

Plant Tissue Culture and Molecular Markers

Their Role in Improving Crop Productivity

Plant tissue culture techniques help in understanding basic life processes and their proper understanding is essential for improving crop productivity. Besides, recently molecular biology has assumed great importance with respect to plant biotechnology. The present book amalgamates all three aspects into one, practical applications of various techniques being the need of the hour.

It discusses micropropagation studies on several crop plants, molecular basis of understanding various life processes including molecular basis of somatic embryogenesis and other physiological and biochemical processes having significant biotechnological applications. It also includes *in vitro* studies of some important plants like *Aloe vera*, *Simmondsia chinensis*, *Anacyclus pyrethrum* and *Crataeva nurvala*, *Arachis hypogaea* L., *Phoenix dactylifera*, *Dendrocalamus asper*, *Asparagus adscendens* Roxb., natural products of plant origin with their therapeutic potential and biotechnological production, genome analysis of crop plants with future applications in biotechnology etc.

The book is useful for postgraduates and researchers in plant biotechnology and related areas like plant science, biotechnology, bioscience, environmental science, food biosciences and chemistry. It will also be of interest for professionals working in the plant biotechnology industry.

Ashwani Kumar, Professor, Department of Botany, University of Rajasthan, Jaipur, obtained his Ph.D. from Rajasthan University. He also has the distinction of being an Alexander Von Humboldt Fellow (Germany). He was the Honorary Director at the School of Life Sciences, University of Rajasthan. The author's repertoire of published works spreads across 150 research articles in various national and international journals. With an experience of over three decades in his field of research, namely, tissue culture and biochemistry, the author has been at the helm of various major projects carried out by USDA-ICAR, UGC, MNES, CSIR and DBT. He has long association with Professor Dr. Karl-Hermann Neumann and subsequently with Professor Dr. Sven Schubert at Institut Für Pflanzenernährung, Justus Liebig Universität, Giessen, Germany, as visiting Humboldt Fellow and Visiting Professor at Toyama Medical and Pharmaceutical University, Toyama, Japan. The author is currently engaged in research on salinity tolerance at molecular level in cereals and crops. Recently he has been awarded the prestigious V. Puri Medal, 2008.

N.S. Shekhawat is Professor and Head, Department of Botany, J.N. Vyas University, Jodhpur. Since last 40 years he has been working on somatic cell genetics of plants of arid regions of Rajasthan. He has awardee of National Fellowship for studies abroad by Ministry of Education and Culture, GOI, Overseas Associate, UGC Research Scientist B. He was also selected for award of NSERC, Canada. He had carried out several major projects sponsored by UGC, DBT, DST, UNDP, DOEN, ICFR & E. Dr. Shekhawat has been a subject expert for State Govt. of Haryana, West Bengal Council of Science and Technology. He is member of Biotechnology Board Govt. of Rajasthan. State of art facility of PTC and hardening of plants has been created under his leadership by DBT. He worked with Prof. A.W. Galston, Yale University, New Haven, USA and with Professor Nevin Dale Young, University of Minnesota, St Paul, USA on Plant Genomics. He has published more than 50 research papers in national and international journals of high profile and immensely contributed in generating knowledge, developing bio-resources, preparing trained skilled tissue culturist in the country. More than 30 students have been awarded Ph.D. under his valuable guidance. He is currently National Correspondent for Int. Asso. of Plant Biotechnology. His present interest is in development of bio-resources of arid zone, plant prospecting and biological nitrogen fixation in native legumes.

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S-25, Green Park Extension, Uphaar Cinema Market
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