BOOK REVIEW

Cell Genetics in Higher Plants: editors: D. DUDITS, G. L. FARKAS and P. MALIGN. Proceedings of International Training Course. Akademiai Kiado, Budapest. £8.60.

This book consists of the 17 contributed papers to an international training course held in Szeged, Hungary, from 5–7 July 1976; in addition, it contains the description of practical experiments which were performed after the symposium.

The first communication (Melchers) is a general review of the present status of plant cell genetics, with a discussion of probable future trends. The main goal of the symposium was to outline the approaches to plant cell genetics using cell suspension cultures and protoplasts. Undoubtedly, the latter subject was best represented with an introduction of plant protoplast isolation, culture and fusion (O. L. Gamborg); culturing cereal protoplasts (I. Potrykus, T. Ch. Harms and H. Lörz); selective conditions of somatic hybrids (E.C. Cocking; D. Dudits); characterization of the hybrids (H. H. Smith) as well as cytological studies of the heterocaryocytes (K. N. Kao). More specific papers on the characterization of *Aspergillus* species fusion products (L. Ferenczy), the organelle transfer into isolated protoplasts (I. Protrykus *et al.*), the use of subprotoplasts for organelle transplantation (H. Binding and R. Kollmann) were also presented; finally, protoplasts were reviewed as new tools in plant virus research (G. L. Farkas). Cell cultures were discussed as being generally useful in plant biology (H. E. Street) and in the isolation of plant mutants (P. Maliga). The molecular approach is discussed with regard to the controversial topic of the integration of exogenous DNA in plants (P. F. Lurquin), and of the use of bacterial plasmids in plant cell genetics (F. Cannon) and concludes with the topic of the use of DNA to correct auxotrophic mutants of *Arabidopsis* (G. P. Redei *et al.*). The book has a very useful appendix, which consists of the description, step by step, of the different practical aspects of pollen culture (C. Nitsch); protoplast culture (H. Binding and J. I. Nagy) and fusion (K. N. Kao); the uptake of nuclei into higher plant protoplasts (H. Lorz and I. Potrykus) and into bacterial plasmids by carrot cells in suspension culture (F. Cannon and P. Luquin).

As mentioned in the foreword, the theoretical and practical importance of cell genetics is becoming increasingly evident for molecular biologists and plant breeders. This book provides a comprehensive introduction to the subject of 'genetical engineering' based on genetic manipulations. As a plant breeder, it is a pleasure to see that the approach of pollen culture, somatic hybridization and subsequent selection as well as the possible utilisation of biochemical mutants has practical value in plant breeding.

In my opinion, this book should stand on the shelves of cell geneticists, plant biochemists and physiologists. Also, it is hoped that plant breeders who are interested in a new or at least a renewed approach to their discipline will benefit from reading it.

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