

The text book is very readable considering the technical issues it addresses. The author did an excellent work of explaining highly technical process using clear English. Most of the issues discussed were given thorough but not overbearing consideration. This book, through the many new ideas, has the potential of bringing issue regarding plant health and food safety to the center stage.

There are instances where long sentences that are amenable to reduction or cutting into shorter sentences appear. Example p5 line #5. Sentences like this appear elsewhere and where possible these need to be shortened. In some areas too, many sentences begin with the word "The". When more than two sentences begin in the same way some level of unintended monotony sets in.

There are areas that need addition of subheadings. Subheadings are needed in areas where solid text extends for several pages without a break. Breaking these into segments would reduce the never-ending-feeling to the reader without loss of information.

Possible confusion: p12, 4th line of 2nd paragraph: "The L chains may be of two types, namely *k* (kappa) and *l* (lambda) chains, but the light chains of any one IgG molecules will be of the same type." The underlined parts of the sentence sound conflicting and needs revision.

All in all, this book is well structured and its overall development is very orderly. The main issues have been developed in a logical manner.

This is a timely book that details traditional and recent or pioneering protocols in use of immunochemical methods in monitoring and detection of viral, bacterial, and fungal plant diseases. In 14 chapters, this book brings together, many highly useful protocols some developed by professor Narayanasamy himself and many selected from writings by experts in the field. This book will prove to be of special interest, and indeed an essential one to postgraduate researchers and established researchers involved in both plant health and food safety. It will be a highly valuable addition to any lab reference collection or departmental library.

I highly recommend this text to postgraduates, beginning researchers and established researchers alike.

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Plant Diversity and Evolution: genotypic and phenotypic variation in higher plants. Robert J. Henry, editor. 2005. ISBN 0-85199-904-2. US \$120 (cloth). *viii* + 332 pages. CABI Publishing: Wallingford.

Biodiversity and evolution of plants often takes a backseat to biodiversity and evolution of animals. This is unfortunate because plants provide rich insights into evolutionary processes and patterns of diversity. It is therefore commendable seeing the new edited volume *Plant Diversity and Evolution*, which contains contributions from molecular, organismal, and ecological perspectives, many of which have a distinctive Aussie flavour (a refreshing change from a literature dominated by Europeans and Americans).

There are some stellar papers in this volume. Wendel and Doyle's chapter on the role of polyploidy in plant evolution is possibly the finest paper that I have seen on this topic. I especially enjoyed their final section on the influence of polyploidy on epigenetic signals, which brilliantly reviews and synthesizes some very new work. Harris's chapter on cell walls, which is appropriately set within an evolutionary framework, is also extraordinary. It is especially commendable that he couched his review within the framework of generally accepted contemporary phylogenies, including that of the Angiosperm Phylogeny Group (APG). The many-authored paper on floral evolution by Soltis *et al.* is also fabulous, albeit at times suffering from having a few too many chefs. Their chapter provides a nice introduction to evo-devo (evolutionary developmental biology) in plants, a subject that can often be unfathomable to non-practitioners, especially because of its unsettled taxonomy of genes and gene families (all with creatively idiosyncratic names and abbreviations). In fact, most of the chapters in this volume are broad in scope, at a minimum covering most flowering plants (okay, I do not understand why the one chapter confined to a single family, Brassicaceae, by Mitchell-Olds *et al.* was included in this volume, even though it was well written). Virtually all chapters provide a nice review of some specific facet of plant diversity, making this volume – or a subset of chapters – an interesting choice for a lower-level graduate text. That's the good news.

Unfortunately, there is too little coherence or consistency in this volume. Other than the title of the volume, I could not ascertain what was supposed to be the scope of the volume or the papers therein. The editor provides no synthesis nor umbrella. There is no stated impetus for this volume, such as possibly a meeting or symposium. There is not even a definition given of the highly normative phrase

'higher plants'. Some authors in this volume only discuss flowering plants; others discuss all seed plants; others discuss all vascular plants; while some others discuss all land plants including bryophytes.

There was also too little structural consistency imposed upon the contributors. There was disturbing lack of consistency in the figures. For example, the chapter on ecological importance of species diversity (Beierkuhnlein & Jentsch) contains absurdly large fonts and characters, while the chapter on evolution of the flower (Soltis *et al.*) contains absurdly small, faint and faded fonts, even including some labels that are upside-down! The one consistent – albeit disconcerting – feature of this volume is that all chapters lack abstracts. Equally disconcerting, many of the chapters also lack conclusions and/or discussions. A small subset of the chapters read like book reports, with no new insights nor interpretations. Fortunately, this lack of consistency also allowed several chapters to really shine, with authors being allowed to stick their necks out in wonderful ways and/or to present more molecular diagrams than there usually would be space for.

As with any volume of this size, there are several minor typographical errors, including by the editor, who disconcertingly misspelled the surname of the famous John Doebley! There were also errors of omission, such as a particularly spartan index. For example, the evolutionarily fascinating phenomenon of pseudogamy was broached in several chapters, but does not appear in the index.

I found the lack of discussion of evo-devo to be conspicuous, except for the chapter on floral evolution by Soltis *et al.* Plant secondary metabolites discussed in the chapter by Waterman and fruit shape and embryo position discussed in the chapter by Mitchell-Olds *et al.* would seem to fit beautifully into an evo-devo framework, especially in light of the recent focus on evo-devo in *Arabidopsis* (Irish & Benfey, 2004) and, to a lesser extent, in all other land plants (Svensson & Engstrom, 2002). As zoologists have realized, evolutionary developmental biology provides a wonderful synthetic link between molecular genetic and the fossil record (Carroll *et al.*, 2005). Thus, the chapter on angiosperm phylogeny by Chase – which asserts that phenotypes should *never* be used in generating phylogenies – is completely contrary to the synthesis that evo-devo biologists are constructing. When will we finally learn that some small genetic (and epigenetic!) changes can have enormous phenotypic effects? Temporal and spatial placement of regulatory transcripts can matter much more than the mere presence or absence of those

transcripts throughout the aggregation of tissues of an organism.

Despite the unevenness and inconsistency within this volume, the good chapters are so good that I am glad to have read through the entire volume. It forces you to think more broadly about plant evolution and realize that people in different subdisciplines may be arriving at conclusions that can steer your own work in interesting directions. But, be prepared to skip through this volume, spending many hours on some chapters and possibly giving up on others after only a few pages. Because of the relatively steep price and the limited number of stellar chapters, botanists and evolutionary biologists should at least recommend that your libraries acquire this volume.

-Root Gorelick, Arizona State University

References Cited:

Carroll, S.B., Grenier, J.K., and Weatherbee, S.D. 2005. *From DNA to diversity: molecular genetics and the evolution of animal design* (2nd edition). Blackwell Publishing, Oxford.

Irish, V.F., and Benfey, P.N. 2004. Beyond *Arabidopsis*: translational biology meets evolutionary developmental biology. *Plant Physiology* **135**: 611-614.

Svensson, M.E., and Engstrom, P. 2002. Closely related ADS-box genes in club moss (*Lycopodium*) show broad expression patterns and are structurally similar to, but phylogenetically distinct from, typical seed plant MADS-box genes. *New Phytologist* **154**: 439-450.

Plant Life of Kentucky: An Illustrated Guide to the Vascular Flora. R.L. Jones. 2005. ISBN 0-8131-2331-3 (hardcover \$75) 834pp. The University Press of Kentucky, Lexington, Kentucky.

In the book's preface, the author states "It has become increasingly obvious in recent years that the state is greatly in need of [a complete flora]." Consider that need filled. With 2,600 species included in the flora and ten years in the making, Dr. Jones's work is substantial in content, quality, and physical size (the book weighs a respectable 1.9kg). He should be commended for the effort involved and the high caliber of the finished product.

The book is divided into two sections – the introductory matter and the taxonomic treatment of Kentucky's plant life. The introduction, comprising just over 10% of the book, includes the general introductory material expected in such a work (such as Kentucky's physical and climatic setting and plant community descriptions), as well as some novel additional material. For example, the author describes quite extensively the history of botany in Kentucky, focusing on key participants in the science.