

Taji, A., Kumar, P.P., Lakshmanan, P.: ***In Vitro Plant Breeding***. - Food Products Press, An Imprint of the Haworth Press, New York - London - Oxford 2002. 167 pp. ISBN 1-56022-907-1.

There are many books concerning plant tissue cultures published recently. This one differs from the others because it is relatively small one and focused on the special task as its name indicates. Nevertheless, it encompasses a wide array of subjects and provides useful insights into the current status of applicability of *in vitro* cultures in plant improvement and in the commercial arena. This book serves to multiple purposes. For the undergraduate students of plant science it provides a broad introduction to the plant tissue culture techniques. For the traditional plant breeder or the molecular biologist it provides an insight into the potential of *in vitro* tools for crop improvement. It also shows limitations to the use of plant tissue culture techniques in plant breeding, and explains how the new technologies may be used effectively in improving the productivity of agricultural plants.

The whole text is divided in 14 short chapters. The first two chapters give all the essential information necessary for understanding the basic principles of *in vitro* culture, morphogenesis and organogenesis. Micropropagation (from culture initiation to *ex vitro* transfer) which is convenient for clonal multiplication of new genotypes and their introduction to agricultural practice is described in the third chapter. Further chapters give insight into different methods applicable in crop

improvement. Chapters 4 and 5 are devoted to haploid plant production and *in vitro* pollination and fertilization. The sixth chapter is focused on somatic hybridization using protoplast fusion. Another approach to plant improvement is selection of plants with desirable trait from naturally occurring somaclonal variants or from spontaneous or induced mutants (chapters 7 - 9). Many valuable genotypes, such as those governing low nutritive requirements, resistance to cold, drought, heavy metals or pathogens were detected by this way. *In vitro* storage techniques and cryopreservation may be utilized in the conservation of plant germplasm (Chapter 10). The chapter 11 describes *in vitro* micrografting. *In vitro* flowering which might be useful strategy in breeding programs for some species is the topic of chapter 12. Production of microtubers is important technique for propagation of virus free potato, yam and cassava (chapter 13). The last chapter only very briefly describes *Agrobacterium* mediated gene transfer and analysis of plant genomes by molecular markers.

All the chapters are reviews of up-to-date literature. The book is supplemented by many illustrative schemes and tables. I would like to recommend it to the students and those, who want to understand principles and ways of application of specific techniques for *in vitro* crop improvement.

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