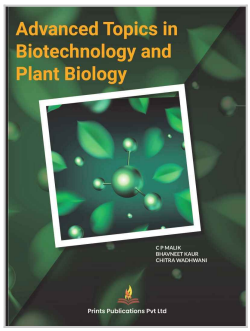
Book Information Sheet

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Advanced Topics in Biotechnology and Plant Biology

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CP Malik has 50 years of experience of Teaching and research in Genetics Molecular Biology, Molecular Plant Physiology and Plant Biotechnology in several Universities in India and abroad. He has published more then 400 research papers, several reviews and books in the above subject. Malik is receipient of several awards and is fellow of several Academic including Indian national Science Academy (FNA) and Academy of Ag. Science (FNAAS). He is widely travelled and has visited several countries.

Chitra Wadhwani

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Bhavneet Kaur has 6 years experience of teaching and research in Biotechnology. She received her Ph.D. degree from GJ University, Hisar in Molecular Biology and is currently teaching at SADTM. She has published 20 research papers and several reviews articles on different aspects of Plant Biotechnology in national and international journal of repute.

Product Description

Advanced Topics in Biotechnology and Plant Biology is a comprehensive survey of the major topics in Biotechnology and plant biology. The book comprises 12 articles, written by experts in their respective disciplines and provides state-of-the-art information. The articles are put in two sections: Biotechnology, and Response of plant to different stresses. The selected articles are most sought after by both researchers and graduate as well as post-graduate students. Each article provides succinct information on central developments in the field and ends with summaries and perspectives for the future. Year 2007 can easily be considered as the turning point for the life sciences industry. The volume starts with an article by Malik, Kaur and Wadwani summarizing notable discoveries for gene engineering with special reference to cold tolerance in maize (Sofi, Rather and Wani). Considering that enzymes have attracted the attention due to their wide range of physiological, analytical and industrial applications. Chandan discusses their microbial production. Meenakshi Banerjee has given concise account of biofilms. Articles 5 by Wani, Sandhu and Gosal discusses Genetic engineering of crop plants for abiotic stress tolerance. Article 6 describes in vitro production of haploids and their utilization in rice, the most important cereal. Kaushik and Toky discuss mortality of agroforestry trees and its management in article 7. Several terrestrial and aquatic plants are known to accumulate toxic metal mercury in their leaves. Understanding the physiological and biochemical mechanisms may provide alternative strategies to adopt measures for purification of soil contaminated with these heavy metals. Shilpa Goel, et al., has discussed the physiological implications of this heavy metal. Humans are exposed to this toxic arsenic primarily from air, food and water. Innumerable people are suffering from the toxic effects of arsenicals in many countries all over the world due to natural groundwater contamination as well as industrial effluent and drainage problems. Article 9 describes Mechanism of arsenic tolerance and hyper accumulation (Madhumita Dash and C.P. Malik). Sanjeev Thind discusses conceptual and metabolic engineering to analyze compartmentation and metabolite fluxes in C3-C4 and C4 plants. The author has discussed carbon dioxide concentration mechanisms which mitigate the oxygenase activity of Rubisco, and potentially improves the efficiency of carboxylation. Nitrogen fixation, Growth and productivity of Legumes in response to Abiotic Stresses have been summarized by Pushp Sharma and Virender Sardana (article 11). Under stress conditions, reduction in biomass production depends on intensity and duration of stress has been recorded. Several parameters have been suggested which could be used in identifying suitable parents for breeding high yielding genotypes under stress environments. Article 12 deals with nitrogen fixation: legume rhizobium physiology. Phytohormones mediated response to nodulation and nitrogen fixation by Pushp Sharma and Poonam Sharma. Authors have endeavored to discuss up-to-date information of their area(s) of expertise and have kindly spared valuable time and knowledge. The information compiled will prove helpful to those interested in biotechnology and stress physiology. The book will serve as an excellent reference material for teachers, research workers, industrialists, biotechnologists and research students in the field of Applied Biology, Botany, Plant Physiology, Plant and Agriculture Science, Plant Breeding, Microbiology, Microbial Technology, Molecular and cellular biology etc.