

PREFACE

Chromosome study in eukaryota covers a wide spectrum ranging from different groups of plants and animals to the human system. The last two decades have witnessed a tremendous spurt in activity in chromosome research because of availability of refined methods of biotechnology and their application to all facets of life sciences including agriculture, horticulture and medicine.

Notwithstanding such advances, no upto date manual is available covering the representative protocols for studying the chromosomes of major groups of eukaryotes. The authors' earlier book on "Chromosome Techniques - Theory and Practice" (third edition 1980) is already more than a decade old. Lately, several new and good treatises have been published, which mainly cover human chromosomes and to some extent, mammalian systems. It was therefore desired to undertake the preparation of a laboratory manual to cover the study of chromosomes in plants, animal and human systems, mainly dealing with the protocols and the principles involved. An attempt has been made to cater to the requirements of scientists working in a simple laboratory and also of those engaged in the most sophisticated ones. Details of instrumentation such as electron microscope, image analyser, micromanipulator and such others have been avoided for obvious reasons. Only the principles of their operation have been included, together with the experimental part. Similarly in describing the methods involving details of molecular biology, such as chromosome walking, yeast artificial chromosomes and polymerase chain reaction, the principles and operational mechanism have been outlined with that much of detail as would be necessary just for their use at the chromosome level. Our task was made easier by the availability of very good treatises on molecular biology by Sambrooke, Fritsch and Maniatis (1989) and by Brown (1991). Information available in these books has been extensively utilized.

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