

PREFACE

Endemic taxa are those restricted to a specific geographical area. Some put endemism as a state of species or other taxon being restricted to a given area such as a specific habitat, region or continent. Endemism is therefore, confinement of a species or other taxonomic group to a given region.

India is one of the 12 megabiodiversity countries in the world. The country is divided into 10 biogeographic regions. The wide variety in physical features and climatic situations have resulted in a diversity of ecological habitats. Biogeographically, India is situated at the tri-junction of three realms – *Afro-tropical*, *Indo-Malayan* and *Paleo-Artic* realms, and therefore, has characteristic element for each of them. This assemblage of three distinct realms makes the country rich and unique in biological diversity.

Endemism in Indian biodiversity is significant. About 4,900 species of flowering plants are endemic to the country. These are concentrated in the floristically rich areas of **North –East India**, the **Western Ghats**, **North-West Himalayas** and **Andaman & Nicobar Islands**. These areas constitute 2 of the 25 megadiversity Hots spot identified in the world. It is estimated that 62 percent of the known *amphibians* species are endemic to India of which a majority is found in the **Western Ghats**.

The conservation and sustainable use of biological resources based on local knowledge system and practice is ingrained in Indian culture and beliefs. But the diversity of country's biological resources is yet to be fully known. However, India's richness in biological resources and related indigenous knowledge is well recognized. As such, recently the Parliament passed *Biological Diversity Bill* (2000) to regulate access to genetic resources and associated knowledge by the foreigners. Time will show how effective the new bill would be in curbing access to the country's biological resources, but neither the bill nor any other could prevent anyone from addition value to traditional knowledge based on biological resources and claiming genuine innovation.

With the realization of urgent need for compilation of works on endemic bioresources of India, the editor invited original research/review papers from leading Life Science Scientists including Agricultural Scientists of the country for their contribution to the present book "*Endemic Bioresources of India-Conservation and Sustainable Development with special reference to North-East India*". In all, 28 papers were received and peer

reviewed by the experts in the respective field. These papers are grouped into seven sections.

Section – I on *Microbial Resources* (Chapters 1-8) deals with resources of Bacterial, Algal, Fungal (pathogenic and wild edible) biodiversity including plant parasitic and soil Nematodes; Section-II on *Insect resources* (Chapter 9-15) deals with natural enemy resources of tea, review on the genera Terastichinae, Thrips, Assassin bugs, Predatory insect of Aphids, Insect biodiversity and its conservation and Insect diversity and bioresources; Section-III on *Mites and Flies resources* (Chapter 16 and 17) deals with Mites resources, Flower visitation and Pollination by Diptaran flies; Section-IV on *Aquatic Resources* (Chapter 18 and 19) deals with biodiversity of *Azolla* and its symbiont, *Anabaena azollae*, Fishes of Manipur; Section-V on *Medicinal, Horticultural/fibre crop plants resources* (Chapter 20-23) deals with potential of Ethnobotanical studies, Biodiversity of medicinal plants, Citrus, Genetic improvement and conservation of Ramie. Section VI on *Bird resources* (Chapter 24) deals with threatened/rare birds of Manipur. Section VII on *Technology for Sustainable Economic Development* (Chapter 25-28) deals with a *Azolla* as biofertilizer, Endemic orchids conservation, Diversity of non-timber forest products and their management, and Diversity in traditional fermented foods and beverages.

Thus, the volume encompasses a wide range of bioresources of India, their conservation and sustainable development. All efforts have been made to keep the technical contents of the contribution intact but minor alternations have been made here and there for editorial consistency. However, the technical contents of the papers rest with the contributors.

The editor expresses his gratitude to all the authors for their scientific contributions. Thank are also due to Dr. A.K. Mukherjee, Deputy Director (Rtd.) & Scientist Emeritus, ZSI, Kolkata; Prof. N. Samajpati, Botany Department, Calcutta University; Prof. B.K. Agawala, Department of Life Science, Tripura University, Agartala; Prof. K.N. Bhagabati, A.A.U. Johat; Dr. D.K. Agarwala, IARI, New Delhi; Dr. Gautum Chandra, Department of Zoology, Burdwan University; Prof. B. Prasad, Department of Life Sciences, Manipur University for their kind co-operations.

The editor also thanks M/S Bishen Singh Mahendra Pal Singh, Dehra Dun, India for bringing out of this volume within a short period.

N. Irabanta Singh