

Emerging Trends and Innovation in Entomology

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Preface

Entomology, the scientific study of insects, is undergoing a remarkable transformation driven by rapid advances in technology, interdisciplinary research, and the growing need for sustainable solutions in agriculture, health, and environmental management. Insects influence nearly every aspect of life on Earth—as pollinators, pests, vectors of diseases, decomposers, and bioindicators—making entomological research more relevant today than ever before.

Emerging Trends and Innovation in Entomology is designed to capture the dynamic evolution of this field by highlighting cutting-edge concepts, tools, and applications that are reshaping insect science. This volume brings together contemporary research and expert perspectives on molecular and genomic approaches, insect-microbe interactions, climate change impacts on insect diversity, precision pest management, biological control, insect biotechnology, and the role of artificial intelligence and remote sensing in insect monitoring and forecasting.

The book aims to bridge the gap between classical entomology and modern innovations, offering readers a comprehensive understanding of how traditional knowledge is being integrated with advanced technologies to address global challenges such as food security, biodiversity loss, and vector-borne diseases. Special emphasis is placed on eco-friendly and climate-smart strategies that promote sustainable pest management while minimizing environmental risks.

This volume is intended for postgraduate students, researchers, academicians, extension professionals, and policy makers who seek updated knowledge and practical insights into modern entomological sciences. We hope this book will serve as a valuable reference, stimulate scientific curiosity, and inspire innovative thinking for the future advancement of entomology.

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Dr. Sanjay Kumar

Dr. Archana Kerketta

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