

Preface

It gives me immense pleasure to present this Special Issue of the *Journal of Environmental Biology*, which brings together contemporary research at the intersection of molecular genetics, bioinformatics, and machine learning. In recent years, biology has undergone a paradigm shift, moving from descriptive observations to data-driven insights. Today, the convergence of computational tools with experimental sciences is enabling us to unravel the complexity of life at unprecedented depth. This Special Issue is a step in that direction-showcasing original contributions from researchers across the country who are committed to advancing knowledge through integrative approaches.

At Apollo Institute of Medical Sciences & Research, Chittoor, we have established a Central Research Laboratory dedicated to Molecular Genetics, Bioinformatics, and Machine Learning. Under the aegis of our Faculty Research Forum, teams of scientists and clinicians collaborate to address pressing biomedical and environmental challenges. The spirit of collaboration was evident during our recent national conference, Connectomics-25, held from July 29–31, 2025. The conference served as a platform where innovative bioinformatics studies were presented, and many of those ideas have found further refinement in the articles included in this volume.

As Guest Editor, I am privileged to work with an outstanding group of authors in my organization who have contributed rigorously conducted and thoughtfully written papers to this issue. The diversity of topics-ranging from computational modeling, protein-protein interactions and genetic insights of biological processes-reflects both the breadth and the vitality of the field. Each article not only enriches our understanding but also highlights how modern biology is increasingly interdisciplinary, drawing strength from Medicine, Environmental Science, and Computational Intelligence.

I am equally delighted to have Dr. Eddula Venkata Ravikanth, Assistant Professor of Dermatology at Apollo Institute of Medical Sciences & Research, as Associate Guest Editor. His commitment to research excellence and his perspective from clinical sciences have added significant value to the editorial process. Together, we have worked to ensure that this issue maintains high standards of quality and relevance. I would also like to sincerely thank our beloved Dean, Dr. Alfred J. Augustine, and Dr. Ramya Ramakrishnan, Associate Dean – Academics, for their unwavering support and encouragement, which have been instrumental in the success of both our research endeavors and this Special Issue.

I extend my sincere gratitude to Professor Divakar Dalela, Executive Editor, *Journal of Environmental Biology* for entrusting us with this Special Issue. I also thank the reviewers, whose critical insights have strengthened the contributions. Above all, I commend the authors for their dedication and scholarly rigor. It is my hope that this issue will inspire researchers, academicians, and practitioners to further explore the transformative potential of bioinformatics and allied disciplines in addressing both biomedical and environmental challenges.

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