கிலத்தில் ‘tragedy’ என்று கூறுகின்றனர். க்ரியாவின் தற்காலத் தமிழ் அகராதி, ‘அவலம் என்பதற்கு வருத்தத்தக்க அல்லது இரங்கத்தக்க நிலை’¹ என்று பொருள் கூறியுள்ளது. தொல்காப்பியர் ‘அவலம்’ என்பதனை ‘அழுகை’ என்னும் பொருள்படக் கூறியுள்ளார்.

“இழிவே இழுவே அசைவே வறுமையென
விரிவில் கொள்கை அழுகை நான்கே”²

என்று அவலம் தோன்றுவதற்குரிய நிலைக்களன்களைத் தொல்காப்பியர் குறிப்பிட்டுள்ளார். ‘இவை நான்கும் தன்கண் தோன்றினும், பிறன்கண் தோன்றினும் அவலமாகும்’ என்பது பேராசிரியரின் கருத்தாகும்.

சிலப்பதிகாரத்தில் அவலத்தின் நிலைக்களன்கள் :

சிலப்பதிகாரத்தில் பிறரால் இகழப்பட்டு எளியனாகும் துன்பத்தைத் தரும் அவலமான ‘இழிவு’ என்பது காணப்படவில்லை. ஏனெனில், இந்நிலை பின்னால் மாறும்; அதை மாற்றும் நிலைமையும் வந்து சேரும்.

‘இழிவு’ என்பது மீட்கமுடியாத தன்மை உடையதாக - பேரிழப்பாகத் தோன்றினால், அவலம் மேலோங்கும். அன்புடையாரின் உயிரிழப்பு, இணையற்ற இழப்பாகச் சிலம்பில் காட்டப்பட்டுள்ளது.

ஓர் உயர்ந்த குறிக்கோளினைக் கொண்டு படைக்கப்படும் காப்பியத்தில் வறுமை களைந்து வளம் சேர்க்க வேண்டும் என்னும் உயரிய நோக்கம் மிக்கிருப்பதால், ‘வறுமை’ என்ற நிலையில் சிலப்பதிகாரத்தில் மிகுதியும் அவலச்சுவை இடம்பெறவில்லை என்று கூறமுடியும். சிலம்பில் கோவலன் இலம்பாடு நாணுத்தரும் எனக் குறிப்பிடுவதைக் கொண்டு அவன் வறுமையின்பிடியுள் சிக்கினாலும்கூட துவண்டுபோய் விடவில்லை. வறுமையுற்றபோது மீண்டும் வாழ்தல் வேண்டிச் சிலம்பை முதலீடாகக் கொண்டு மதுரைக்குச் செல்கின்றான்.

‘அசைவு’ என்பது, முன்பு இருந்த நன்னிலை மாறிப் பொலிவுகெட்டு, வேறொரு துயரநிலையை எய்தி அதனால் இறந்துபடுதல் என்பதாகும். தன்



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Name of the Teacher : Dr.B.Ponni

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சிவகாசி.

சிலப்பதிகாரத்தில் கோவலன் பாத்திர உளவியல்

சிலப்பதிகாரக்காப்பியத்தில் கோவலன் சிறந்த அழகு, அறிவு, கொடைப்பண்பு, கடவுட் சிந்தனை, மன்னிக்கும் மனப்பான்மை ஆகியவை உடையவனாகப் படைக்கப்பட்டுள்ளான். கோவலனது பாத்திரப்படைப்பினை உளவியல் அணுகுமுறையில் ஆராய்வதாக இக்கட்டுரை அமைகிறது.

புகழ்ச்சிறப்பு

சிலப்பதிகாரக் காப்பியத்தில் கோவலனும் கண்ணகியும் திருமணநிகழ்வின் மூலமே அறிமுகப்படுத்தப் படுகின்றனர். கோவலனைக் குறிப்பிடும் போது இளங்கோவடிகள்

“இருநிதிக் கிழவன்மகன் ஈரெட்டாண்ட கவையான்
அவனுந்தான்

மண்தேய்த்த புகழினான்” (மங்கலவாழ்த்துப்பாடல் 34-36)

என்று முருகனைப் போன்று அழகுடையவன் மண் தேய்த்த புகழினை உடையவன் என்பதாகக் குறிப்பிடுகிறார். இதற்கு உரையாசிரியர்கள் பல்வேறு பொருள்களைத் தந்துள்ளனர். மண் உலக உயிர்களுக்கு உரிய உணவுப்பொருள் உறையுள் பொருள் இருப்பிடப்பொருள் உலோகப்பொருள் ஆகிய அனைத்தையும் கொடுத்து உதவக் கூடியது. கோவலன் அதன் சிறப்பினைத் தன்னுடைய கொடை வன்மையால் குறைத்து விட்டான் என்பதனையே மண் தேய்த்த புகழினான் என்ற அடி சுட்டுவதாகக் குறிப்பிடுவர். மேலும் கோவலனின் பண்புகள் அடைக்கலக் காதையில் மாடலன் மூலம் வெளிப்படுத்தப் படுகிறது.

“கடக்களிறு அடக்கிய கருணை மறவன்” (அடைக்கலக்காதை 53)

“செல்லாச் செல்வன்” (அடைக்கலக்காதை 75)

“இல்லோர் செம்மல்” (அடைக்கலக்காதை 90)

என்று கோவலன் பலவாறு புகழப்படுகிறான்.

கோவலன் மணிமேகலைக்குப் பெயரிட்ட நாளில் அந்தணன் ஒருவன் தானம் பெற வருகின்றான். அவனை யானை ஒன்று தூக்கிச் செல்கிறது. கோவலன் அதனோடு மோதி அந்தணனை மீட்கிறான். கருணை மறவன் என்று பாராட்டப்



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Curing Kinetics of Chain Extended Bismaleimides

Thamaraichelvi.C^a, Vanangamudi .A^b, Vijayakumar.C.T^{c*}

^aDepartment of Chemistry, SFR College for Women, Sivakasi 626123.

^bDepartment of PG & Research Centre in Chemistry, ANJAC College,
Sivakasi West 626 124.

^cDepartment of Polymer Technology, Kamaraj College of Engineering & Technology,
S.P.G.C. Nagar, K. Vellakulam 625701, India

E- mail:ctvijay22@yahoo.com

Abstract

4,4'-Bismaleimidodiphenyl methane (BMIM) was synthesized by chemical imidization and chain extended with three different aromatic diamines (4,4'-diaminodiphenyl ether (E) , 4,4'-diaminodiphenyl methane (M) and 4,4'-diaminodiphenyl sulfone (S). The main objective of this work is to study the thermal curing kinetics of the different chain extended BMIM resins using Differential Scanning Calorimeter (DSC). Non isothermal multiple heating rate methods were adopted to determine the kinetic parameters. Exothermic transition indicative of curing was observed in DSC traces in the temperature range of 50-450 °C. A significant lowering of melting point (T_m) and curing temperatures was observed when amines E, M and S were used for chain extension reaction. Heat of curing (ΔH_c) of both the BMIM-M and BMIM-E resins were comparatively much less than the pure BMIM whereas BMIM-S resin showed high ΔH_c value indicating the structure of the aromatic diamines used for the Michael addition plays a definite role in controlling the total amount of heat liberated during the thermal curing.

Keywords: *Bismaleimides, Chain extension, DSC, Curing kinetics,*



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Name of the Teacher : Dr.M.Santhi

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

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National Conference on "Recent Trends in Plant Sciences" 1st & 2nd
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**EFFECT OF SODIUM NITROPRUSSIDE (SNP) ON PHYSIOLOGICAL AND
BIOCHEMICAL RESPONSE IN *SURGHUM VULGARE* UNDER SALT STRESS**

¹BRINDHADEVI, S., ²ROSLINE, E., ³SANTHI, M. AND ⁴MUTHULAKSHMI, S.

^{1&2}Department Botany with specialization in Plant Biotechnology,
The Standard Fireworks Rajaratnam College for Women, Sivakasi

³Associate professor and Head Department of Botany with specialization in
Plant Biotechnology, The Standard Fireworks Rajaratnam College for Women, Sivakasi

⁴Assistant professor Department of Botany with specialization in Plant Biotechnology,
The Standard Fireworks Rajaratnam College for Women, Sivakasi

Salt stress is one of the major abiotic stress in Agriculture which induces morphological, physiological, and biochemical changes in plants, worldwide. This study was carried out to investigate the protective role of exogenous Sodium Nitroprusside (SNP) on alleviation of salt stress in *Sorghum vulgare*. Our results showed that salt stress induced plants significantly decrease in growth characters, total soluble sugars, amino acids while increase in proline content and peroxidase activity. However salt stress induced plant SNP treated samples showed positive effect on growth characters and biochemical constituents. Therefore suitable concentration of SNP could be used as a simple, practical and inexpensive method for modulating the effects of salt stress induced plant.

Keywords: Sodium Nitroprusside, Salt, *Sorghum vulgare*, Physiological and Biochemical.

Department of Botany, St. Xavier's College (Autonomous), Palayamkottai. Page 77



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Name of the Teacher : Dr.B.Deepa

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

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March 2017

***MIMUSOPS ELENGI* L. FLOWER BROTH MEDIATED EXTRACELLULAR
SYNTHESIS OF SELENIUM NANOPARTICLES**

DEEPA, B.^{1*} AND GANESAN, V.²

^{*1} Assistant Professor, Department of Botany with specialization in Plant Biotechnology, The Standard Fireworks Rajaratnam College for Women, Sivakasi, Tamilnadu, India.

² Associate Professor and Head (Retd.), Centre for Research and Post Graduate studies in Botany, Ayya Nadar Janaki Ammal College, Sivakasi, Tamilnadu, India.

The present study reported the extracellular synthesis of selenium nanoparticles from aqueous sodium selenate using the flowers of *Mimusops elengi* L. The synthesized selenium nanoparticles was ascertained through UV-Visible (UV-Vis.) Spectroscopy. Fourier Transform Infra-Red Spectroscopy (FT-IR), X-ray Diffraction (XRD) analysis and Energy Dispersive X-ray Spectroscopy (EDX). Further, micro structural characterization was done with an aid of Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM). The Surface Plasmon Resonance (SPR) vibrations obtained from UV-Visible (UV-Vis.) Spectroscopy elucidated that the λ_{max} was red shifted from 395 to 415 nm over the period of incubation. FT-IR spectroscopy implicated the role of sugars, glycosides or polyols in flavonoids in the bioreduction and stabilization of selenium nanoparticles. The crystal plane and major emission energy lines of elemental selenium were detected by XRD and EDX analyses respectively. Spherical and hollow nature of the synthesized selenium nanoparticles were illustrated with SEM and TEM analyses. The average size of the selenium nanoparticles synthesized by the flowers of *M. elengi* was found to be 29.99 ± 5.99 nm.

Keywords: Extracellular synthesis, Selenium nanoparticles, *Mimusops elengi* L.



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Name of the Teacher : Dr.B.Deepa

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

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**GREEN SYNTHESIS AND CHARACTERIZATION OF SILVER NANOPARTICLES
USING LEAVES OF *DELONIX REGIA* (BOJ. EX HOOK.) RAF.**

JEYANTHI, G., KALPANA, G. AND DEEPA, B.*

Department of Botany with specialization in Plant Biotechnology, The Standard Fireworks
Rajaratnam College for Women, Sivakasi, Tamilnadu, India.

*Assistant Professor, Department of Botany with specialization in Plant Biotechnology, The
Standard Fireworks Rajaratnam College for Women, Sivakasi, Tamilnadu, India.

The present study is aimed to synthesize silver nanoparticles using the leaf broth of *Delonix regia* (Boj. ex Hook.) Raf. (Subfamily: Caesalpinioideae). The exposure of the leaf broth of *D.regia* to aqueous silver nitrate solution leads to the formation of silver nanoparticles within 06 hours through bioreduction. The bio-synthesized silver nanoparticles were characterized by UV-Visible (UV-Vis.) Spectroscopy, Fourier Transform Infra-Red Spectroscopy (FT-IR), X-ray Diffraction (XRD) analysis, Energy Dispersive X-ray Spectroscopy (EDX) and Scanning Electron Microscopy (SEM). The UV-Visible spectrum shows the Surface Plasmon Resonance (SPR) vibrations with a λ_{max} at 480 nm. FT-IR spectrum elucidates the role of various functional groups in the reaction medium as reducing and stabilizing agents in the synthesis of silver nanoparticles. XRD pattern reveals the formation of Face Centered Cubic (FCC) phase of silver nanoparticles with an average size of 29 nm. The EDX analysis and Scanning Electron Microscopy confirm the formation of elemental spherical silver nanoparticles.

Keywords: Green synthesis, silver nanoparticles, *Delonix regia*.

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Name of the Teacher :Mrs.Vallimayil

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

28

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**ENUMERATION OF BIOSURFACTANT PRODUCING BACTERIA FROM OIL
SPILLED SOIL**

VALLIMAYIL, J¹., RAMASUBRAMANIAN, V.* AND PRIYADHARSINI, S².

¹Assistant Professor of Botany with Specialization in Plant Biotechnology,
S.F.R. College for Women, Sivakasi - 626 123.

*Associate Professor and Head of Plant Biology and Plant Biotechnology (Retd.),
Ayya Nadar Janakiammal College, Sivakasi - 626 123

²II M.Sc., Botany with Specialization in Plant Biotechnology,
S.F.R.College for Women, Sivakasi - 626 123

In the present study, oil spilled soil samples were collected from automobile workshop in Sivakasi, Tamil Nadu. Microorganisms from oil contaminated soil samples were screened and biosurfactant producing activity was estimated. *Rhodococcus sp* was isolated and identified by microscopic and biochemical analysis. Efficiency of microbe in degrading oil was studied by drop collapse method, emulsification index, phenol test, methylene blue agar plate method, hemolytic activity and oil spreading technique. The biosurfactant was extracted from MSM broth medium by centrifugation. The extracted biosurfactant was characterized with Fourier transform infrared spectroscopy (FTIR) spectra. The results revealed that, the isolated organism was found to be potent in degrading the oil. Hence, it can be recommended for biodegradation.

Keywords: *Rhodococcus sp*, oil spill, biosurfactant, biodegradation.

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Name of the Teacher : Dr.U.Umadevi

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

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National Conference on "Recent Trends in Plant Sciences" 1st & 2nd
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**PHARMACOGNOSTICAL AND *IN VITRO* ANTI-OXIDANT STUDIES OF ULCER
CURING SELECTED MEDICINAL FLOWERS**

ARIVUMATHI, R¹., ATHILAKSHMI, T². AND UMADEVI, U. ^{3*}

^{1,2} M.Sc., Botany with specialization in Plant Biotechnology, The Standard Fireworks
Rajaratnam College for Women, Sivakasi - 626 123,

^{3*} Assistant Professor, Department of Botany with specialization in Plant Biotechnology, The
Standard Fireworks Rajaratnam College for Women, Sivakasi - 626 123.

In the present study, phytochemical analysis of selected medicinal flowers like *Nelumbo nucifera*, *Rosa domestica*, *Mimusops elengi*, *Tridax procumbens*, *Moringa oliefera* and *Musa paradisiaca* were done. Hydrogen peroxide scavenging activity was done to prove its anti-oxidant activity. The results showed the presence of many vital secondary metabolites in ethanol and methanol extracts of almost all the flowers. *Nelumbo nucifera* exhibited high antioxidant activity followed by *Rosa domestica*, *Moringa oliefera*, *Mimusops elengi* and *Tridax procumbens*. Hence, these flowers can be used for the preparation of ulcer curing drug.

Keywords: Medicinal flowers, Phytochemical, Anti-microbial, Anti-oxidant



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Name of the Teacher : Mrs.P.Sujatha

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

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National Conference on "Recent Trends in Plant Sciences" 1st & 2nd
March 2017

**STUDIES ON SALICYLATE AND BRASSINOSTEROID INDUCED RESPONSES IN
VIGNA RADIATA (L.)**

¹SUJATHA, P.* AND ²LINGAKUMAR, K.

¹Assistant Professor, Department of Botany with Specialization in Plant Biotechnology,
The Standard Fireworks Rajaratnam College for Women, Sivakasi, Tamilnadu, India.

²Associate Professor and Head, Centre for Research and PG Studies in Botany,
Ayya Nadar Janaki Ammal College, Sivakasi, Tamilnadu, India.

A growth regulator is an organic compound which in small amounts or low concentration promotes, inhibits or qualitatively modifies growth and development. Salicylic acid (SA) is an endogenous growth regulator of phenolic nature which participates in the regulation of physiological processes of plant. Brassinosteroids are common plant produced compounds structurally similar to animal steroid hormones that function as growth regulators. Salicylic acid and Brassinosteroid are the secondary metabolites produced by wide range of prokaryotic and eukaryotic organisms including plants. SA and BR are the endogenous plant growth regulator involved in various physiological processes of plant growth and development. An attempt has been made to understand the response of SA and BR in a *Vigna*.

Keywords: Salicylic acid (SA), Brassinosteroid (BR), *Vigna*.



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Name of the Teacher : Dr.K.Geetha

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

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March 2017

**EVALUATION OF HISTOPATHOLOGICAL STUDIES OF *ACHYRANTHES
ASPERA* IN MICE, SWISS ALBINO**

GEETHA, K.

Department of Botany with Specialization in Plant Biotechnology,
The Standard Fireworks Rajaratnam College for Women, Sivakasi, Tamilnadu, India.

Medicinal plants are of great importance to the health of individuals and communities in general. The medicinal value of plants lies in some chemical substances that produce a definite physiological action on the human body. *Achyranthes aspera* L. (Amaranthaceae) is an indigenous medicinal plant of Asia, South America, and Africa. It is commonly used by traditional healers for the treatment of fever, especially malarial fever, dysentery, asthma, hypertension and diabetes. This paper explains evidence based-information regarding the histopathological activity of ethanol extract of *Achyranthes aspera* with alloxanised mice. A control group of mice with a number of six for each treatment were maintained. Mice were exposed to alloxan and then the alloxanised mice were administered with different extracts of *A.aspera* at a sublethal concentration of 12.5g/kg for a period of 30 days. After the exposure period the various tissues namely liver, spleen and muscle were taken from mice maintained as control, alloxanised mice and the lone effect of various extracts (hexane, butanol, ethanol, chloroform and water) of *A.aspera* on the alloxanised mice were processed for histological studies. Among the various extracts namely hexane, butanol, ethanol, chloroform and water in the extraction of *A.aspera*, the ethanol extract exhibited a protective effect on the histology of liver, spleen and muscle of alloxanised mice. The hepatoprotective nature of ethanol extract of *A. aspera* as evidenced through the histological studies can be substantiated with the findings of marked restoration in the level of liver enzymes AST, ALT and ALP in alloxanised mice after administering with plant extract in the present study.

Keywords: *Achyranthes aspera*, histology, alloxanised mice, AST, ALT and ALP



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Name of the Teacher : Mrs. A.P.Gowsalya devi

Name of the Proceedings : National Conference on Recent Trends in Plant Sciences

322
National Conference on "Recent Trends in Plant Sciences"

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**RELATIVE EFFICACY OF DISTILLERY EFFLUENT ON SEED GERMINATION
OF SOME CROP PLANTS.**

¹DIVYA, A., ²SUDHA, S. AND *GOWSALYA DEVI, A.P.

^{1&2}II M.Sc., Botany with specialization in Plant Biotechnology,

The Standard Fireworks Rajarathnam College for Women, Sivakasi

*Assistant Professor, Department of Botany with specialization in plant Biotechnology,

The Standard Fireworks Rajarathnam College for Women, Sivakasi.

Industrialization plays a significant role in the development of a nation. In spite of the production of various products, these industries discharge large amount of waste water causing tremendous environmental problems. One of the major source is the distillery effluent derived from distillery industries. Use of industrial effluent and sewage sludge on agricultural land has become a common practice in India. Present study was conducted to find out the relative efficacy of distillery effluent on some crop plants. The physico-chemical analysis of distillery effluent shows high value of electrical conductivity, total solids, total dissolved solids, anions and cations. Different dilutions of the effluent like 20%, 40%, 60%, 80% and 100% was taken and studied the effect on speed of germination and germination percentage on the test crop plants. The results indicate that at lower concentration there is a significant increase in percentage of seed germination but decrease with increase in concentration. Different range of tolerance has been observed in the crop plants indicate that care should be taken before using it for irrigation purposes.

Keywords: Distillery effluent, Germination, Physico-chemical.



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Name of the Teacher : Dr.J.Kasthuri

**Name of the Proceedings : International Conference on Nanotechnology: The
Fruition of Science**



BNP-O3

Antimicrobial activity of Silver Nanoparticles produced by *E.coli* an isolate, of coir industry

Poornima. S., Kasthuri J. and Saju . K. A*.

Department of Zoology, The Standard Fireworks Rajaratnam College, Sivakasi- 626 123.

*Department of Biotechnology, Noorul Islam College of Arts and Science, Kumarcoil- 629 180.

Abstract

Nanotechnology is gaining tremendous importance in the present century due to its capability of modulating metals into their nanosize, which drastically changes the chemical, physical and optical properties of metals. Metallic silver in the form of silver nanoparticles has made a remarkable comeback as a potent antimicrobial agent. The use of silver Nanoparticles is also important, as several pathogenic bacteria have developed resistance against various antibiotics. Hence, in the present investigation the assay was carried out to scrutinize the silver nanoparticle producing microorganism from cashew nut industry, coir industry and cement industry which was further confirmed by biochemical characterization. UV- Visible spectroscopy revealed the first indication of formation of silver nanoparticles from *E.coli* an isolate from coir industry. Antibacterial activity of synthesized silver nanoparticle was performed against some human pathogens. The observed results revealed that silver nanoparticles were acting against the human pathogens. Maximum inhibitory activity was obtained with the *Pseudomonas syringae* (24 mm) and *Streptococcus pneumonia* (17 mm) respectively.

Keywords: Silver nanoparticles, *E.coli*, human pathogens

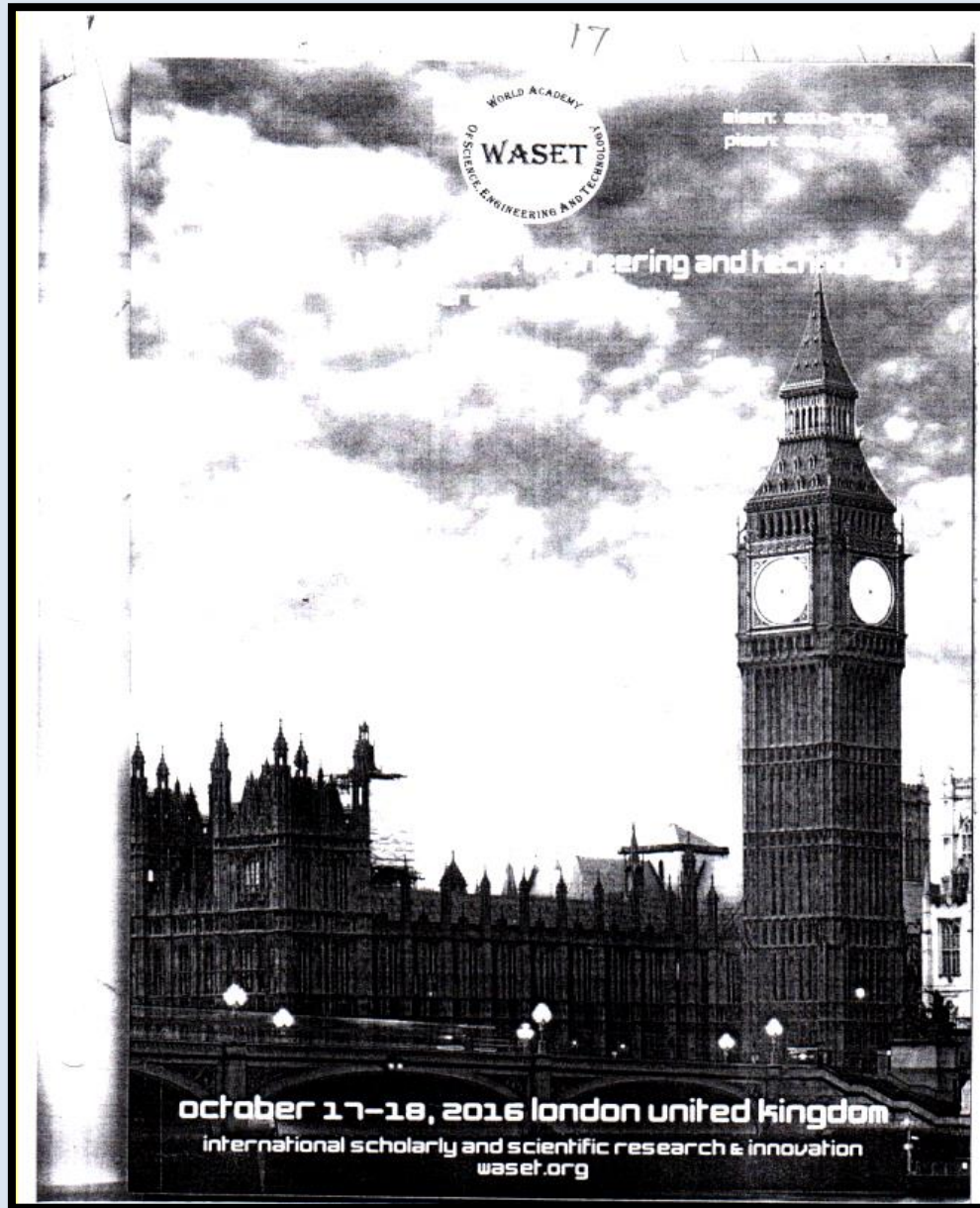


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Name of the Teacher : Dr.U.Umadevi

**Name of the Proceedings : International Conference on Livestock farming, medicine
and surgery**



Estimation of Greenhouse Gas (GHG) Reductions from Solar Cell Technology Using Bottom-up Approach and Scenario Analysis in South Korea

Jaehyung Jung, Kiman Kim, Heesang Eum

Abstract—Solar cell is one of the main technologies to reduce greenhouse gas (GHG). Thereby, accurate estimation of greenhouse gas reduction by solar cell technology is crucial to consider strategic applications of solar cell. The bottom-up approach using operating data such as operation time and efficiency is one of the methodologies to improve the accuracy of the estimation. In this study, alternative GHG reductions from solar cell technology were estimated by bottom-up approach to indirect emission source (scope 2) in Korea, 2015. In addition, scenario-based analysis was conducted to assess the effect of technological change with respect to efficiency improvement and rate of operation. In order to estimate GHG reductions from solar cell activities in operating condition levels, methodologies were derived from 2006 IPCC guidelines for national greenhouse gas inventories and published in Korea, 2016. Indirect emission factors for electricity were obtained from Korea Power Exchange (KPEX) in 2011. As a result, the annual alternative GHG reductions were estimated as 21,304 tonCO₂e and the annual average value was 1,536 tonCO₂e per each solar cell technology. Those results of estimation showed to be 91% levels versus design of capacity. Estimation of individual greenhouse gases (GHGs) showed that the largest gas was carbon dioxide (CO₂), of which up to 99% of the total individual greenhouse gases. The annual average GHG reductions from solar cell per year and unit installed capacity (MW) were estimated as 556 tonCO₂e/MW. Scenario analysis of efficiency improvement by 5%, 10%, 15% increased as much as approximately 30, 61, 91%, respectively, and rate of operation as 100% increased 4% of the annual GHG reductions.

Keywords—Bottom-up approach, Greenhouse gas (GHG), Reduction, Scenario, Solar cell

Jaehyung Jung is with Green Technology Center Korea, 176B B, Namsan Square Bldg., 173, Teogye-ro, Jung-Gu, Seoul, Korea (phone: +82-2-3393-3998; fax: +82-2-3393-3919-20; e-mail: aajp16@pck.or.kr).
Kiman Kim is with Green Technology Center Korea, 176B B, Namsan Square Bldg., 173, Teogye-ro, Jung-Gu, Seoul, Korea (phone: +82-2-3393-3925; fax: +82-2-3393-3919-20; e-mail: kkim0@pck.or.kr).
Heesang Eum is with Green Technology Center Korea, 176B B, Namsan Square Bldg., 173, Teogye-ro, Jung-Gu, Seoul, Korea (phone: +82-2-3393-3964; fax: +82-2-3393-3919-20; e-mail: eumh0@pck.or.kr).

Treatment of Mycotic Dermatitis in Domestic Animals with Poly Herbal Drug

U. Umadevi, T. Umakanthan

Abstract—Globally, mycotic dermatitis is very common but there is no single proven specific allopathic treatment regimen. In this study, domestic animals with skin diseases of different age and breed from geographically varied regions of Tamil Nadu state, India were employed. Most of them have had previous treatment with native and allopathic medicines without success. Clinically, the skin lesions were found to be mild to severe. The trial animals were treated with poly herbal formulation (ointment) prepared using the indigenous medicinal plants – viz. *Andropogon paniculatus*, *Lawsonia inermis* and *Madhuca longifolia*. Allopathic antifungal drugs and ointments, povidone iodine and curableless (Terbinafine HCl, Ofloxacim, Oxidazole, Clobetasol propionate) were used in control. Comparatively, trial animals were found to have lesser course of treatment time and higher recovery rate than control. In Ethnoveterinary, this combination was tried for the first time. This herbal formulation is economical and an alternative for skin diseases.

Keywords—Allopathic drugs, dermatitis, domestic animals, poly herbal formulation.

INTRODUCTION

GLOBALLY, skin disease in domestic animals caused by many factors including keratinophilic fungi is a major problem and is of zoonotic importance. It causes loss of production, contamination of the premises, heavy economic loss due to skin damage. Effective topical lotions, shampoos, ointments or antifungal drugs used to treat but recurrence and side effects are common. To eliminate these problems an alternative medicine is needed.

Plants serves as an alternative medicine to cure various ailments as it contains secondary metabolites such as alkaloids, terpenoids, tannins, saponins, glycosides, etc. The secondary metabolites play an important role as medicinal and pharmaceutical agents not only as purified isolates but also as lead compounds for treating ailments.

MATERIALS AND METHODS

Animals with skin diseases were randomly selected from Tamil Nadu state, like Coimbatore, Pollachi, Madurai, Theni, Perambalur and Trichy districts. They belong to different age and breed. The disease was diagnosed based on the symptoms like alopecia, loss of hair, grayish-white and crusty raised extensive lesion over the infected area. Most of the animals

had previous treatment with native and allopathic medicines with partial or without recovery. These randomly selected animals were made into five groups (Group A, B, C, D, and E). Each group had five cattle, three dogs and two horses, with infection ranging from mild to severe. Group A, B, C, D and E were treated with herbal formulation I, herbal formulation II, povidone iodine ointment and curableless, respectively. Group F received no treatment (Control). The lesions were most commonly found on the head, neck, chest, back and dorsal side.

Herbal formulation was prepared with selected plants such as *Andropogon paniculatus*, *Lawsonia inermis* and *Madhuca longifolia*. Two methods of preparation were adopted for comparing their response and recurrence.

A. Formulation - I - Traditional Method

The ointment was prepared by following the method detailed in Gunapadam [1].

Fresh leaves of *Andropogon paniculatus* (1000 gm), *Lawsonia inermis* (1000 gm) were ground with distilled water (300 ml) and extract is collected. The leaf extracts along with madhuca oil (1000 ml) boiled till uniform mixture obtained. Paraffin was (700 gm) was added as a base and the content while as molten form (approximately at 50°C) was transferred to a wide mouthed container and allowed to cool.

B. Formulation - II - Industrial Method

The ointment was prepared by the modified method [2]. In this method, fresh leaves of *Andropogon paniculatus* (1000 gm) and *Lawsonia inermis* (1000 gm) were ground with distilled water (100 ml) and the extract is boiled at 65 °C in a silica crucible. Borax (10 gm) is added to the extract. Parallel to this, 180 gm of bee wax is melted in another silica crucible to which 610 ml of *Madhuca* oil is added and heated. Later the plant extract is slowly added to the bee wax - *Madhuca* oil mixture and stirred continuously until it gets uniformly miscible without any lumps. For fragrance few drops of rose oil was added. Finally transferred to wide mouthed bottles in molten form, allowed to cool and stored in cool place.

The herbal and allopathic ointments were applied ad libitum over the infected regions of the respective groups of animals. The efficacy was assessed by the disappearance of symptoms and animals regaining their normal feeding and other habits. The time taken for complete recovery was assessed.

The skin scrapings and hair plucks of the infected and controlled animals were inoculated in Dermatophytes test medium (DTM) to find the etiology.

U. Umadevi (Assistant Professor) is with the Department of Botany with specialized in Plant Biotechnology, The Standard fireworks Rajaraman College for Women, Sivakasi, Virudhangan (Dt), Tamil Nadu, India - 626 123 (e-mail: madhumath1996@gmail.com).
T. Umakanthan (Veterinary Surgeon) is with the Veterinary Hospital, Sattur (Dt), Virudhangan (Dt), Tamil Nadu, India - 626 263.



**THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN (AUTONOMOUS),
SIVAKASI – 626 123.**

(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade by NAAC,
College with Potential for Excellence by UGC and Mentor Institution under UGC PARAMARSH)

Name of the Teacher : **Dr.U.Umadevi**

Name of the Proceedings : **International Conference on Science, Technology,
Engineering and Management**





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Name of the Teacher : Mrs.A.P.Gowsalya devi
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WM 06

**IMPACT OF DISTILLERY EFFLUENT ON SEED GERMINATION IN
SOME VEGETABLE CROPS**

GOWSALYA DEVI, A.P* SARATHA, K AND V. MARIAPPAN**

*Standard Fire works Rajarathnam College for Women, Sivakasi – 626 124.

**Research Scholar, Dept of Botany, R.D Government Arts college, Sivagangai – 630 561
Dept of Botany, Raja Doraisingam Govt Arts College, Sivagangai – 630 561.

The physico-chemical analysis of distillery effluent shows high value of Electrical conductivity, Total solids, Total dissolved solids, anions and cations and heavy metals. Effect of various concentrations of distillery effluent (10, 20, 30, 40 and 50%) was tested on seed germination and seedling growth of Bhendi and Cluster bean. The results indicate that at lower concentration there is a significant increase in percentage of seed germination and seedling growth parameters, but decrease with increasing concentration, indicates, the enhancing influent of plant nutrients present in the effluent.

Keywords: Impact, distillery effluent, seed germination, vegetale crops.



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Name of the Teacher : Mrs.A.P.Gowsalya devi
**Name of the Proceedings : National Conference on Bioresources Conservation,
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WM 07

**SURVEILLANCE ON THE QUALITY OF THREE INDUSTRIAL
EFFLUENTS**

SARATHA, K GOWSALYA DEVI, A.P.,* MATHAN, G *** AND V. MARIAPPAN**

*Standard Fireworks Rajaratnam College for Women, Sivakasi – 626 124.

**Research Scholar, Dept of Botany, R.D Government Arts college, Sivagangai – 630 361

***Annamalai University, Annamalai nagar.

Dept of Botany, Raja Doraisingam Govt Arts College, Sivagangai – 630 561.

The present study reveals that the physico-chemical characters of three industrial effluents like winery, distillery and tannery. The physico-chemical characters of effluent viz., pH, Ec, Total solids, Total dissolved solids, total suspended solids, alkalinity, salinity, calcium, sodium, potassium, phosphorous, nitrogen, chloride, magnesium, sulphate, sulphide, dissolved oxygen, dissolved carbon-di-oxide, BOD, COD, heavy metals and oil and grease were determined using by standard procedure. The quality of water samples were discussed with respect to these parameters and thus an attempt were made to ascertain the quality of water used for drinking and domestic purposes in the studied area.

Keywords: Surveillance, quality, industrial effluents



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Name of the Teacher : Mrs.A.P.Gowsalya devi

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WM 08

**IMPACT OF HEAVY METALS ON PLANT GROWTH AND ENZYMATIC
ACTIVITY**

MATHAN, G., ** GOWSALYA DEVI, A.P* AND V. MARIAPPAN

*Standard Fire works Rajarathnma College for women, Sivakasi

**Research Scholar, Annamalai University, Annamalai nagar.

Dept of Botany, Raja Doraisingam Govt Arts College, Sivagangai – 630 561.

The present study reveals that the effects of heavy metals on plant growth of *Cajanus cajan*. As one of the consequences of heavy metal pollution in soil, water and air, plants are contaminated by heavy metals. Using chemical products as nutrients, fertilizers and pesticides. We believe that we attack our safety and we most know the effects of heavy metals form these compounds. In this work the effect on heavy metals as Pb, Cr, Ni and Cu on *Cajanus cajan* growth is presented. The effect of heavy metal on plants on growth inhibition, structure damage a decline of physiological and enzymatic activities as wells as of the function of plants.

Keywords: *Impact, heavy metals, growth, enzymatic activity*

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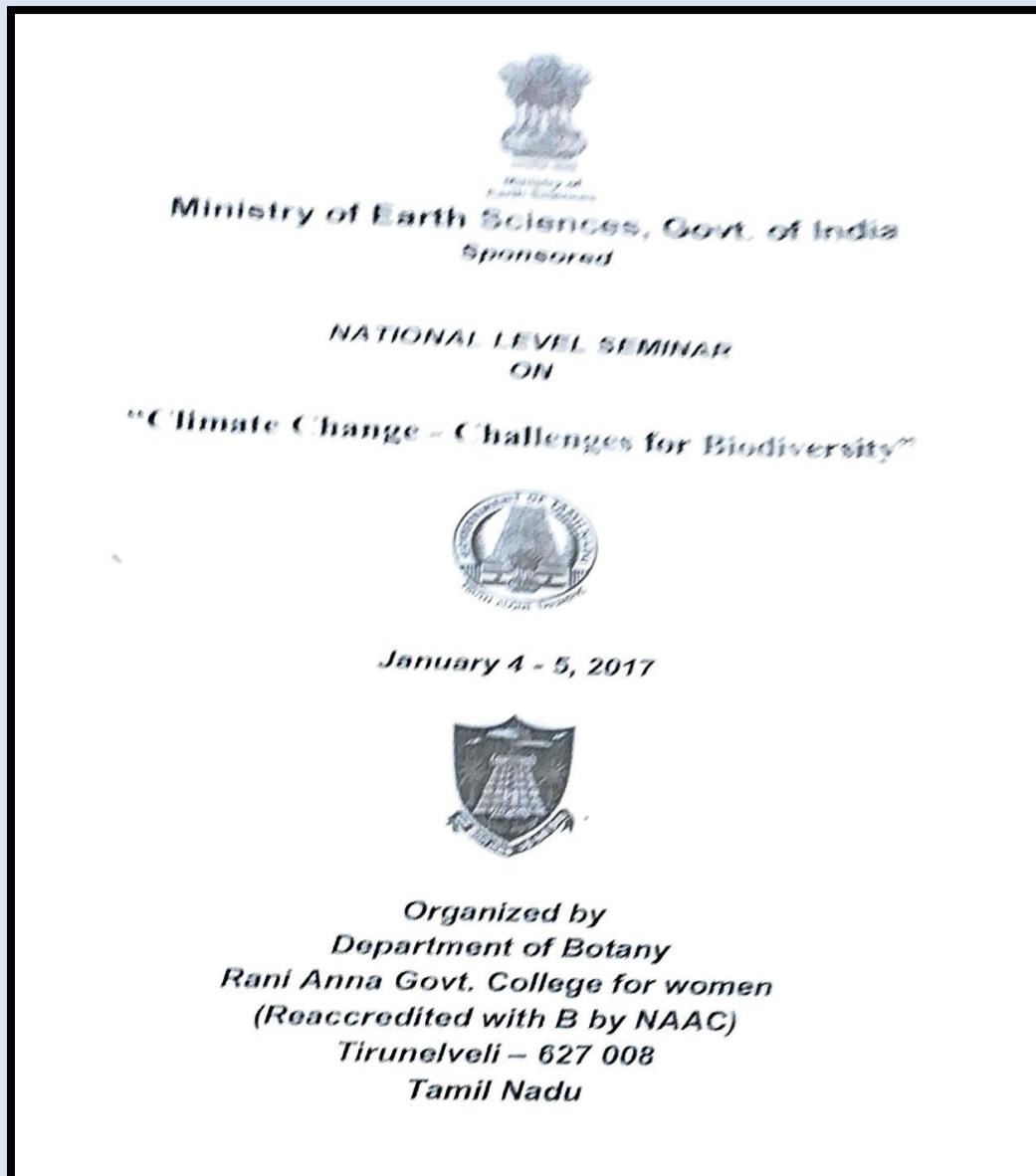


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Name of the Teacher : Dr.J.Kasthuri

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National Seminar on "Climate Change - Challenges for Biodiversity"

**DIVERSITY OF LEAD RESISTANT BACTERIAL
POPULATIONS IN THE INDUSTRIAL SITE OF SOUTH
TAMILNADU**

*Poornima S,**Kasthuri J.K, ***Beulah Mary, ***Jameer Ahamed S and
***Gowsandh R.

*Asst. Professor, Dept. of Biotechnology,
Noorul Islam College of Arts and Science, Kumaracoil -629 180.

**Head, Department of Zoology,
The Standard Fireworks Rajaratnam College, Sivakasi - 626 123

*** UG Department of Biotechnology,
Noorul Islam College of Arts and Science, Kumaracoil -629 180

ABSTRACT

Metals occur widely in soil, but generally in trace amounts. The toxic effect of heavy metals in soil environments are a matter of increasing concern which has largely contributed to environmental contamination and is a major concern to the public health. Technologies have developed to cope with the presence and accumulation of heavy metals in metal contaminated sites; however such remediation approaches may suffer from serious short coming due to high cost, high maintenance requirements, complicated procedure and the extended duration of the operation. A more practical and cost effective method using bioremediation involving the use of microorganism to detoxify environmental contaminants should therefore be devised as an effective biotechnological approach to react heavy metal contaminated environment. Hence the present study deals with the isolation of lead resistant bacterial population in the industrial site of south Tamil Nadu. The isolated organism can be further applied in various investigational researches for bioremediation and reclamation of polluted soil.

Keywords: Heavy metal, Bioremediation, lead,



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Name of the Teacher : Mrs.J.Vallimayil

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INTERNATIONAL CONFERENCE ON RECENT TRENDS IN BIOLOGICAL RESEARCH-2015 [ICRTBR-2015]

Screening of crude oil degrading microbes from oil spilled sources

J.Vallimayi¹ and V.Ramasubramanian²

¹Department of Botany, S.F.R.College for Women, Sivakasi

²Department of Botany, Ayya Nadar Janaki Ammal College, Sivakasi

Environmental contamination by crude oil and its derivatives is a global problem. Bacterial strains in soil can degrade crude oil naturally which is one of the major practices in natural decontamination. In the present study, screening and isolation of hydrocarbon degrading microorganisms from oil spilled sources in sivakasi by selective enrichment technique was performed. The potent hydrocarbon degraders were identified. The selected strains were cultured in liquid broth with crude oil as the sole carbon and energy source. The efficiency was determined by optical density, total cell count, pH measurement and further screened by assay well diffusion method. The results revealed that, *Pseudomonas* and *Bacillus* were found the best crude oil degraders. Hence, they can be used for petroleum degradation.



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Name of the Teacher : Mrs.S.Muthulakshmi

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**EFFECT OF SPERMIDINE (SPD) ON PHYSIOLOGICAL AND BIOCHEMICAL
RESPONSE IN *LABLAB PURPUREUS L.* (SWEET)**

¹MUTHULAKSHMI, S. AND ²*LINGAKUMAR, K.

¹Assistant Professor Department of Botany with specialization in Plant Biotechnology,
The Standard Fireworks Rajaratnam College for Women, Sivakasi. Tamil Nadu, India.

²*Head and Assistant Professor Centre for Research and Postgraduate Studies in Botany,
Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi. Tamil Nadu, India.

Polyamines are small, ubiquitous, nitrogenous compounds that scavenge reactive oxygen species and stabilize the structure and function of the photosynthetic apparatus in response to abiotic stresses. Molecular details underlying polyamine-mediated photoprotective mechanisms are not completely resolved. Spermidine is a polyamine derived from putrescine. This study investigated the role of spermidine (Spd) in the structure and function of the photosynthetic apparatus. An experiment was conducted to study the different concentration of spermidine (0.5 μ m, 2 μ m, 3 μ m, 5 μ m and 10 μ m) foliar spray on vegetative growth, physiological and biochemical constituents of *Lablab purpureus L.* (Sweet). The application of spermidine led to significant increase of vegetative growth characters such as shoot and root length, shoot and root fresh weights and dry weights, photosynthetic pigment, non photosynthetic pigment composition and total soluble protein, total soluble glucose, free amino acid, MDA, and NRA. Where as in case of proline, peroxidase and catalase activity was decreased when compare to the control. On unit fresh weight basis, the total chlorophyll content was found to increase at all concentrations. The optimal concentration for increased overall plants growth was found to be around 5 μ m and 10 μ m Thus the exogenous application of spermidine intact *L. purpureus* seedlings was found to be beneficial in promoting growth and biochemical responses in plants.

Keywords: Spermidine, *Lablab purpureus*, Physiological, Biochemical.



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Name of the Teacher : Dr.M.Kavitha

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UPTO 1736 A.D.**



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Dr.C.Chellappandian
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CULTIVABLE LANDS AND TAX ASSESSMENT PRACTICED DURING THE REIGN OF LATER PANDYAS

DR. (Mrs) M. Kavitha *

Introduction

Land revenue was an important source of income of any State, as before and even after, during the medieval period of the Tamil country. Bulk of the medieval epigraphs, mostly, deals with the land transactions and the revenue generated out of land clearly indicates that the land played a pivotal role in the economy of the medieval States. Besides the epigraphs, the works of eminent scholars like T.V. Sadasiva Pandarathar¹, K.V. Raman² and K.A. Nilakanta sastri³ attest to the fact that the land-tax continued to be the major revenue of later Pandyas. The land tax assessment and levy of tax on cultivated lands in the medieval period is available in plentiful in the epigraphs. *Irai, ayam, kadamai* and *vari* were the general terms interchangeably employed to denote land tax. The phrases like *innilattal-vantha-irai* or *innilattal-varum-kadamai* (tax dues from the land), *innilattal-vantha-ayam* (tax dues from the land), *innilattal-undana-kadamai-kudimai*⁴ (tax dues generated from the land) mentioned in the inscriptions indicates that *irai, kadamai* and *ayam* were taxes on land. The assessment and levy of land tax was not flat on lands throughout the village or country. It differed, at least, according to the types of land, viz., wet, dry, garden and so on, irrigational facilities and nature of crops.

Land Tax Assessment on Wet Lands

The phrase like *nancey-kadamai* infers the tax levied on wet lands. The land tax assessment on wet lands differed based on the single-crop, double-crop or last crop cultivation. An inscription from Tirunelveli issued in the 8th year of Maravarman Sundara Pandya records the grant shares of wet lands, drylands and garden lands to bhattas and alwars of Nelloiyappar temple. The wet lands were assessed at 60 *kalams* of paddy per *veli* and 5 *kasu* for *kadamai* dues. It is specified that the lands were to be measured by 24 foot *Sundara Pandiyan kol*⁵.

* Assistant Professor, Department of History, SFR College for Women, Sivakasi



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Name of the Teacher : Dr. S. Sivadevi

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PO-85

Effect of Plasticiser on The Properties of Proton Conducting Blend Polymer Electrolytes Based on PVA and PAN

S. Siva devi^{1,2}, S.Selvasekarapandian^{2,3*}, Premalatha²

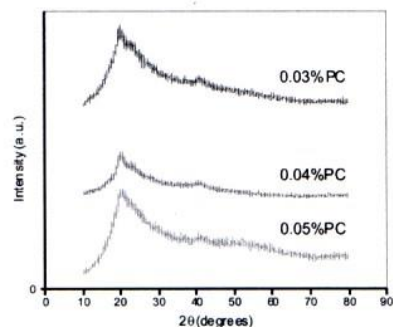
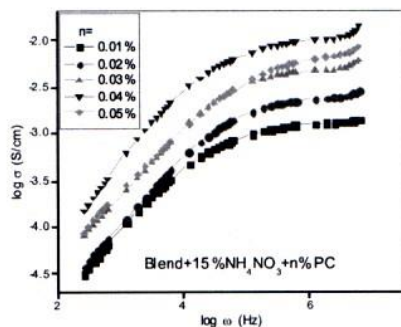
¹Department of Physics, The S.F.R. College for Women, Sivakasi, Tamilnadu, India.

²Materials research Centre, Coimbatore, Tamilnadu, India.

³Department of Nano Sciences and Technology, Tamil Nadu Agricultural University, Coimbatore, Tamilnadu, India.

*Corresponding Author: sekarapandian@rediffmail.com

Development of proton conducting polymer electrolytes find potential applications in the field of electrochemistry. Proton conducting blend polymer electrolytes based on Poly Vinyl Alcohol (PVA) and Poly Acrylo Nitrile (PAN) doped with ammonium nitrate have been already reported(1) to have a high ionic conductivity of 1.8×10^{-1} S/cm. In order to enhance the conductivity, the plasticizer Propylene carbonate (PC) is added in different proportions and the films are prepared by solution casting method. The prepared electrolytes are characterized by AC Impedance spectroscopic technique. The highest conductivity at room temperature (303K) has been found to be 1.01×10^{-2} S cm^{-1} for 92.5PVA:7.5PAN:15%NH₄NO₃:0.04mol % PC system. X ray Diffraction pattern of the plasticized blend polymer electrolytes confirms the amorphous nature of the plasticized blend polymer. The thermal studies reveal a low glass transition temperature for the highest conducting sample.



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Name of the Teacher : Dr. F. Kingslin Mary Genova

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**Lithium Ion - Conducting Blend Polymer Electrolytes Based on PVA- PAN
Doped with Lithium Triflate**

F.Kingslin Mary Genova, S Selvasekarapandian, S Karthikeyan, N.Vijaya, S Sivadevi,
¹Research and Development Centre, Bharathiar University, Coimbatore, Tamilnadu, India
²Department of Physics, The S.F.R. College for Women, Sivakasi, Tamilnadu, India
³Materials Research Centre, Coimbatore, Tamilnadu, India
⁴Department of Physics, Madras Christian College, Chennai, Tamilnadu, India
email: sekarapandian@rediffmail.com,

Lithium ion conducting polymer electrolytes with high ionic conductivity are of great interest owing to their applications in electrochemical devices such as batteries [1]. Developing new lithium ion conducting polymer electrolyte having higher ionic conductivity, mechanical strength, lower cost, etc is an important issue. Over the past few years, the blending of polymers has been intensively investigated. Many blend polymer electrolyte systems have been studied and reported in the literature [2-3]. It has been observed from the literature that a little attempt has been made to prepare polymer blend using polyvinyl alcohol (PVA) and Polyacrylonitrile (PAN) [4]. PVA has excellent film forming nature, high tensile strength and flexibility. PAN is a resinous, fibrous, or rubbery organic polymer which possess good mechanical strength. Blend polymer electrolyte with PVA and PAN as host polymers could be a promising Lithium ion conducting polymer electrolyte with high conductance property. In the present work, blend polymer electrolytes have been prepared with optimized composition (92.5 PVA: 7.5 PAN) and lithium triflate of different concentrations by solution casting technique using DMF as solvent. The prepared electrolytes are characterized by XRD, FTIR, and ac impedance measurement techniques. The increase in amorphous nature of the blend polymer electrolyte by the addition of salt is confirmed by XRD analysis. The complex formation between the polymers and the salt has been confirmed by FTIR analysis. It has been observed that the ionic conductivity of the doped blend polymer electrolyte increases as the salt concentration increases. The ionic conductivity has been found to be $4.0 \times 10^{-4} \text{ S cm}^{-1}$ for 92.5 PVA: 7.5 PAN: 50 M wt% $\text{CF}_3\text{SO}_3\text{Li}$ sample at room temperature. The temperature dependence of conductivity has been studied with Arrhenius plot and the activation energies are calculated.

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Name of the Teacher : Mrs. S. Selvalakshmi
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PO-92

Study on NH_4I Composition Effect in Agar-Agar Based Biopolymer Electrolyte

S. Selvalakshmi^{1,2}, T. Mathavan¹, S. Selvasekarapandian³, M. Premalatha^{1,3}

¹Department of Physics, N. M. S. S. V. N College, Nagamalai, Madurai, Tamilnadu. ²Department of Physics, The S.F.R. College for Women, Sivakasi, Tamilnadu. ³Materials Research Centre, Coimbatore, Tamilnadu.

*Corresponding author: tjmathavan@gmail.com

Solid Polymer Electrolytes (SPE) are regarded as key components in electrochemical devices since the ionic conduction has a strong influence on the devices performance. Proton-conducting SPEs have been recognized for their suitability in the application of electrochemical devices. Solid Polymer Electrolytes synthesized with natural polymers have been used as polymer host due to their variant structure, richness in nature, and they are economical and biodegradable. Agar-Agar, a biopolymer, extracted from a red algae is used as gelling, stabilizing and encapsulating agent in pharmaceutical and biotechnological industries. It is a mixture of polysaccharides- 85% of Agarose, a neutral polymer and 15% of Agaropectin, a charged sulphated polymer. It has a good film forming tendency. In the present study, Proton conducting biopolymer electrolytes containing agar and ammonium iodide (NH_4I) were prepared by solution casting technique. Fourier transform infrared (FTIR) spectroscopy results revealed that the complexation between agar and NH_4I has occurred. X-ray diffraction (XRD) studies demonstrate the amorphous nature of salted biopolymer electrolytes. It has been found that the film of composition 50 mol % Agar: 50 mol % NH_4I is more amorphous than other samples. The ionic conductivity of the prepared polymer electrolytes is found by ac impedance spectroscopy analysis. The maximum ionic conductivity is $1.17 \times 10^{-4} \text{ S cm}^{-1}$ at ambient temperature for the film of composition 50 mol % Agar: 50 mol % NH_4I . All electrolytes exhibit Arrhenius behavior. The frequency dependence of dielectric and electric modulus of agar-ammonium iodide (NH_4I) polymer electrolyte is investigated.

Keywords: Biodegradable polymer, proton conducting, dielectric

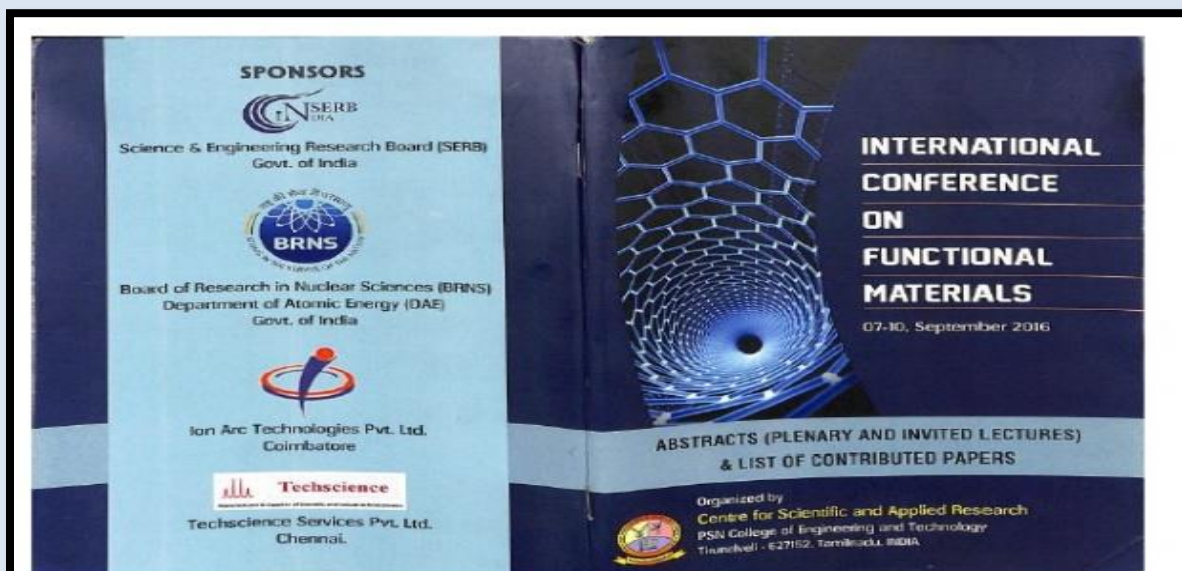


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Name of the Teacher : Mrs.R. Sudha Periathai

**Name of the Proceedings : Proceedings of the International Conference on Functional
Materials**



International Conference on Functional Materials | 2016

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Name of the Teacher : Dr. S. Sivadevi

Name of the Proceedings : National Conference on Materials for Energy Devices

NCMED - 2K16

**10. EFFECT OF AMMONIUM SALT ON VIBRATIONAL, CONDUCTIVITY AND
OPTICAL PROPERTIES OF BLEND POLYMER ELECTROLYTES**

A.JAYALAKSHMI, *S.SIVADEVI

Department of Physics, The S. F. R. College for Women, Sivakasi, Tamilnadu -626123

*sivadevi_s@yahoo.co.in

An investigation is carried out on a new solid polymer electrolyte based on Polyvinyl alcohol (PVA), Polyacrylonitrile (PAN), Polyvinylidene fluoride (PVdF) doped with Ammonium Nitrate (NH_4NO_3). The polymer electrolytes have been prepared by solution casting technique using Dimethylformamide (DMF) as solvent. The prepared films are characterized by FTIR, AC impedance analysis, Dielectric studies and UV-Visible spectroscopy. The complex formation between polymer & salt has been confirmed by FTIR analysis. AC impedance analysis gives conductivity value of the electrolytes. The highest conductivity has been found to be $5.81 \times 10^{-4} (\text{S/cm})$ for dispersed polymer electrolyte at (343K). Dielectric spectroscopy has been carried out to analyse the electric behavior of polymer electrolytes. From UV-Vis spectroscopy the direct band gap energy is observed to be 2.84eV & 3.48eV for pure and dispersed samples respectively.

KEYWORDS: FTIR, AC Impedance analysis, Dielectric studies and UV-Visible spectroscopy.



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Name of the Teacher : Dr. S. Sivadevi

Name of the Proceedings : National Conference on Materials for Energy Devices

11. Study on Lithium Ion- Conducting Blend Polymer Electrolytes

A.K.Tamil Vathana , S.Sivadevi*

Department of Physics , The S.F.R. College For Women Sivakasi- Tamilnadu
Corresponding author e.mail id: sivadevi_s@yahoo.co.in

Blending of polymers is one of the most useful methods for synthesizing solid polymer electrolytes. Blend polymer electrolytes have been prepared with Polyvinylalcohol (PVA)- Polyacrylonitrile (PAN) and polyvinylidene fluoride (PVDF) doped with lithium nitrate with different concentrations by solution casting technique, using Dimethylformamide (DMF) as the solvent. The prepared electrolytes are characterized Fourier transform infrared (FTIR), Ultraviolet (UV) and measurement techniques. The maximum conductivity has been found out by the LCR analysis. The complex formation between the polymers and the salt has been confirmed by FTIR analysis. The band gap studies have been done by UV.

Keywords: Polyvinylalcohol, Polyacrylonitrile, Polyvinylidene fluoride, UV, FTIR, LCR.



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Name of the Teacher : Dr. K.P. Radha

Name of the Proceedings : National Conference on Materials for Energy Devices

NCMED – 2K16

18. Electrical study of Biopolymer Electrolyte Potato starch: NH₄SCN

Hemalatha R, Radha KP*, Jesintha Leema Rose M

Department of Physics, S.F.R. College for Women, Sivakasi, Tamilnadu, India.

*Corresponding author

E-Mail:- radhakp69@gmail.com (Dr. K.P.RADHA)

Polymer electrolytes are an important component of many electrochemical devices. Recently, biopolymer electrolytes are widely used as a substitute for existing synthetic polymer electrolytes such as PMMA, PVDF etc, because of its cheaper, eco friendly and biodegradable. In the present study, an attempt has been made to prepare the solid biopolymer electrolytes based on Potato starch doped with different molar concentration of NH₄SCN using distilled water as a solvent by Solution Casting Technique. The conductivity analysis shows that the 60 mol % NH₄SCN doped polymer electrolyte exhibit the high ionic conductivity and it has been found to be 3.93×10^{-4} S/cm at room temperature. The highest ionic conductivity polymer electrolyte 40 PS: 60 NH₄SCN has low activation energy 0.113 eV among the prepared polymer electrolytes. The modulus spectra indicate Non – Debye nature of the materials.

Keywords: AC Impedance, Modulus spectra analysis



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Name of the Teacher : Dr. K.P. Radha

Name of the Proceedings : National Conference on Materials for Energy

13. ELECTRICAL AND VIBRATIONAL STUDIES OF POLYMER ELECTROLYTE PMMA: NH₄SCN

Palkani, B. Malathi, K.P. Radha*

Department of physics, The S.F.R College for Woman, Sivakasi.
Tamilnadu- 626123
E-mail: radhakp69@gmail.com*

The solid polymer electrolyte based on polymethyl methacrylate (PMMA) doped with ammonium thiocyanate (NH₄SCN) salt are prepared by solution casting technique by using N,N-Dimethyl formamide (DMF) as solvent. The complex formation between polymer and salt has been confirmed by FTIR analysis. From AC impedance spectroscopy the maximum ionic conductivity has been found to be 2.32×10^{-5} for 60 PMMA: 40 NH₄SCN polymer electrolytes at ambient temperature. The dielectric spectra exhibit the low frequency dispersion which is due to space charge accumulation at the electrode -electrolyte interface.

KEYWORDS: FTIR, Ionic conductivity, Dielectric and Modulus studies.



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Name of the Teacher : Dr. K.P. Radha

Name of the Proceedings : National Conference on Materials for Energy

NCMED – 2K16

**14. AC impedance analysis of Solid Biopolymer Electrolyte Potato starch:
 NH_4NO_3**

Jesintha Leema Rose M, Radha KP*, Hemalatha R

Department of Physics, The S.F.R. College for Women, Sivakasi, Tamilnadu, India
E-Mail:- radhakp69@gmail.com

Solid biopolymer electrolyte films have been prepared from Potato starch a well acknowledged biodegradable material. Solution Cast Technique was employed for the preparation of solid biopolymer electrolyte films added with Ammonium nitrate (NH_4NO_3) salt. Electrochemical impedance spectroscopic analysis revealed noticeable ionic conductivity $\sim 5.38 \times 10^{-5}$ S/cm. Ionic conductivity showed an increasing trend with salt (NH_4NO_3) content at ambient conditions. The modulus spectra indicate Non Debye nature of the material. Moisture content of the prepared biopolymer electrolytes have been studied by using moisture analysis.

Keywords: AC Impedance, Modulus analysis, Moisture studies



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Name of the Teacher : Dr. S.Sivadevi

Name of the Proceedings : National Conference on Materials for Energy

15. Conductivity and Vibrational Characterization of Eco-Friendly Biopolymeric material

K.Sasi Priya¹, S.Siva devi¹, S.Selvasekara pandian²

¹The S.F.R.College for Women, Sivakasi

²Materials Research Center, Coimbatore

Now-a-days, research on electrolytes is intensely carried out due to its application in electrochemical devices. In order to have polymer electrolytes which are biodegradable, renewable and sustainable to the environment, an attempt is made in this project, to synthesis electrolytes from naturally available materials. The functional groups of various bondings are obtained from the frequency of the absorption from FTIR Spectrum. Ionic conductivity of samples are analyzed by the AC impedance spectroscopic analysis. The conductivity values of the samples are calculated from the conduction spectra. It is observed that a high conductivity of $1.0963 \times 10^{-4} \text{S/cm}$ is observed for biopolymer material obtained from suppotha.

Key words: biopolymer, ac impedance, FTIR



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Name of the Teacher : Dr. S.Sivadevi

Name of the Proceedings : National Conference on Materials for Energy

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16. Effect of blending on vibrational, ¹HNMR, dielectric and mechanical properties when PVA is blended with PAN

S. Sivadevi¹, S. Selvasekarapandian^{2*}, H. Nithya³, Iwai³, Junichi Kawamura³, K.Sasi Priya¹

¹Department of Physics, The S.F.R. College for Women, Sivakasi, 626123, Tamilnadu, India.

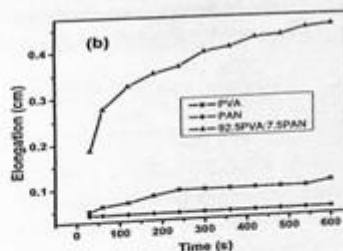
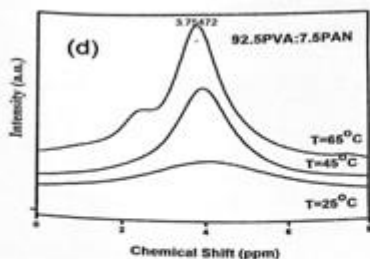
²Materials Research Centre, Coimbatore, 641045, Tamilnadu, India.

³IMRAM, Tohoku University, Sendai, Japan

*E-mail address: sekarapandian@rediffmail.com

Polymer electrolytes are prepared for pure PVA, pure PAN and blended PVA: PAN polymers using solution casting technique. The complex formations of the basic constituents are also analyzed by FTIR spectroscopic techniques. The dielectric and modulus analysis have been made from the ac impedance spectroscopy in the frequency range 42 Hz–1 MHz and the temperature range 303–343 K. ¹H Nuclear Magnetic Study is made on pure PVA, PAN and 92.5PVA-7.5PAN blend polymer. A study on the mechanical properties of the films is also done.

Key words: Blend polymer, dielectric, NMR, Mechanical study





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Name of the Teacher : Dr. S. Selvalakshmi

Name of the Proceedings :National Conference on Materials for Energy Devices

19. Structural and electrical characterization of Tamarind seed polysaccharide (TSP) doped with NH₄Br

M. Premalatha ^{1,2}, T. Mathavan ^{1,*}, S.Selvasekarapandian², S. Selvalakshmi ^{1,3}, S. Monisha^{1,2}

¹ Research Department of Physics, N.M.S.S.V.N.College, Nagamalai, Madurai- 625 019.

² Materials Research Center, Coimbatore-641 045.

³ S.F.R. College for Women, Sivakasi-626 123.

*corresponding author: tjmathavan@gmail.com

Proton conducting biopolymer electrolyte (BPE) has been prepared by incorporating various NH₄Br composition (wt%) with biopolymer Tamarind Seed Polysaccharide (TSP) via solution casting method using distilled water as solvent. The prepared biopolymer membranes have been characterized through XRD and AC impedance techniques. The amorphous nature of the samples has been analyzed through XRD analysis. The conductivity of the biopolymer membranes has been calculated using AC-impedance spectroscopy. The highest ionic conductivity at ambient temperature is $1.58 \times 10^{-3} \text{ S cm}^{-1}$ for sample containing 1g TSP: 0.4 g NH₄Br.

Key words: Biopolymer, XRD, AC-Impedance technique



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Name of the Teacher : Dr. S. Selvalakshmi

Name of the Proceedings :National Conference on Materials for Energy Devices

NCMED - 2K16

20. Electrical properties of plasticized Agar-Agar/ NH₄Cl based biopolymer electrolyte

S.Selvalakshmi^{1,2}, T.Mathavan^{*1}, S.Selvasekarapandian³, M.Premalatha^{1,3}

¹Department of Physics, N.M.S.S.V.N College, Nagamalai, Madurai, Tamilnadu.

²Department of Physics, The S.F.R. College for Women, Sivakasi, Tamilnadu.

³Materials Research Centre, Coimbatore, Tamilnadu.

*Corresponding author: tjmathavan@gmail.com

Plasticized Agar-Agar proton conducting biopolymer electrolyte membranes were prepared by dissolving agar-agar, NH₄Cl and ethylene carbonate (EC) plasticizer in dimethyl formamide (DMF) by solution casting method. AC impedance measurements have been carried out on the prepared biopolymer electrolytes to determine the conductivity of the membranes. The membrane containing 70 mol% agar: 30 mol% NH₄Cl exhibiting highest ionic conductivity value of $5.28 \times 10^{-6} \text{ S cm}^{-1}$ is enhanced to $2.81 \times 10^{-4} \text{ S cm}^{-1}$ with the addition of 0.1% EC. The temperature dependent conductivity of the electrolyte with and without plasticizers appears to obey the Arrhenius Law. The dielectric properties of the proton conducting polymer electrolytes are studied.

Keywords: Biopolymer, ethylene carbonate, dielectric



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Name of the Teacher : Dr. F. Kingslin Mary Genova & Dr. N. Vijaya

Name of the Proceedings : National Conference on Materials for Energy Devices

21. FT-IR and ac impedance investigations on PVA-PVP Doped with LiBr

T. Devika, F. Kingslin Mary Genova *, N. Vijaya

Department of Physics, The S.F.R College for Woman, Sivakasi.

Tamilnadu - 626123

E-mail: kingslin.genova20@gamil.com.

A biodegradable solid blend polymer electrolyte based on poly(vinyl alcohol) (PVA) and poly (vinyl pyrrolidone) (PVP) with lithium bromide (LiBr) has been prepared by a solution-casting technique using dimethyl sulfoxide (DMSO) as solvent. The prepared samples are characterized by FTIR and ac impedance spectroscopic measurements. The complex formation has been confirmed by FTIR spectral studies. From AC impedance spectroscopic analysis, the maximum conductivity has been found to be $1.0 \times 10^{-5} \text{ S cm}^{-1}$ for 70 PVA: 30 PVP: 0.15 wt % LiBr. The effect of salt concentration on the conductivity of the blend polymer electrolyte has been discussed. The dielectric behavior has been analyzed using dielectric permittivity.



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Name of the Teacher : Dr. K.P. Radha

Name of the Proceedings : National Conference on Materials for Energy Devices

NCMED – 2K16

29. FTIR AND XRD STUDY OF Cu DOPED MgO NANO PARTICLES USING
PRECIPITATION METHOD.

V.Rani, K.P.Radha*.

Department of Physics, S.F.R College for Womens, Sivakasi—626123, Tamilnadu, India.
Corresponding author e-mail: radhakup69@gmail.com

Nano particles are having different properties compared with bulk materials. Most of the researchers are working with metal oxide nano particles because of their unique properties such as hydrophobic, photo catalytic, stability and etc. In the present work we focus on synthesizing Magnesium Oxide (MgO) and Copper doped Magnesium Oxide by precipitation method using Magnesium Chloride and Potassium Hydroxide as starting materials. The X-ray diffraction indicates that the synthesized MgO nano particle has a pure single phase structure and the average particle size of pure MgO and Cu doped MgO has been found to be 20 nm and 26.9938nm, 26.8377nm, 28.032nm respectively. It has been found that the particle size of the Cu doped MgO nano particles is higher than the pure MgO nano particles. The dislocation density (δ) of pure MgO has been detected as 1.531 (lines/m²), which decreases from 1.082, 0.841, 0.798 for Cu doped MgO nano particles. The lattice strain values of pure MgO and Cu doped MgO nano particles are 9.812, 5.054, 8.812, and 9.576. It indicates that the strain of pure MgO is higher than Cu doped MgO nano particles. The absorption peak at 440cm⁻¹ is corresponding to stretching of MgO, it gets shifted towards lower frequency for Cu doped nano particles.

Key Words: Synthesis, XRD, FTIR.



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Name of the Teacher : Dr. K.P. Radha

Name of the Proceedings : National Conference on Materials for Energy Devices

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**30. SYNTHESIS, STRUCTURAL, VIBRATIONAL, THERMAL STUDIES OF Mg
DOPED ZnO NANO PARTICLES USING CHEMICAL PRECIPITATION
METHOD**

V.Lakshmipriya¹, K.P.Radha^{*1}, B.Vijayalakshmi¹, B.Natarajan², V.Ramadas³

^{*}Department of Physics, S.F.R College for Women, Sivakasi—626123, Tamilnadu, India.

²Post Graduate and Research Department of Physics, Raja DoraiSingam Government Arts
College, Sivagangai - 630 561, TamilNadu, India.

³Post Graduate and Research Department of Zoology, Raja DoraiSingam Government Arts
College, Sivagangai - 630 561, Tamil Nadu, India.
Corresponding author e-mail : radhakup69@gmail.com

In the present work ZnO and Mg doped ZnO nano particles have been synthesized by Chemical co precipitation method and their structural, vibrational, thermal properties have been studied. The average particle size of the prepared pure ZnO and Mg doped ZnO samples have been found to be 51nm and 48nm using debye-scherr's formula. FTIR spectra analysis shows that the peak at 462.92cm^{-1} characteristic peaks of ZnO nano particle has been found to be shifted to 470cm^{-1} in the Mg doped ZnO nano particles. It indicates the present of Mg in the ZnO nano particles. Doping of Mg to ZnO nano particles changes the thermal stability region of pure ZnO nano particles from $177^{\circ}\text{C} - 288^{\circ}\text{C}$ to $228^{\circ}\text{C} - 291^{\circ}\text{C}$.

Key words: Nano particle synthesis, XRD, FTIR, TG.



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Name of the Teacher : Dr. K.P. Radha

Name of the Proceedings : National Conference on Materials for Energy Devices

NCMED – 2K16

31. Synthesis and Characterization of Zn doped MgO Nanoparticle Using Chemical Precipitation Method

B.Vijayalakshmi¹, V.Lakshmipriya¹, K.P.Radha¹, B.Natarajan², V.Ramadas³

¹Department of Physics, S.F.R College for Womens, Sivakasi – 626123, Tamilnadu, India.

²Post Graduate and Research Department of Physics, Raja Dorai Singam Government Arts College, Sivagangai - 630 561, Tamil Nadu, India.

³Post Graduate and Research Department of Zoology, Raja Dorai Singam Government Arts College, Sivagangai - 630 561, Tamil Nadu, India.

Corresponding author e-mail: radhakup69@gmail.com

The application of nano scale materials usually ranging from 1 to 100 nanometers is an emerging area of nano science and nano technology. MgO nano particles have unique optical, thermal and structural properties. In the present work we focus on the Synthesis of Zn doped MgO nano particles using different molar concentration of MgCl₂, ZnCl₂ and NaOH with distilled water as solvent by chemical precipitation method. From the XRD analysis, the particle size of Zn doped MgO has been calculated as 32.28 nm by using Debye Scherrer's formula. The presence of functional groups in the samples has been analyzed using FT-IR analysis. From the UV analysis the optical band gap of Zn doped MgO nano particle ranging from 5.37eV. The thermal behavior has been examined using TGA.

Keywords: Nanoparticle, XRD, FTIR, UV, TG studies.



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Name of the Teacher : Dr. R. Sudha Periathai

Name of the Proceedings : National Conference on Materials for Energy Devices

NCMED - 2K16

33. Impedance Study of SnO₂ nanoparticles synthesised by Sol-Gel method

R.Sudha Periathai¹, N.Jeyakumaran², N.Prithivikumaran^{2*}

¹Department of Physics, Standard Fireworks Rajaratnam College for Women,
Sivakasi-26123

²Department of Physics, V.H.N.Senthikumara Nadar College, Virudhunagar-626001

*email-id : janavi_p@yahoo.com

SnO₂ is an oxygen deficiency n-type semiconductor with a wide band gap of 3.6eV(300K). Semiconductor nanoparticles have attracted more interests because of their size-dependent optical & electrical properties. In the present work impedance study is carried out for SnO₂ nanoparticles synthesised by Sol-gel process. Electrical and dielectric properties of the material have been studied as a function of temperature ranging from Room temperature(RT)i.e. 34°C to 84°C in the frequency range of 7MHz to 50mHz using impedance spectroscopic technique.

Keywords: Tin oxide nanoparticles, Sol-Gel method, impedance spectroscopy.



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Name of the Teacher : Ms. A. Bismi Banu

Name of the Proceedings : National Conference on Materials for Energy Devices

34. Structural, Chemical and morphological properties of BiFeO_3

Nanoparticle

A. Bismibanu* and M. Alagar¹

^{*}The S.F.R. College for Women, Sivakasi-626 123.

¹Ayya Nadar Janaki Ammal College, Sivakasi-626 124.

*Corresponding author: physicsbismi@gmail.com

Bismuth ferrite nanoparticle was synthesized using Co-precipitation method. The produced powder was dried at 150°C for 2 h, and then calcined at 600°C for 2 h. Phase purity and nanocrystalline nature of the samples have been confirmed using X-ray diffractometer. It is found that the grain size was calculated using Debye Scherrer's equation and XRD too showed that besides the formation of single phase BiFeO_3 an impurity phase was also observed. From diagnosis of sample, we found that BiFeO_3 have rhombohedral structure. The FTIR analysis confirmed the formation of BiFeO_3 nanoparticle. The Scanning electron microscopy observation revealed a homogeneous size distribution of submicron BiFeO_3 powder. The results from EDX confirmed that the synthesized nanoparticle was highly pure.

Keywords: Co-precipitation; structural, chemical, morphological properties; BiFeO_3



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Name of the Teacher : Dr. K.P. Radha

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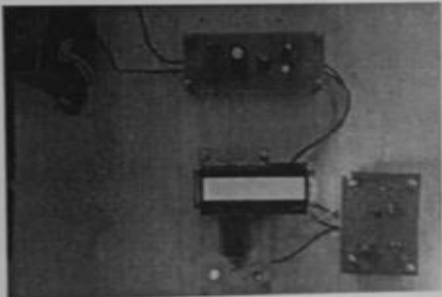
55. Design And Working Of Datalogger Using Microcontroller AT89C51

A.K. Tamil vathana¹, B. Janarthanan*², K.P.Radha¹

Department of Physics¹, The S.F.R.College, Sivakasi – 626123, Tamilnadu
Department of Physics², Karpagam University, Coimbatore- 641021. Tamilnadu
E.mail id: bjanarthanan2010@gmail.com

An attempt has been made to design and working a data logger using microcontroller for storing ambient temperature data. The system works around the famous 8051 family .The system is designed and developed to measure the temperature with the help of the temperature sensors and the result is stored in memory such as EEPROM for post process analysis. During the testing it is verified that there is continuous and correct acquisition of data. It is also verified that the data is sequentially stored in a memory.

Keywords: Microcontroller, Data logger, Temperature sensor



References

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- [2] Atmel corporation, AT89C51 data sheet, 8-bit microcontroller with 4k bytes flash, Atmel Data book, 2000 update.

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56. Growth and characterization of the nonlinear optical single crystal:

Amino acid with Thiourea

M.Nithya^{a,b}, M.Alagar^{*b}, R.Sundaresan^b

^aDepartment of Physics, The S.F.R.College, Sivakasi, Tamil Nadu, India

^bDepartment of Physics, ANJA College, Sivakasi, India

Single crystals of Amino acid doped with Thiourea, an organic nonlinear optical (NLO) material have been grown by slow evaporation technique at room temperature. The crystalline nature of grown crystal was confirmed by crystal X-ray diffraction analysis (XRD). The functional group of the grown crystals was found by FTIR analysis. The UV-Vis study was performed to know the optical behavior of the grown crystals.