Proceedings of the

Multi-disciplinary Seminar Series

AGORA 2022

National Seminar Series

Sree Narayana College, Kollam
Affiliated to University of Kerala
NAAC 'A' Grade, ARIIA All India Rank II

ISBN

9 788195 836918

Proceedings of the Multi-disciplinary Seminar Series

AGORA 2022

National Seminar Series

Sree Narayana College, Kollam

Affiliated to University of Kerala

NAAC 'A' Grade, ARIIA All India Rank II

Proceedings of the Multi-disciplinary Seminar Series

AGORA

Sree Narayana College, Kollam
Affiliated to University of Kerala
NAAC 'A' Grade, ARIIA All India Rank II

Patron

Sri. Vellappally Natesan (Manager, S.N. Colleges under S.N. Trust, Kollam)

Chief Editor

Prof. Dr. Nisha J. Tharayil (Principal, S. N. College, Kollam)

Editors

Dr. P. Nikhil Chandra (Assistant Professor, Chemistry)

Dr. S. Jisha (Associate Professor, Zoology)

Published by

Prof. Dr. Nisha J. Tharayil (Principal, S. N. College, Kollam)

Publisher's Details

College Central Library and IQAC, S. N. College, Kollam

ISBN

9 788195 836918

Chief Editor's Message

The 'AGORA National Seminar Series' is an annual event showcasing the social, scientific and technological activities of research and academic communities of all types of organizations and institutes across the country. The major purpose of this seminar series is to spread the knowledge in various subjects across different departments of the college so as to enrich the inter-disciplinary culture in the entire campus. AGORA series is being conducted by coordinating different departments of S. N. College, Kollam to disseminate knowledge to the entire academic community. AGORA 2022 has succeeded in bringing many luminaries in science and arts subjects with its research together with main focus within the college to deliberate and debate on the recent advances in various subjects. The proceedings of AGORA 2022 being published now will certainly go a long way to enlighten researches and teachers in their pursuit of knowledge. Let the outcome of these deliberations engender commendable results and kindle genuine spirit of enquiry and research.

Prof. Dr. Nisha J. Tharayil

(Principal, S. N. College, Kollam)

Editor's Message

It is our great pleasure to welcome you to this issue of the Proceedings of the Multi-disciplinary Seminar Series of Sree Narayana College, Kollam - AGORA 2022 which showcases the social, scientific and technological activities of research and academic communities of all types of organizations and institutes across the country. AGORA 2022 mainly focuses on the contributions from the research community in a multi-disciplinary and interdisciplinary aspect. The seminar brought together students, researchers and educators of varied domains to share their ideas, views and also to explore their technical abilities.

This issue contains papers accepted over single iterations of the review process. We would like to express my gratitude to the Chief Editor and other expert members for their sustained support to make the launch of this 'Proceedings' possible. We also acknowledge the authors themselves, without whose expert input there would have been no AGORA seminar series. Their efforts made a great contribution to its success.

Dr. P. Nikhil Chandra

(Assistant Professor, Chemistry)

Dr. S. Jisha

(Associate Professor, Zoology)

Contents

01 **A review on bioplastics from natural resources: Processing methods, applications, and biodegradation.....1**

P. Shaiju and Ramesh Babu P.

02 **Academic Management System 28**

Lekshmi Surya S. L.

03 **Modelling of Micro Perforated Panels Using Maa's Theory.....39**

Sreeja. R, Premlet. B, and Roxy M. S.

04 **A Comparative Study of Antioxidant and Antimicrobial Activity of Leaves and Flower Extracts of *Anacardium occidentale* L. and *Mangifera indica* L.....40**

Dr. Sija S. L., Vidhya Ashok

05 **Synthesis, Characterisation and Antibacterial Property of α-Mangostin-β-Cyclodextrin Inclusion Complex 50**

Chandran Pillai Lalithabai Lekshmi, Unnikrishna Pillai Swathy, Haleema Simimole, Sarojiniamma Sumalekshmy

06 **CAA-NPR-NRC- A MYTH OR REALITY 56**

Dr. Preetha G S

07 **ദലിത് സ്വത്വാവിഷ്കാരം – പുതുരാമായണത്തിൽ 66**

ഡോ. സ്മിതാ പ്രകാശ്

08 **Design And Characterisation of Poly Electrolyte Membrane's (PEM's) for Industrial Application.....69**

Brijil Shiji, Nikhil Chandra P.

09 **Fire Force Management with Fire Alarm Using Machine Learning Techniques 74**

Lekshmi Surya S. L.

10 **"Life Style & Chronic Diseases" Studies on the chemical components & Antioxidant properties of *Ceratopteris thalictroides* (L.) *Brongniart*** **86**

Fathimabeevi S, Ambili S.

11 **Species composition of mosquitoes in the rubber plantation sectors of Kerala** **88**

Deepthi G. Nair

12 **Synthesis of Cerium Dioxide Nanoparticles Using Simple Sol-Gel Method** **97**

Rekhachandran P R, Rakhi H., Gauri S. S., Mangalaraja R. V., Boby T Edwin, S. Anas

13 **Gender Disparity among Marginalised Community: A Study of Marine Fisherfolk In Kerala** **104**

Dr. Rahi. T B

14 **Synthesis, characterization and antibacterial studies of curcumin metal complexes** **111**

Neethu P T, Deepa J. R. & Dr. Sree Remya T S

15 **Issues And Challenges Of Lokpal And Lokayukta Act** **118**

Dr. Prajeesh P. P.

16 **E-GOVERNANCE** **123**

Dr. Preetha G S

17 **Biochemical And Cytological Characterization Of Gymnema Sylvestre (R.Br) Accessions** **124**

Deepamol P K, Sanjana B.S, Chithra Vijayan

18 **Synthesis, Characterization and Biological Studies of Transition Metal Complexes Of Mn(II), Cu(II) and Zn(II) with An Azo Dye (E)-4-((2,6-Dihydroxyphenyl) Diazenyl) Benzoic Acid** **133**

Mini S, Aravind S S

01

A review on bioplastics from natural resources: Processing methods, applications, and biodegradation

P. Shaiju [1, 2, 3] and Ramesh Babu P * [1, 2]

[1] AMBER Centre, CRANN Institute, School of Physics, Trinity College Dublin, D02 PN40 Dublin, Ireland

[2] BiOrbic, Bioeconomy Research Centre, University College Dublin, Belfield, D04 V1W8 Dublin, Ireland

[3] PG & Research Department of Chemistry, Sree Narayana College, Kollam, Kerala – 691001

* Correspondence: babup@tcd.ie; Tel.: +35318962602

Abstract: The current review focuses on the recent developments of bioplastics obtained from natural resources. Natural polymers have received enormous attention attributable to their ability to address the environmental threats resulting from petroleum-based polymers. This review describes the different classifications of natural polymers, their blends, properties, and applications. The review also focuses on different processing methods, and finally discusses the future trends in plastic production using natural polymers.

Keywords: Natural polymers, nanocomposites, processing, applications, biodegradation of natural polymers

1. Introduction

Plastics are becoming indispensable in our day-to-day life, primarily due to their extensive applications in different fields. Plastic materials are lightweight, flexible, moisture-resistant, durable, and relatively inexpensive. Due to the enormous demand for these materials, there is an exponential growth in the plastic production over the years and reached approximately 400 million tonnes per year as shown in Figure 1[1,2].

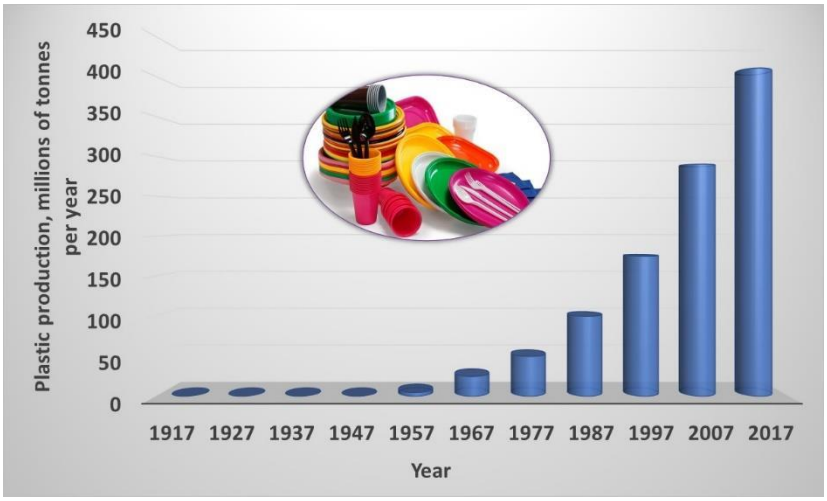

Figure 1. Global plastic production, mega tonnes, 1917 to 2017 [1,2].