

# BIODIVERSITY CONSERVATION AND ECOSYSTEM RESTORATION

**Dr. Silvy Mathew**  
**Dr. Jayalakshmi M**  
**Dr. Sheeja T Tharakan**



**Vimala College Publications**

Thrissur, Kerala, India 680 009





### About the Book

Biodiversity conservation is the protection, upliftment, and management of biodiversity to derive sustainable benefits for present and future generations. The Book on Biodiversity conservation and Ecosystem restoration is clearly mentioned the different aspects of Biodiversity conservation like the preservation of the diversity of species, sustainable utilization of species and ecosystem, maintenance of life-supporting systems, and essential ecological processes. The ecological restoration aims to re-establish a self-organizing ecosystem on a trajectory to reach full recovery. Biodiversity is being lost due to the loss of habitat, over-exploitation of resources, climatic changes, pollution, invasive exotic species, diseases, hunting, etc. Since it provides us with several economic and ethical benefits and adds aesthetic value, it is very important to conserve biodiversity. Biodiversity can be conserved by the efficient utilization of natural resources.



**Vimala College Publications**

Thrissur, Kerala, India 680 009



ISBN: 978-81-950842-9-6

# Biodiversity Conservation and Ecosystem Restoration



**Dr. Silvy Mathew**

**Dr. Jayalakshmi M**

**Dr. Sheeja T Tharakan**



**Vimala College Publications**  
Thrissur, Kerala, India 680 009

# **Biodiversity Conservation and Ecosystem restoration**

Proceedings of National Seminar

Organised by

The Biodiversity Club(KSBB/BDC/08096/20),  
Department of Botany, Vimala College (Autonomous), Thrissur.

In collaboration with

Kerala State Biodiversity Board (KSBB), Trivandrum & Centre for Innovation in  
Science and Social Action (CISSA), Thiruvananthapuram

## **Editors:**

Dr. Silvy Mathew  
Dr. Jayalakshmi M  
Dr. Sheeja T Tharakan

Copyright: 2021, Biodiversity Club, Department of Botany

Vimala College (Autonomous), Thrissur.

All rights reserved. No part of this book may be reproduced in any form without the written permission of the author/s. Neither the publisher nor editors are in any way responsible for them.

ISBN: 978-81-950842-9-6

Printed at St. Marys Designing and Printing, Thrissur, Phone: 0487- 2425062

Price :300/-



**Vimala College Publications**

Thrissur, Kerala, India 680 009

Vimala College Publications

Vimala College (Autonomous), Thrissur, Kerala, 680009, India

Tel: 0487-2332080

Email: [Vimalacollegepublications@gmail.com](mailto:Vimalacollegepublications@gmail.com)

Web: [www.vimalacollege.edu.in](http://www.vimalacollege.edu.in)

**The Biodiversity Club (KSBB/BDC/08096/20)**

Department of Botany,

Vimala College (Autonomous), Thrissur, Kerala

## CONTENTS

1. Conservation of biodiversity and Traditional Knowledge of Ethnic community of Southern Districts of Kerala, India  
*Silvy Mathew*.....1
2. Study on frontier flora of Pallassana Panchayath, Palakkad  
*Adithya P. J, Sajitha Menon K.* .....10
3. A review on the association between sponges and corals in maintaining the coastal ecosystem health  
*Aditi K P, Honey Sebastian, Petrisia Joseph, Sheeba P* ..... 17
4. Analysis of growth parameters of microgreens – a potential alternative to conventional food resources  
*Akhila S.*..... 24
5. An overview on the ecological significance of Sedges  
*Anakha B. S, Kavya K Nair and A.R. Viji.*.....33
6. A preliminary investigation on the moss flora of Karnataka forest - Virajpet division  
*Alna Thomas, Anpin Raja R, Jayalakshmi M* ..... 37
7. Floristic and Ecological Analysis of Selected Areas of Poomala dam in Thrissur District, Kerala  
*Athira K D, Jayalakshmi M* ..... 43
8. Bibliometric Analysis of Terrestrial Gastropod Studies in Kerala  
*Aleena Elizabeth Cyril, Gigi K. Joseph* ..... 50
9. Study of antidiabetic compounds in few common plants  
*Aleena Rose K P& Roselin Alex.*.....55
10. Germination pattern of *Brassica* seeds in response to the Cyanobacterium, *Nostoc muscorum*  
*Archana Pachath and M. Shamina* ..... 61
11. A study on variation in growth performance of *Syzygium gardneri* Thw. Seeds stored at different conditions  
*Chithra S G, Neethu S Kumar, Santhosh kumar R* ..... 66
12. The Effect of Botanicals, Entomopathogenic Nematode and Green Labeled Insecticide against an Invasive Pest, Fall Armyworm, *Spodoptera frugiperda* (J. E. Smith, 1797) on Maize, *Zea mays* L. (Poaceae)  
*Diya Joseph* ..... 71
13. Environment and Society - A- Theoretical overview- Special Reference to Eco Marxism  
*Binu.K* .....78

14. Extraction of natural dyes from selected leaves for studying their staining efficiency <i>Sindhu K K</i> .....	<b>88</b>
15. Chemotaxonomic markers for identification of medicinal plants - a review <i>Archana C.V, Vimala K.S, Raiby P. Paul, Priyalatha B, Priya S</i> .....	<b>95</b>
16. Phytochemicals in Medicinal Plants and Application in Ayurveda Treatment - A Review <i>Sreya C. K, Priya S, Priyalatha B, Vimala K. S, Raiby P. Paul</i> .....	<b>101</b>
17. Phytoremediation Potential of Medicinal plants – A Review Vidya R. Nair, Raiby P. Paul, Vimala K. S, Priya S, Priyalatha B .....	<b>108</b>
18. Phylogenetic analysis using its 2 secondary structures in <i>Salacia chinensis</i> : An endangered medicinal plant <i>Muhammad Anaz K</i> .....	<b>115</b>
19. Phytoremediation Potential of Some Hydrophytic Medicinal Plants Anna M.K, Vimala. K.S, Raiby P Paul, Priyalatha. B, Priya. S .....	<b>128</b>
20. FTIR Spectroscopic analysis of functional compounds from the vegetative parts of <i>Anisochilus scaber</i> Benth. Farsana Salah. S and Viji. V .....	<b>134</b>
21. Ethnobotanical studies on medicinal plants used by the Ullada tribes of Pathanamthitta district, Kerala <i>Jayalakshmi M and Varghese M C</i> .....	<b>141</b>
22. Effect of selected host plants on growth parameters, damage potential and organic recycling ability of spotted locust, <i>Aularches miliaris</i> , Linnaeus, 1758. <i>Janvi Thomas</i> .....	<b>148</b>
23. Feasibility studies on the sequestration of atmospheric carbon dioxide using selected microalgal members <i>Karthika, S. Menon and Harilal C.C</i> .....	<b>154</b>
24. A comparative cytotoxic and apoptotic analysis of some tribal medicinal plants <i>K. Sinitha</i> .....	<b>163</b>
25. Fresh water, biodiversity conservation and Ecosystem restoration-the dawn of new era <i>Laxmi Rani Das</i> .....	<b>173</b>
26. A Study of the species <i>Axonopus compressus</i> (Sw.) Beauv. ( <i>Poaceae, Panicoideae, Paniceae</i> ) in Kerala. <i>Mithraja M.J, Kavitha K.R, Sushama Raj R.V</i> .....	<b>180</b>
27. Some observations of Anurans with special emphasis on tadpoles of Ranni forest range, Kerala <i>Priya Thomas, Gigi K. Joseph</i> .....	<b>184</b>

28. Diversity of macroalgal communities in the coasts of hare island, gulf of mannar, India <i>R. Mary Santhi</i> .....	<b>190</b>
29. Conservation of indigenous cattle breeds- Ponganur <i>Shaikh Sameer R</i> .....	<b>199</b>
30. A study on the angiosperm diversity of Muthuthala Grama Panchayat, Palakkad, Kerala <i>Smruthi K.S, Reedhu Raj</i> .....	<b>204</b>
31. Microbial communities - a study and identification of microorganism from domestic kitchen scrubber <i>Tisha Liza Tomy</i> .....	<b>212</b>
32. Floristic diversity of angiosperms in Puthuppariyarum Panchayath of Palakkad district, Kerala <i>Valentine Manoj, Athira S and Leeja L</i> .....	<b>224</b>
33. Response of the Cyanobacterium Nostoc to Lead heavy metal stress <i>V.P. Neenu and M. Shamina</i> .....	<b>235</b>

## CHAPTER 6

### A PRELIMINARY INVESTIGATION ON THE MOSS FLORA OF KARNATAKA FOREST - VIRAJPET DIVISION

Alna Thomas\*, Anpin Raja R<sup>1</sup>, Jayalakshmi M<sup>2</sup>

\*Post graduate department of Botany, Vimala College (Autonomous), Thrissur

<sup>1</sup>Assistant Professor, Department of Botany Nirmalagiri College, Kuthuparamba

<sup>2</sup>Assistant Professor on contract, Department of Botany, Vimala College  
(Autonomous), Thrissur

E-mail: [alnathomas2017@gmail.com](mailto:alnathomas2017@gmail.com)

#### ABSTRACT

In the story of evolution, plants arrived relatively late in the history of the earth. The earliest fossils of plants are 475 million years old. This project intends to do a detailed investigation on the bryophyte diversity of Karnataka Forest – Virajpet division. Systematic collection of bryophyte specimens was undertaken from study area in October 2020. The composition of species collected include 42 plants from which 22 species were sorted, identified and listed into 14 genera and 9 families in 7 orders. Among 22 species, corticolous form tend to dominate (15 species), followed by terricolous forms with 3 species and 4 rupicolous species. No saxicolous species is observed. During the study, there observed certain risk categorized species, and a new report from India, which is *Calymperes noakhalensis*. The risk categorized groups included 3 endemic and one vulnerable species viz; *Fissidens asperisetus*, *Sematophyllum humile* and *Trichosteleum punctipapillosum* are endemics, and *Hyophila involuta* was observed as the vulnerable species. Thus, it is clear that the mentioned types of bryophyte species are predominant in the particular area and thus it is an ecologically susceptible zone.

**Key words:** Endemic, Vulnerable, Virajpet Division

#### INTRODUCTION

In the story of evolution, plants arrived relatively late in the history of the earth. The earliest fossils of plants are 475 million years old. Bryophytes are considered to be the first successful group of land invading plants. They are called ‘amphibians’ of the plant kingdom because they need water to complete their life cycle. The origin of bryophytes remains controversial until recent studies in cell ultrastructure and molecular biology, confirming that there are three distinct evolutionary documents in this primitive group: Marchantiophyta (Liverworts), Bryophyta (Moss), and Anthoceroophyta (hornworts) (Konart *et. al.*, 2010). The