

Preface to this Volume

The spectrum of diversity in life forms is almost infinite, ranging from unicellular microbes to the most complex metazoan—the man. But the visible manifestation of diversity is not so pronounced as in higher plants—the phanerogams *sensu lato* of earlier authors, covering both angiosperms and gymnosperms. The problems of phylogeny, taxonomy and trend of evolution are sources of perpetual debate. In order to arrive at correct solutions, pooling of data from different sources was initiated adding biotechnology to new systematics and experimental taxonomy. Lately, refinements in the techniques of cellular and molecular analysis and gene localization *in situ* at the chromosomal level have greatly influenced the study of biodiversity. The novel approach, utilizing tools of genomic analysis to solve phylogenetic and taxonomic problems, shows immense potential. Molecular documentation covering DNA fingerprinting as well as comparative genomics is serving as useful aids in tracing genetic diversity and phylogenetic study in different plant groups. The increasing availability of various probes and the realization of the potential of molecular tools in solving the problems of diversity and phylogeny have been responsible for the fact that numerous groups of flowering plants, irrespective of their taxonomic status, are now being subjected to genomic analysis. The enormous amount of data already generated need to be reviewed and collated not only for research but also for incorporation into the gradually changing scenario.

This volume which is the first of this series covers a cross section of the plant groups, from Cruciferae, Compositae, Rosaceae, and Betulaceae on the one hand to Graminaceae represented by Triticineae on the other. Along with the study of genomic diversity and evolution, the importance of different molecular parameters such as ITS sequences of transported genes in the study of phylogeny has been presented. Articles are also included covering a wide spectrum such as, *in situ* hybridization in the study of plant evolution and trend of genome diversity from Bryophytes to Gymnosperms. As such, this volume would provide a glimpse to the reader of the basics, the achievements and the prospects of genomics in the analysis of the diversity and evolution as exemplified in certain groups of higher plants.

This volume is to be regarded as the initial one to be followed by a succession of volumes, with the ultimate aim of covering the entire spectrum of Phanerogams and Cryptogams.

A.K. Sharma

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