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BOOK REVIEW

Cell culture and somatic cell genetics of plants, Vol. I. Laboratory procedures and their applications, Editor-in-Chief, Indra K. Vasil. Academic Press, Orlando, Florida, 1984, pp. 825, $ 85.

Intended as a Laboratory manual, this book brings out a series of chapters dealing with procedures, techniques and their applications on plant cell culture and somatic cell genetics. It is a coherent, authoritative and comprehensive treatment of the subject with practical advice taking precedence over theory. The contributions are prepared by distinguished scientists who have specialised in the respective areas. Most of the articles are well-edited. A thorough job has been done on the citation of references. References provided at the end of respective chapters add to the value of this book.

After a customary introductory account on the organisation of a modern plant tissue culture laboratory, the book proceeds to chapters on educational services for plant tissue culture, nutrition and media, callus and suspension culture induction and their maintenance, clonal propagation, the acclimitization of micropropagated plants and large-scale culture of cells in suspension. In addition, the current techniques of fractionation of cultured cells, synchronization of suspension culture cells, quantitative plating technique, the feeder layer technique; the MDA screening techniques, fusion of protoplasts by PEG and Dextran and electrical stimulus, preparation of cytoplasts and miniprotoplasts, isolation of organelles, freeze preservation of cells and meristems and immobilization of cultured plant cells and protoplasts keep the objectives of the volume intact. But procedures such as clonal propagation, anther culture and the protoplast culture, treated elaborately in multiple chapters, seem out of keeping with the preceding and succeeding chapters which are brief. With as many as eighty five chapters packed in a single volume, the thoroughness of the text chapters is far from uniform. Further, there should have been a few pages devoted to new instruments and gadgets in tissue culture technology and techniques on the culture of ferns and allies. A chapter on educational services for plant tissue culture is well-conceived and is a welcome addition. Though the volume has attempted to provide protocols on the clonal propagation in general and on selected crops in particular, very little information on similar techniques for tropical woody plants has been included. In fact, the data now available on tropical trees calls for a separate chapter on this.

Chapters on multiple-drop-array (MDA) screening technique, mechanical isolation and single-cell culture of isolated protoplasts and somatic hybrid cells, inactivation of protoplasts before fusion to facilitate selective recovery of fusion-derived clones, selection of somatic hybrid cells by fluorescence-activated cell sorting and freeze preservation of cells and meristems are outstanding and highly educative. The volume would serve as a key reference book and a useful survey of most current techniques. The book is strongly recommended for all those practising tissue culture as a profession as well as for beginners.

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