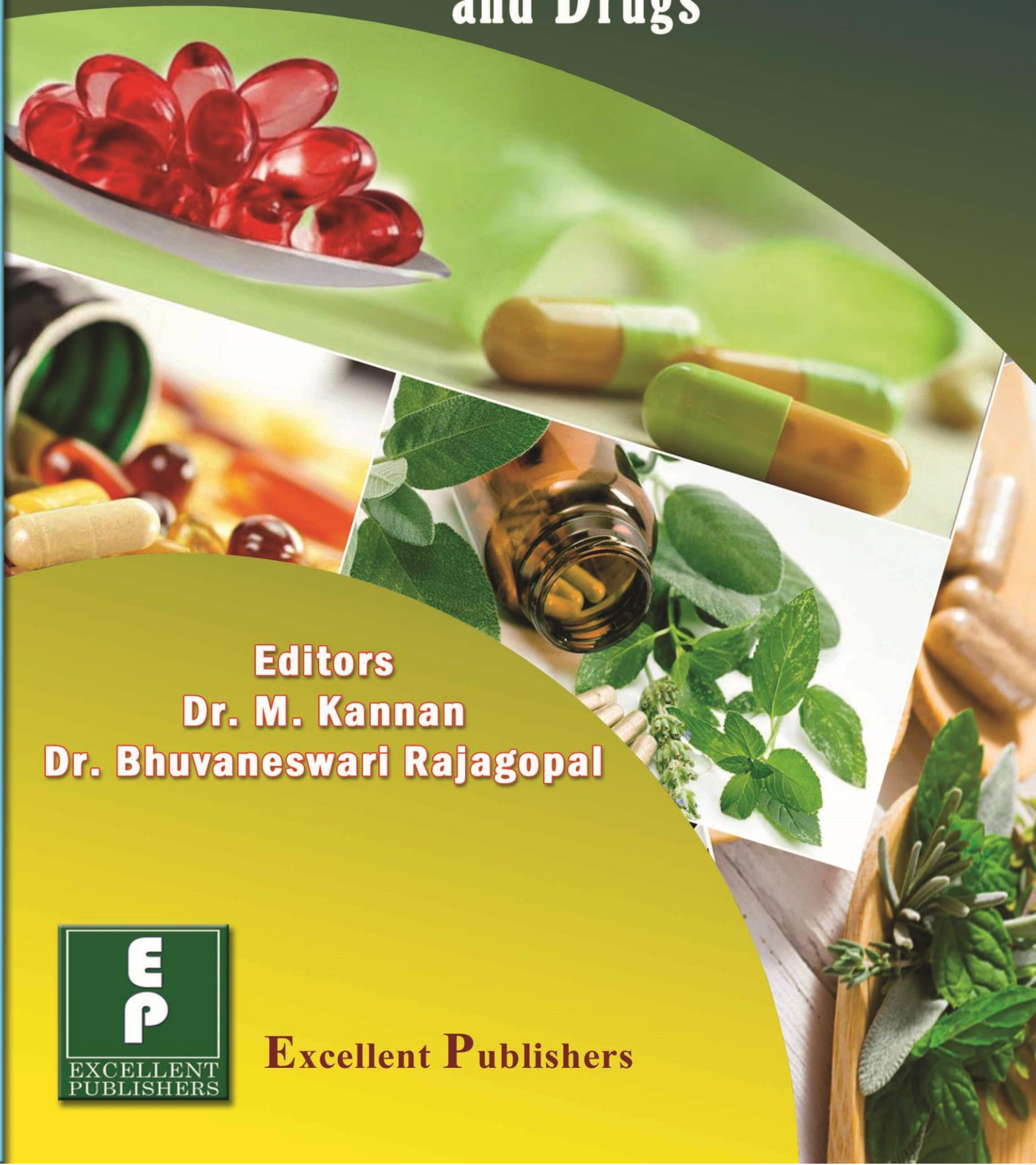


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Advances in Aquatic Nutraceutical and Drugs



Editors

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Excellent Publishers

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Preface

The aquatic ecosystem represents one of the most diverse and biologically productive reservoirs on Earth, harboring an extraordinary wealth of organisms with immense nutritional, pharmaceutical, agricultural, and industrial significance. Over the past few decades, the exploration of marine and freshwater resources has transformed from traditional utilization into an advanced multidisciplinary field encompassing biotechnology, pharmacology, food science, environmental sustainability, and natural product chemistry. The edited volume *“Advances in Aquatic Nutraceutical and Drugs”* has been conceived to provide an integrated platform that highlights recent scientific advances in the discovery, characterization, and application of bioactive compounds derived from aquatic resources.

Aquatic organisms—including marine algae, seagrasses, microorganisms, sponges, mollusks, crustaceans, and fish—are recognized as prolific producers of structurally unique metabolites exhibiting antioxidant, antimicrobial, antiviral, anti-inflammatory, anticancer, antidiabetic, cardioprotective, and immunomodulatory activities. These naturally occurring compounds have emerged as promising candidates for the development of next-generation nutraceuticals and therapeutic agents. Simultaneously, the growing global demand for sustainable and eco-friendly products has accelerated research into marine-derived functional ingredients, biopesticides, natural preservatives, and pharmaceutical lead molecules.

Collectively, these chapters reflect the rapidly expanding frontier of aquatic biotechnology and underscore the immense potential of marine resources in addressing global challenges related to food security, human health, environmental sustainability, and agricultural productivity. The interdisciplinary nature of this volume makes it a valuable reference for researchers, academicians, postgraduate and doctoral scholars, pharmaceutical scientists, marine biologists, food technologists, biotechnologists, and professionals engaged in natural product research. We express our sincere appreciation to all chapter authors for their scholarly contributions, scientific rigor, and commitment to advancing knowledge in this emerging field. Their expertise has enriched this volume and provided readers with current perspectives on aquatic nutraceuticals and marine-derived therapeutics.

It is our sincere hope that *“Advances in Aquatic Nutraceutical and Drugs”* will serve as an authoritative resource, stimulate interdisciplinary collaborations, inspire innovative research, and contribute meaningfully to the sustainable exploration and responsible utilization of aquatic biological resources for the betterment of science, healthcare, and society.

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About the Editor



Dr. M. Kannan is an accomplished academician, researcher, and educator serving as Assistant Professor and Additional Dean (Curriculum-Science) in the Department of Zoology at V.H.N.S.N. College (Autonomous), Virudhunagar, Tamil Nadu, India. With more than 23 years of teaching experience and 20 years of research experience, he has made significant contributions to the fields of zoology, microbiology, biotechnology, natural products, and pharmaceutical sciences.

Dr. Kannan obtained his M.Sc., M.Phil., and Ph.D. degrees with specialization in phytochemistry, immunopharmacology, anticancer studies, biosynthesis of nanoparticles against biofilm-forming pathogenic bacteria, and probiotic development. His multidisciplinary research has focused on the discovery of bioactive compounds from medicinal plants and marine resources, green nanotechnology, microbial biotechnology, environmental biotechnology, and nutraceutical development.

Throughout his distinguished career, Dr. Kannan has successfully completed major research projects funded by the University Grants Commission (UGC), the Department of Science and Technology (DST), and the Tamil Nadu State Council for Science and Technology (TNSCST). He has guided numerous M.Phil. scholars and doctoral researchers, contributing substantially to research capacity building in life sciences.

A prolific researcher, Dr. Kannan has authored and co-authored more than 60 research papers in reputed national and international journals, published 13 books and 7 book chapters, and presented research findings at several national and international conferences. His publications encompass marine biotechnology, phytochemistry, antimicrobial studies, nanobiotechnology, probiotics, environmental biotechnology, and bioactive natural products.

Dr. Bhuvaneswari Rajagopal Ph.D., is an Assistant Professor in the Department of Zoology at Ayya Nadar Janaki Ammal College, Sivakasi, Tamil Nadu. She has been serving in this position since 2013, contributing significantly to teaching, research, and academic administration. She obtained her Ph.D. in Zoology from Bharathidasan University in 2008, laying a strong foundation for her research career. Her primary areas of research expertise are Molecular Drug Designing and Fish Pathology, reflecting her interest in integrating modern computational approaches with biological sciences to address problems in aquatic animal health and therapeutic discovery. Her research contributions are documented through scholarly publications, including journal articles and book chapters indexed in academic databases. She also maintains recognized academic identities through ORCID, Web of Science Researcher ID, and Google Scholar, ensuring visibility and accessibility of her research outputs to the global scientific community.

In addition to her teaching and research responsibilities, Dr. Bhuvaneswari has actively participated in several professional organizations and institutional committees. She has been a Member of the Indian Science Congress Association and has served as an Editorial Board Member for a scientific journal (TJFS). These professional engagements demonstrate her commitment to promoting scientific communication and academic excellence.

Dr. Bhuvaneswari has also undertaken several important administrative and extension activities within the institution. She has served as the Programme Officer of the Red Ribbon Club, promoting health awareness and social responsibility among students. Furthermore, she has worked as the Coordinator of the Equal Opportunity Cell, supporting inclusive educational practices, and has been an active Member of the Outcome-Based Education (OBE) Committee, contributing to curriculum development and quality assurance initiatives. Overall, Dr. Bhuvaneswari Rajagopal exemplifies a dedicated academician whose contributions span teaching, research, institutional development, student welfare, and scientific service. Her interdisciplinary research interests, professional involvement, and commitment to academic quality continue to strengthen the Department of Zoology and enhance the research profile of Ayya Nadar Janaki Ammal College.

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