

# 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 1**  
**CONSERVATION OF BIODIVERSITY AND TRADITIONAL**  
**KNOWLEDGE OF ETHNIC COMMUNITY OF SOUTHERN**  
**DISTRICTS OF KERALA, INDIA**

**Silvy Mathew**

Assistant Professor, Department of Botany  
Vimala College (*Autonomous*), Thrissur, Kerala, India

Email - [silvymathew110@gmail.com](mailto:silvymathew110@gmail.com)

**ABSTRACT**

There are 35 ethnic communities scattered in Kerala such as Muduvan, Kani, Kuruva, Paniyar, Malapandaram etc. among them Malapandaram forms about 5% ie. 3147 of their total population. In this study focused two Southern Districts of Kerala Idukki and Pathanamthitta and studied four villages Koruthodu, Peermade, Attathodu, Aavanippara. There are several ethnic groups are living here. The plant part used by ethnic group are Leaves (23%), are mostly recommended as ethno botanically used part followed by stem (17%). The most important plant groups used are belongs to the families of Zingiberaceae, Apocynaceae, Arecaceae, Asteraceae, Combretaceae, Euphorbiaceae and Poaceae. The most commonly used plant species was *Hemidesmus indicus* with 17 use reports by 8 informants, giving the highest use value of 2.125. The use categories with highest use-reports were gastro intestinal ailments (64 use reports, 14 species), followed by Skeleton-muscular system disorders (62 use reports 15 species) and the least use reports were haemorrhoids (2 use reports, 1 species). In the present study, Haemorrhoids and Nervous system disorders had the highest FIC of 1. The plants with the highest FL of 100% were *Xanthophyllum arnottianum*, *Vitex altissima*, *Asparagus racemosus*, *Strychnos nux - vomica* etc. These people are trying to conserve the traditional cultivars or land races and thus they can preserve the genetic strains for a long period of time.

**Keywords** - Ethnobotany, Indigenous, Informant consensus factor, Use value, Fidelity