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Transgenic Crops I

Edited by Y. P. S. Bajaj



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*Dedicated to Dr. Gurdev S. Khush with thanks for his
invitation to give lectures at the International Symposia
held in 1978 and 1980 at the International Rice
Research Institute, Manila, Philippines*

Preface

Over the last decade there has been tremendous progress in the genetic transformation of plants, which has now become an established tool for the insertion of specific genes. Work has been conducted on more than 200 plant species of trees, cereals, legumes and oilseed crops, fruits and vegetables, medicinal, aromatic and ornamental plants etc. Transgenic plants have been field-tested in a number of countries, and some released to the farmers, and patented.

Taking the above-mentioned points into consideration, it appeared necessary to review the literature and state of the art on genetic transformation of plants. Thus 120 chapters contributed by experts from 31 countries (USA, Russia, Canada, France, Germany, England, The Netherlands, Belgium, Switzerland, Italy, Spain, Bulgaria, Yugoslavia, Denmark, Poland, Finland, Australia, New Zealand, South Africa, China, Japan, Korea, Singapore, Indonesia, India, Israel, Mexico, Brazil, Morocco, Senegal, Cuba, etc.) have been compiled in a series composed of the following five books:

1. *Transgenic Trees* comprises 22 chapters on forest, fruit, and ornamental species such as *Allocasuarina verticillata*, *Casuarina glauca*, *Cerasus vulgaris*, *Citrus* spp., *Coffea* species, *Diospyros kaki*, *Eucalyptus* spp., *Fagara zanthoxyloides*, *Larix* spp., *Lawsonia inermis*, *Malus* × *domestica*, *Picea mariana*, *Pinus palustris*, *Pinus radiata*, *Poncirus trifoliata*, *Populus* spp., *Prunus* species, *Rhododendron*, *Robinia pseudoacacia*, *Solanum mauritianum*, *Taxus* spp., and *Verticordia grandis*.
2. *Transgenic Medicinal Plants* comprises 26 chapters on *Ajuga reptans*, *Anthemis nobilis*, *Astragalus* species, *Atropa belladonna*, *Catharanthus roseus*, *Datura* species, *Duboisia* species, *Fagopyrum* species, *Glycyrrhiza uralensis*, *Lobelia* species, *Papaver somniferum*, *Panax ginseng*, *Peganum harmala*, *Perezia* species, *Pimpinella anisum*, *Phyllanthus niruri*, *Salvia miltiorrhiza*, *Scoporia dulcis*, *Scutellaria baicalensis*, *Serratula tinctoria*, *Solanum aculeatissimum*, *S. commersonii*, *Swainsona galegifolia*, tobacco, and *Vinca minor*.
3. *Transgenic Crops I* comprises 25 chapters divided into 2 sections:
 - Section I. Cereals and grasses*, such as wheat, rice, maize, barley, sorghum, pearl millet, triticale, *Agrostis*, *Cenchrus*, *Dactylis*, *Festuca*, *Lolium*, and sugarcane.
 - Section II. Legumes and Oilseed Crops*. *Arachis hypogaea*, *Brassica juncea*, *Brassica napus*, *Cicer arietinum*, *Glycine max*, *Gossypium hirsutum*,

Helianthus annuus, *Lens culinaris*, *Linum usitatissimum*, *Sinapis alba*, *Trifolium repens*, and *Vicia narbonensis*.

4. *Transgenic Crops II* comprises 23 chapters on fruits and vegetables, such as banana, grapes, strawberry, kiwi, watermelon, cucumber, tomato, asparagus, carrot, cabbage, kale, turnip, rutabaga, Brussel sprouts, broccoli, sweet pea, common bean, *Luffa*, *Amaranthus*, horseradish, sugarbeet, chicory, cassava, sweet potato, potato, etc.
5. *Transgenic Crops III* comprises 26 chapters arranged in 2 sections:
Section I. Ornamental, Aromatic and Medicinal Plants. *Anthurium*, *Antirrhinum*, *Artemisia absinthium*, *Begonia*, *Campanula*, *Carnation*, *Chrysanthemum*, *Dendrobium*, *Eustoma*, *Gentiana*, *Gerbera*, *Gladiolus*, *Hyoscyamus muticus*, *Hyssopus officinalis*, *Ipomoea*, *Leontopodium alpinum*, *Nierembergia*, *Phalaenopsis*, *Rudbeckia*, *Tagetes* and *Torenia*.
Section II. Miscellaneous Plants. *Craterostigma plantaginsum*, *Flaveria* spp., *Moricandia arvensis*, *Solanum brevidens*, and freshwater wetland monocots.

These books will be of special interest to advanced students, teachers, and research workers in the field of molecular biology, genetic manipulation, tissue culture, and plant biotechnology in general.

New Delhi, April 1999

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Series Editor

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