

# **Interdisciplinary Research in Life Sciences:**

A Path Towards Sustainability

(Vol. 3)

## **Interdisciplinary Research in Life Sciences: A Path Towards Sustainability (Vol. 3)**

*Edited by:* Jayvardhan V. Balkhande & Jalander Vaghmare

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# **Interdisciplinary Research in Life Sciences:**

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**(Vol. 3)**

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## Preface

The edited volume *Interdisciplinary Research in Life Sciences: A Path Towards Sustainability (Vol. 3)* is conceived as a scholarly platform to highlight how integrative approaches across biological, environmental, agricultural, and health sciences can contribute meaningfully to sustainable development. The present volume brings together diverse yet interconnected research perspectives that reflect the growing necessity of interdisciplinary thinking in addressing contemporary challenges related to ecosystems, food security, human health, and biodiversity conservation.

This volume presents thirteen chapters contributed by researchers from different institutions and disciplinary backgrounds. The chapters collectively explore major thematic domains such as Ecological Sustainability and Conservation Biology, Sustainable Aquaculture and Agriculture, Environmental Monitoring, Microbiology and Biotechnology, Nutritional Sciences, Eethnomedicine, Public health and Ornithological Studies. Contributions focusing on riparian flora, productivity of unique aquatic ecosystems, and the emerging threats of microplastic–microbiome interactions emphasize the importance of ecosystem health in maintaining environmental resilience. At the same time, studies on ornamental fish farming, barnyard millet, and actinomycetes illustrate how biological resources can be harnessed responsibly for economic and environmental sustainability.

Reviews and research-based discussions on normal human microflora, medicinal plants used in the management of rheumatoid arthritis, and traditional medicinal uses of *Ficus racemosa* highlight the relevance of integrating classical biological sciences with medical and ethnobotanical knowledge systems. Advances in genetics and physiology are represented through contributions on electrophysiology and the identification of a novel genetic variant in cattle, reinforcing the role of modern biological tools in sustainable livestock and biomedical research.

A notable feature of this volume is its regional relevance blended with global scientific significance. Case studies such as the seasonal productivity of Lonar meteoritic lake and interdisciplinary strategies for sustainable development in Nanded District demonstrate how local ecological and socio-environmental issues can be examined through scientifically robust and policy-relevant frameworks. The inclusion of a comprehensive review on birds and their beaks further enriches the volume by linking functional morphology, ecology, and evolutionary biology with biodiversity awareness and conservation education.

As an edited work, this volume aims to serve students, researchers, educators, and policy-oriented professionals working in life sciences and allied disciplines.

The editors sincerely acknowledge all contributing authors for their valuable scholarly inputs and for maintaining academic rigor throughout the preparation of their chapters. We also extend our appreciation to the reviewers and the publisher for their cooperation and support in bringing this volume to publication.

It is hoped that *Interdisciplinary Research in Life Sciences: A Path Towards Sustainability (Vol. 3)* will contribute meaningfully to the advancement of interdisciplinary research and will stimulate further collaborative efforts toward building a sustainable and scientifically informed future.

**Editors**

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