
Preface

Seed, a highly ordered plant structure, is the basic input in crop production. It possesses the qualities necessary for cell division, morphogenesis and regeneration of species. The study of seed itself is as good as the study of life. Seed is one of the vital inputs in the development of agriculture in any country. To increase agricultural production, viability of quality seed is one of the prerequisites. The seed is also one of the most important source for the perpetuation of fungi, bacteria, nematodes, insects, viruses, etc. and acts as an efficient carrier for their spread to new areas through introduction and/or seed trade which is a global enterprise. Among these plant pathogens, viruses are unique in nature and behaviour. As is the case with any seed-transmitted plant pathogens, virus transmission through seeds of higher plants also result from complex interactions between the genetic systems of the host, pathogen and the environment. There is increasing awareness of seed-transmitted viruses with particular reference to their mode of transmission, survival and management. Till date, more than 231 viruses have been reported to be seed transmitted in different food, fiber, weed and ornamental crops. Virus-free seed has assumed multifold significance in quarantine and seed certification for ensuring initial crop health. Circumstantial evidence shows that several viruses have spread to different geographical regions during the process of liberalized seed exchange of crop plants in recent years. Seeds are instrumental in an effective worldwide spread of a range of diseases through international exchange of seeds. The techniques of identification and management of seed-transmitted viruses are completely different from those of other pathogens like fungi, bacteria and phytoplasmas. The information on reliable techniques for detection of seed-transmitted viruses and their management is of immense use in the present international seed trade. The coverage of seed-transmitted plant viruses is limited to few chapters in books on seed pathology. Considerable information in respect of new seed-transmitted viruses, their detection and identification techniques, transmission and management has been generated in recent years. This publication is an endeavor to compile up-to-date literature available on seed-transmitted viruses in a comprehensive form. It is hoped that this book will have an important role to play in the context of the government agencies on new seed policy for liberal import of the seeds of coarse cereals, oilseeds and pulses.

The knowledge of seed-transmitted virus diseases on the isolation and identification of viruses in fresh seed lots and their management not only restricts the entry of virus diseases but also will help to prevent the spread

of unrecorded virus diseases in the country. Within the scope of this book, elaborate attempts have been made to present a comprehensive account on identification, mode of transmission, ecology, epidemiology and management of seed-transmitted virus and viroid diseases covered in ten chapters. An up-to-date list of all seed-transmitted viruses and viroids of different host plants is presented in the form of a table for ready reference. The information given on latest molecular techniques for virus detection and management included in this volume will be of immense practical value to researchers and field workers.

This work has immensely benefited from critical comments and constructive suggestions made by Prof. M. V. Nayudu, Dr. S. E. Albrechtsen, Dr. P. Sreenivasulu, Dr. G. P. Rao, Dr. R. K. Khetarpal, Dr. D. V. R. Saigopal, Dr. V. C. Chalam and also assistance offered by our scholarly friends and colleagues. I am highly thankful to all the persons, organizations and various publishers for their prompt help in providing information, photographs and consents for reproduction. I also wish to express my sincere gratitude to Mr. C. Nagaraja for secretarial work. I thank my wife Mrs. B. N. K. Kumari for her continuous support during the preparation of this book. I dedicate this book to the memory of my parents late K. Panduranga Sastry and Smt. K. Subadramma who have sacrificed everything to give me the best education possible and for their eternal blessings.

I hope this book will be of value and interest to many teachers, students, seed biologists, seed technologists, seed companies and researchers at quarantine stations as a comprehensive, accurate and easily readable reference book on seed-transmitted plant virus and viroid diseases. I shall deem it an honour and reward if readers find this book useful to them. I welcome suggestions and comments for the improvement of this book in future editions.

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