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BOOK REVIEWS

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Biopharmaceuticals in Plants. Towards the Next Century of Medicine By K. L. Hefferson. Boca Raton, FL, USA: CRC Press/Taylor and Francis Group (2010), pp. 206, £63.99. ISBN-13: 978-1-4398-0474-2.

This book provides an informative introduction for anyone wishing to obtain an overview of the progress being made in different areas of plant biotechnology associated with the development of vaccines and proteins from plants for use as pharmaceuticals. The information is packaged into nine chapters that follow the evolution of the methods used in plant biotechnology. The book covers different scientific challenges that have had to be overcome from the early 1990s when plants such as tobacco started to be transformed to produce vaccines, to the development of transgenic plants that contain novel and modified fatty acids that have the potential to be used in pharmaceuticals as well as paints and dyes.

The emphasis of the book is correctly on the science associated with biotechnology. However, the author does cover concerns that people raise about the development of transformed plants. This includes the challenges of managing the intellectual properties generated by public-private partnerships on biotechnology. To date very few plant-based pharmaceuticals derived from the genetic modification of plants have become commercialized into products. Kathleen Hefferon provides a very informative short review of the regulations that are in place to evaluate and regulate the human and environmental risks associated with the development of GM plants that will have to be overcome if new products are to be sold on the high street. There are many questions that still need to be addressed. This book serves as an excellent introduction to biopharmaceuticals and as a source of references for those wanting more details.

Monique S. J. Simmonds

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Molecular Plant Breeding By Y. Xu. Wallingford, UK: CABI (2010), pp. 734, £125.00. ISBN 978-184593-392-0.

This book is a 'must have' for experienced plant breeders, molecular geneticists and biology students. Its 15 chapters start with a comprehensive introduction covering the scope of the book, providing a useful resource as a brief history and description of the major concepts in molecular breeding. Chapter 2 provides a complete description of genetic markers and then covers a description of genetic linkage mapping. In Chapter 3 the 'omics' tools for assessing genetic variation are described and applications discussed. Populations in genetics and breeding are discussed in Chapter 4 with double haploids, recombinant inbred lines and near-isogenic lines thoroughly discussed, though out-breeding populations are not covered. Plant genetic resources are discussed in Chapter 5 from management and evaluation through to use with some discussion on future prospects for germplasm utilization. Chapter 6 provides a comprehensive theory behind the molecular dissection of complex traits, presenting in a step-by-step approach the statistical basis for QTL mapping, which is followed up in Chapter 7 with this theory put into practice. Chapters 8 and 9 then present the theory and practice for marker-assisted-selection. Ways of assessing genotype-by-environment interactions are discussed in Chapter 10. Chapter 11 describes the isolation and characterization of genes and linkage with phenotypes. Genetic modification protocols through to commercialization are addressed in Chapter 12. Intellectual property and plant variety protection is the subject of Chapter 13. The two final chapters cover bioinformatics and decision support tools which summarize the other chapters in practice.

Julie Graham

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