



Biochemistry and Plant Breeding

Leonard Wilkins

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Biochemistry and Plant Breeding

Plant biochemistry is the study of the chemistry of plants. Plant biochemists study the structure and function of cellular components and chemical reactions that taking place in plants. The tools and techniques of new biology have opened several new and exciting avenues in plant biochemistry. However, these have not been sufficiently tapped by plant scientists, in their rush for cloning, sequencing, tissue culture and transformation. Biochemistry is the study of chemical reactions taking place in living organisms, notably reactions of degradation of food substances which provide the energy required by organisms, and transformation of biosynthesis reactions leading to the formation of compounds needed by the cells. Essentials of Plant Breeding provides comprehensive coverage of principles and practices used in plant breeding. Covering basic concepts of genetics and conventional methods, the book discusses all modern methods and advance techniques of plant breeding. Plant breeding is the process by which humans change the characteristics of plants over time to make them better crops and more nourishing food. In its most simple form, breeding consists of selecting the best plants in a given field, growing them to full seed and then using that seed to grow further generations. This book provides students and researchers in the plant sciences with a concise, up-to-date account of the biochemical basis of the major metabolic processes in plants. The book is also useful for the postgraduate students of botany and plant science.

Contents: 1. Plant Biochemistry and Soils, 2. Mineral Elements and Nutrient Quality in Plants, 3. Photosynthesis and Responses to Light, 4. Plant Metabolism and Nutrition, 5. Substances Across Membranes in Plant Transpiration, 6. Methods of Plant Breeding, 7. Genetic Modification of Plants Breeding, 8. Model of Plant Cell Wall and Tissue Culture, 9. Hybridizing Plants, 10. Technique of Cross-breeding in Plants.

Leonard Wilkins is an agronomist, faculty member at the Federal University of New York in America, and a member of the American Bio-safety Committee. He has Ph.D. degree in plant breeding from the University of Minnesota, USA. He teaches plant breeding, biotechnology and bio-safety courses at Federal University of New York. He is the author of several books related to plant breeding and biochemistry. His books are published in English, Portuguese, Mandarin and Korean and few books are used in ten US colleges and universities. He served as President of the American Society of Plant Breeding and currently is a member of the American National Bio-safety Board. He has authored 290 peer-reviewed papers and 210 abstracts, as well as presented at over 40 internationally invited conferences. He is a peer reviewer for international numerous journals.

