

Razdan, M.K., Cocking, E.C. (ed.): **Conservation of Plant Genetic Resources in Vitro. Volume 1: General Aspects.** - Science Publisher Inc., Enfield 2000. xiv + 314 pp. USD 88.00. ISBN 1-886106-76-2.

The past two decades achieve broad increase in technique developments of plant diversity conservation, because the rapid loss of plant species threatens the long term security for food, fibre, medicine and timber supplies. *In vitro* collection and cryopreservation is now practical for base or safe duplicate collection of clonally propagated crops formerly preserved only as field collections.

In this book Volume 1 of the projected series, broader principles and objectives for conserving various sources of plant germplasm are outlined first. In the second part, the methodology is in more detail described on various species to demonstrate the constraints and advantage of various *in vitro* storage methods and the methodology applied for such purposes. There are some limitations of general methodological approaches of *in vitro* procedures subsistent of some specific crops. These are included in the third part of this book. Third part of this book is focused on mono-thematical chapters dwelling on specific crops such as *Citrus*, *Prunus*, sugarcane species and related genera, yams and coffee. In more details the methodology of conservation is described mainly on temperate fruit and nut crops, conifer trees, root and tuber crops tropical species with recalcitrant or intermediate seeds.

Applying cell/tissue culture methods to the conservation of plant germplasm for short- and medium-term storage is still most extended for the collection,

multiplication and storage of plant germplasm. Tissue cultures provide insurance against the loss of valuable genetic resources for medium-term storage by slow growth strategies. One of the most effective conservation procedures of plants biodiversity for long-term preservation is cryopreservation. A literature survey containing this book has shown that the number of studies on plant germplasm cryopreservation increased steadily. In addition to classic cryopreservation methods based on slow freezing rate make it so slow that the ice crystals outside the cells can remove the water. The new cryogenic methods based on supercooling and consequently on glass forming inside the cells instead of dangerous ice crystals formation, are mentioned for many plants in majority of the chapters of this book. This new techniques such as vitrification, encapsulation/vitrification, encapsulation/dehydration and other combinations and modifications which have been developed on the principle of glass formation in cells for cryopreservation of plants are presented in more methodical details.

All chapters are well-arranged, illustrated by tables, schemes, pictures and closed by list of references. The book is provided by Subject Index. It may be sincerely recommended to all those who wish to get knowledge on perspectives, methodology of *in vitro* conservation and cryopreservation of specific crops.

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