Plant Genes, Genomes and Genetics

Plants genes, genomes, and genetics are three complementary and overlapping disciplines for the comprehensive analysis of agricultural science. These disciplines have contributed greatly towards numerous new concepts and innovations in the production of agricultural plants. The development of different plant varieties with desirable characteristics has been achieved through the application of these disciplines.

Currently, research, learning, and utilization of genes, genomes, and genetic in agricultural fields require a thorough understanding of these disciplines. These disciplines are applied in biochemical, cytological, molecular genetics, transgenic and genomics-assisted plant breeding studies. Many books either individually or jointly covering these disciplines have been written and reviewed to date. Therefore, this book is planned to fill the existing gaps within individual books dedicated to the leading crops and plants with comprehensive deliberations on all the classical, modern, and advanced concepts of depiction and improvement of genes, genomes, and genetics.

The purpose of this book is to examine the role played by genes, genomes, and genetics in agricultural plant production. This book is very useful for all readers. Firstly, to undergraduate students in the field of biological and biochemical sciences. Secondly, this book is aimed at researchers and teachers who would wish to update their knowledge of these disciplines. Thirdly, this book will be used as a reference material for all the students undertaking relevant courses in plant genes, genomes, and genetics. There are ten chapters in this book, and all were comprehensively prepared for the readers to have a glimpse about plant genes, genomes, and genetics. The author paid more emphasis on the simplicity of the content in order to make the book comprehensible and understandable to all readers.

Carlos Tello (Valencia, Spain, 1981) studied Agricultural Engineering with specialization in Biotechnology at the Universidad Politécnica de Valencia, where he graduated with a BSc thesis on the characterization of an Arabidopsis mutant with increased tolerance to seed ageing and salt stress. He moved afterwards to Sevilla to complete his MSc and PhD at the Instituto de Recursos Naturales y Agrobiología, where he studied the mechanisms employed by plants in their adaptation to abiotic stress and more specifically the role of the Arabidopsis Na+/H+ antiporter SOS1 in the regulation of Na+ and K+ homeostasis. Since 2014, he is based in Zürich and develops several freelance science-related jobs. He has recently retrained himself in the field of cell culture in bioreactors by attending an advanced training course at the Zürcher Hochschule für Angewandte Wissenschaften.

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