

## REVIEWS

M. DANIEL: **Medicinal Plants. Chemistry and Properties**. Science Publishers, Enfield, New Hampshire, USA, 2006. xvi, 250 pp. ISBN 1-57808-395-8. Price: GBP 27.70.

This new book on medicinal plants discusses the major chemical compounds present in plants used as medicine and their properties. The compounds are described in simple terms, which means that the reader should have some knowledge of chemistry and chemical terminology. For every major compound some plant species are given as an example. The chemical/medicinal properties are briefly discussed with the compounds and with the selected species.

The book is divided into two parts. Part A: Secondary metabolites discusses Alkaloids, Terpenoids, Phenolics and Gums and Mucilages. Part B: Primary metabolites briefly discusses Carbohydrates, Aminoacids and Proteins, Fatty acids, Triacylglycerols and Glycolipids. Another ordering of the compounds, other useful information and an index is found at the end of the book.

The book may be useful for students of pharmacognosy.

FRITS ADEMA

PETER K. ENDRESS, ULRICH LÜTTGE & BENNO PARTHIER (eds.): **From Plant Taxonomy to Evolutionary Biology – Von der Taxonomie zur Evolution der Pflanzen**. Deutsche Akademie der Naturforscher Leopoldina e.V., Halle, Germany, 2005. 238 pp., illus. ISBN 3-8047-2252-0. Price: EUR 29.95.

This volume of *Nova Acta Leopoldina* (NF 92, nr. 342) contains the report on the Leopoldina Meeting of 2004 (10–12 June) held in Reichelsheim (Odenwald). This meeting was dedicated to C.G.D. Nees von Esenbeck. After a paper on Nees and the Academy Leopoldina (Michael & Parthier, Nees von Esenbeck und die national-akademischen Reformbestrebungen der Leopoldina) and one on developments since Nees (Linder & Barker, From Nees to Now – Changing Questions in the Systematics of the Grass subfamily Danthonioideae) the volume is divided into 4 parts: Phylogeny, Evolution and Diversity in Land Plants and Larger Groups of Angiosperms (3 papers); Diversity and Evolution at Species and Genus Level, Phylogeography (4 papers); Physiology and Evolution (2 papers); and Morphology and Evolution (2 papers). The subjects range from mitochondrial and chloroplast DNA to centres of plant diversity and from larger plant groups to populations on small islands. Together the papers offer a good overview of some of the developments in systematics and phylogeny since the time of Nees von Esenbeck.

FRITS ADEMA

ROBERT J. HENRY (ed.): **Plant Conservation Genetics**. Haworth Press, Inc., Binghamton, NY, 2006. xii, 180 pp. ISBN 978-1-56022-997-1. Price: USD 34.95.

The innocent reader of this book thinking that the papers in it deal with aspects of the conservation of wild plants and their sustainable use will be surprised to find that several papers deal with or discuss examples of agricultural and other domesticated plants. Although conservation of crop plants, land races and wild relatives thereof is an important and valid occupation, one would wish for a book that really deals with the genetic and molecular aspects of conservation of threatened plant species. However,

the techniques and strategies discussed here are of course valid for and applicable to all plant species.

The various chapters of this book deal with plant conservation in *in situ* and *ex situ* situations. They include techniques for *ex situ* conservation, strategies for collecting plant genetic resources for *ex situ* conservation, the role of resources held in seed banks for plant improvement, the role of botanic gardens in conservation, conservation of plant genes and the role of DNA banks, strategies for *in situ* conservation, habitat fragmentation, molecular analysis of plant genetic resources, analysis of nuclear, mitochondrial and chloroplast genomes in plant conservation, genomics and plant biodiversity management. An important aspect of several chapters are the links/references to literature. Although legal aspects of plant collection are mentioned a few times a separate chapter on CITES, permits and other legal aspects would have been welcome.

Plant Conservation Genetics is a good reference book for those who wish for an overview of genetic and molecular aspects of, and techniques and strategies for plant resources conservation.

FRITS ADEMA

ROBERT P. HIRT & DAVID S. HORNER (eds.). **Organelles, Genomes and Eukaryote Phylogeny: An Evolutionary Synthesis in the Age of Genomics**. The Systematics Association Special Volume series 68, CRC Press, 2004. 400 pp., illus. ISBN 0-415-29904-7. Price: USD 99.95 (hardcover).

This volume brings together a fine selection of renowned experts on recent developments in the field of 'deep level' phylogenetic inference of eukaryotes, especially with respect to the origin and evolution of eukaryotic cells and their organelles. It focuses on interpretation of data derived from molecular and cell biology, genome sequencing with respect to the timing and mechanism of eukaryogenesis, and the endosymbiotic events leading to mitochondria and plastids.

After an excellent overview by the editors, the book is divided into three sections: 1) Eukaryote diversity and phylogeny; 2) Phylogenetics and comparative genomics; and 3) Evolutionary cell biology and epigenetics. The first section starts with a contribution by A.G.B. Simpson and A.J. Roger on the Excavata (a putative clade comprising a variety of unicellular organisms with a feeding groove) and the origin of amitochondrial eukaryotes. The latter have usually been regarded as the basal branch of the Eukaryote tree before the endosymbiotic origin of mitochondria. However, there are indications of remnants of mitochondrial DNA, and together with other data this points at parallel secondary losses of mitochondria in these organisms. J.M. Archibald and P.J. Keeling subsequently discuss the evolutionary history of plastids from a molecular phylogenetic perspective. They conclude that all plastids derive from one single primary endosymbiotic event, an ancient symbiosis between a eukaryote and a cyanobacterium, accounting for the plastids in Glaucocystophores, Red algae, and the Viridiplantae (all green plants), which are consequently regarded to comprise a monophyletic clade. All plastids in the variety of other algae groups (including euglenids, dinoflagellates, Brown algae and many others) have resulted from secondary endosymbiosis of a photosynthesizing eukaryote by another eukaryote. At least two independent secondary endosymbiotic events involving green algae and one involving

red algae are hypothesized. The Dinoflagellates are interesting as in this group tertiary endosymbiosis (of an organism with a secondary endosymbiont) or serial secondary endosymbiosis (having the original secondary endosymbiont replaced by another) has occurred. Further contributions in this section are from: T. Cavalier-Smith on Chromalveolate (the major clade comprising i.e. diatoms, brown algae, water molds, ciliates and dinoflagellates) and cell megaevolution, which he discusses as an interplay of topogenic (control) proteins, membranes, genomes and cytoskeleton; E.T. Steenkamp and S.L. Baldauf on the origin and evolution of animals, fungi and their unicellular allies (Opisthokonta) who state that the relationship between fungi and animals is well established, but that a diverse collection of protistan taxa belong to this clade (incl. amoebae and slime molds) as well. The second section starts with a discussion by S. Gribaldo and H. Philippe on Pitfalls in tree reconstruction and the phylogeny of the Eukaryotes, i.e. long-branch attraction, lateral gene transfer, recombination, hidden paralogy, rare genomic events. They state that the universal tree of life is partly affected by tree reconstruction artefacts like the bacterial rooting and the basal position of amitochondriate lineages. Other contributions are on the importance of evolutionary biology to the analysis of genome date (D. Charlesworth), on eukaryotic phylogeny in the age of genomics and especially evolutionary implications of functional differences (J.W. Stiller), on genome phylogenies (R.L. Charlebois, R.G. Beiko & M.A. Ragan; concluding that genomes are suitable proxies for the organisms that contain them), on genomics of microbial parasites (G. Méténier & C.P. Vivarès), and on the evolutionary contribution of plastid genes to plant nuclear genomes and its effect on the composition of the proteomes of all cellular compartments (D. Leister & A. Schneider; discussing the loss and integration of the cyanobacterial genome and its functional implications). The third section comprises contributions on the protein translocations machinery in chloroplasts and mitochondria (H. Fulgosi, J. Soll & M. Inaba-Sulpice), on mitosomes, hydrogynosomes and mitochondria (M. van der Giezen & J. Tovar), on the endomembrane system and cell evolution (J.B. Dacks & M.C. Field), on the membranome and membrane heredity in development and evolution (T. Cavalier-Smith), and on epigenetic inheritance and evolutionary adaptation (C. Pál & L.D. Hurst).

My main interest is more on the first section than on the other two sections, and for that section I was really impressed by the quality of the contributions and the fine state of the art that is presented regarding the basal part of the eukaryote tree. I therefore strongly recommend this book to all who want to have an update on the phylogeny of eukaryotes, the phylogenetic aspects of endosymbiosis and the reconstruction of deep phylogenies using molecular data and genomic information.

M.C. ROOS

D.L. JONES, T. HOPLEY, S.M. DUFFY, K.J. RICHARDS, M.A. CLEMENTS & X. ZHANG: **Australian Orchid Genera: An Information and Identification System**. CD-ROM. Centre for Plant Biodiversity Research, 2006. ISBN 0-64309-336-2. Price: AUD 120.

This CD-ROM left me with mixed feelings. It is an interactive identification and information system, with the identification module using the well-known LUCID software. The information is organised in a large number of 'fact sheets', one for each genus. Each sheet, essentially a web-page, provides access to a description, a list of

species, notes on various topics (e.g., ecology, taxonomy, biology), a distribution map, and a representative selection of images. The key is a pleasure to use; every possible choice is illustrated, you can choose between various character sets, you can ask for the best separating character at any time, and you can easily modify the error tolerance. The information content in the fact sheets is high. It all makes a thorough and professional impression. But ... But, to put it as mildly as I can, the taxonomy used is idiosyncratic. This can already be deduced from the following figures: In 1988 some 680 orchid species were known from Australia, distributed over 107 genera. According to this CD-ROM there are at present, less than twenty years later, about 1250 species in 192 genera. This almost miraculous increase is to a very large extent due to the splitting up of existing genera and of raising local varieties to specific rank. As a result the genus *Bulbophyllum* has suddenly ceased to occur in Australia, while of *Dendrobium*, previously represented by about 70 species, only a single one is left. These are admittedly large and polymorphic genera. But how about *Corybas* and *Pterostylis*? These two genera are not overly large, easily recognised, and clearly monophyletic in their traditional circumscription. Now they are split up into 8 and 16 genera respectively, which can be keyed out only with difficulty, often using a single and rather weak character. This is supposedly the result of phylogenetic studies based on molecular data, at least that is the argument provided in the introduction. But we all know that the genus concept is even more problematic than the infamous 'species problem'. No cladogram, whatever the underlying data source, in itself prescribes the ranks that should be assigned to the various clades. I cannot help feeling that the wonderful tool of molecular data analysis is here abused in a way that considerably lowers my appreciation for this otherwise admirable CD-ROM.

ANDRÉ SCHUITEMAN

P.M. MCCARTHY (ed.): **Flora of Australia. Volume 51, Mosses 1**. ABRIS, Canberra & CSIRO Publishing, Melbourne, 2006. 472 pp., illus., colour photographs. ISBN 0-643-09240-4 (hardcover), 0-643-09241-2 (paperback). Price: AUD 120 (hardcover), AUD 99 (paperback). Available from <http://www.publish.csiro.au/> and in Europe from Eurospan: [eurospan@turpin-distribution.com](mailto:eurospan@turpin-distribution.com).

This new volume of the Flora of Australia is the first of three volumes intended to document the mosses of Australia and its island territories. Introductory chapters include a history of research on Australian mosses and an introduction to mosses, both written by H.P. Ramsay, a description of the fossil record of bryophytes by G.J. Jordan, and a key to the genera of Australian mosses prepared by W.R. Buck and D.H. Vitt. Seventeen authors have contributed to the main part of the book, which consists of treatments of 22 families, with keys, descriptions, data on distribution and published illustrations, various notes relating to genera and species, and maps showing the Australian distribution of the species (grouped together after the last family treated). Many treatments are based on previously published revisions. After these treatments and maps one finds an appendix with new taxa, new combinations and lectotypifications, a glossary by H.P. Ramsay, a list of abbreviations and contractions used, and an index. The largest families are Bryaceae with 54 species, Orthotrichaceae (42) and Bartramiaceae (24).

The original intention has been that families would follow a strict systematic arrangement as regards the volumes in which they would be published. Recently, this

plan has been abandoned, because it led to an inordinately long delay of the publication of the first volume. It now contains material that has been in house for many years, together with more recent manuscripts such as the treatment of the Bryaceae by J.R. Spence and H.P. Ramsay which includes many names and combinations that Spence published as new in 2005.

We noticed some omissions or mistakes in text, glossary and index, but these do not diminish the usefulness of this flora. It is regrettable that the editor overlooked to mention the deceased authors D.G. Catcheside, J. Lewinsky-Haapasaari and I.G. Stone in the list of authors, but our only serious criticism relates to the analytic illustrations which are presented for half of the species only. Twenty-three genera out of 56 are not at all illustrated. This is incomprehensible, particularly since many illustrations might have been copied from other publications by the authors. Under each species references are given to illustrations published in scattered and sometimes rare literature, but this is poor service to users without access to a rich bryological library. Nevertheless, we pay our compliments to the editor and the authors for completing this job which has been a burden for many years. For Australian bryology this is a great step forward, and with high expectations we look forward to the forthcoming volumes.

Some insufficiently known species of *Andreaea*, *Archidium*, and *Breutelia* have been left unnamed and are indicated by a letter (sp. A, etc.). This shows that much bryological exploration and research remains to be done in Australia. May many bryologists feel stimulated to contribute!

M.J.H. KORTSELIUS & A. TOUW

T.S. NAYAR, A. RASIYA BEEGAM, N. MOHANAN & G. RAJKUMAR: **Flowering plants of Kerala**. Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala, India, 2006. x, 1069 pp. ISBN 81-900397-6-8. Price: USD 95, Rs 1500.

Kerala is a state along the coast of SW India, about 656 km long and 32–120 km wide, thus c. 39,863 km<sup>2</sup> (The Netherlands is 41,526) and only 1.18% of the land area of continental India. It ranges from the seacoast to part of the Western Ghats (more than 600 m alt.). The lowlands are heavily cultivated, especially with rice fields and coconut groves, but there are strips of mangrove along the coast, and *Myristica malabarica* swamps in some valleys; 28.63% was still covered by forest in 2005. Notwithstanding its relative small size, in this hefty tome (c. 2 kg!) 4681 species and 345 infraspecific taxa of angiosperms (so not all ‘flowering plants’) are enumerated (The Netherlands has about 1300). They belong to 1415 genera in 188 families. They are arranged by dicots and monocots and within these groups alphabetically by family, genus and species. For the families brief diagnostic descriptions are provided. The use of these is not really relevant, while it must have taken a lot of effort to compose them. In the headlines to the pages the generic name is given; it would have been useful for easy retrieval if the family name had also been given. For each taxon very concisely its correct (‘legitimate’) name is given, followed by the more common synonyms with references to where these were used, its life form, one or more references to descriptions and illustrations (if any), its general world distribution, the one in India, and that in Kerala in particular, sometimes frequency, flowering and fruiting times, uses, and vernacular (Malayan) names. At the end of each family species that are cultivated are

enumerated. A special chapter is dedicated to species of doubtful occurrence in the state and one to excluded species. The authors have not always been consequent, for surely *Eragrostis tef* is an introduction from East Africa. Cultivated and planted (what is the difference?) species are listed at the end of each family. It would have been easier if they had been listed in the general account with some special mark to indicate their status. A main chapter is dedicated to species mentioned for the area, but here excluded. The literature references are not in an alphabetical order, the reason for this arrangement is not clear to me. Finally, there are indices to scientific and vernacular names.

Not familiar with the Kerala flora I can only comment on some taxa that I know a little about. Remarkably, the Avertroaceae are accepted, while it has long been known that these are woody Oxalidaceae. Of the Asteraceae *Adenostemma macrophyllum* is *A. lavenia*, *Blumea bifoliata* does not occur in Malesia ('Malaysia'), the name has been misapplied to *B. amplexens* and *B. axillaris* (which includes *B. mollis*), *Emilia javanica* is *E. sonchifolia* var. *sagittata*, *Gnaphalium luteoalbum* is *Pseudognaphalium luteoalbum*, *Laggera pterodonta* is *L. crispata*, *Notonia grandiflora* is *Kleinia grandiflora*, the Indian species of *Spilanthes* here enumerated have been transferred to *Acmella*, while *S. calva* is *Acmella paniculata*, *Vernonia albicans* is *V. cinerea* var. *parviflora*, *V. elaeagnifolia* is *V. elliptica*, *Vicoa* is *Pentenema*, *Wedelia chinensis* is *Sphagneticola chinensis*, *W. trilobata* is *S. trilobata*, *Wollastonia biflora* is *Melanthera biflora*. As for the grasses all but one of the genus *Brachiaria* belong to *Urochloa*, while *B. eruciformis* should be called *Moorochloa eruciformis*, *B. miliiformis* is a synonym of *U. subquadripara*, *B. paspaloides* is *U. glumaris*, *Chionachne koenigii* is *C. gigantea*, *Chloris dolichostachya* is *Enteropogon dolichostachyus*, *Coelachne simpliciuscula* is *C. infirma*, *Coix gigantea* is *C. lingulata*, *Cynodon arcuatus* is *C. radiatus*, *Panicum muricatum* is *C. patens*, *Diplachne* is *Leptochloa*, *Eragrostis burmanica* is *E. luzoniensis*, *E. diplachnoides* is a variety of *E. namaquensis*, I fail to see a difference between *E. tenella* and *E. viscosa*, *E. zeylanica* is *E. brownii*, *Hackelochloa* is *Mnesithea*, *Hymenachne acutigluma* is *H. amplexicaulis*, *Ichnanthus vicinus* is *I. pallens*, *Isachne dispar* is *I. pulchella*, while the *I. pulchella* as used here probably is *I. minutula*, *Ischaemum indicum* is a misapplied name to *I. ciliare*, and actually a synonym of *Polytrias indica* which is not listed here, but I suspect occurs as a lawn grass, *Leptaspis urceolata* belongs to *Scrotochloa*, *Microstegium ciliatum* is *M. fasciculatum*, *Oplismenus undulatifolius* is at most a variety of *O. hirtellus*, *Panicum psilopodium* is *P. sumatrense*, *P. trypheron* is *P. curviflorum*, *P. walense* is *P. humile*, *Paspalidium* is best included in *Setaria*, *Pennisetum americanum* is *P. glaucum*, *Phragmites karka* is *P. vallatoria*, I fail to separate *Pogonatherum crinitum* from *P. paniceum* (the first is then the correct name), *Rhynchelytrum repens* is *Melinis repens*, *Setaria plicata* is *S. palmifolia* var. *blepharoneuron*, *S. pumila* and *S. pallidifusca* are two distinct taxa, the latter should be called *S. parviflora*, *Soporobolus indicus* var. *diander* is var. *flaccidus*, and var. *fertilis* is var. *major*, *Thysanolaena maxima* is *T. latifolia*, *Vetiveria* cannot be distinguished from *Chrysopogon*, etc. I doubt the inclusion of *Eragrostis cumingii* for the area, the nearest localities that have come to my attention are Bhutan and Myanmar. More likely it is *E. brownii*. The occurrence of *Pseudanthistiria burmanica* is rather a surprise, I thought it was only known from the type from Myanmar, a long way off. *Sorghum arundinaceum* is not an Indian endemic, but comes from Africa and has been introduced elsewhere.

It may be noted that here the use of Malaysian Archipelago, Malaysia, and Malesia pertain to the same thing: Malesia.

Nevertheless these small criticisms, this is a very valuable base for (hopefully) a flora for this state with so many very special species, very much worth to make an ecotour to see them.

J.F. VELDKAMP

MONIKA SHAFFER-FEHRE (ed.): **A Revised Handbook to the Flora of Ceylon. Volume XV, Part B. Ferns & Fern-allies.** Science Publishers, Enfield, New Hampshire, USA, 2006. xxix, 305 pp. ISBN 1-27808-410-5. Price: USD 89.95.

This new volume of the Flora of Ceylon contains the second part of the treatment of the ferns and fern-allies. As far as we are aware of the first part with the families A–P has still to appear. A slight change to the strict alphabetical order of the families was made: Part B includes Polypodiaceae instead of Psilotaceae as is given in the introduction. Part B includes the families: Polypodiaceae (by P. Hovenkamp), Pteridaceae (by C.R. Fraser-Jenkins, B. Verdcourt & T.G. Walker), Salviniaceae (by J.M. Ide), Schizaeaceae (by D. Philcox), Selaginellaceae (by D. Philcox), Thelypteridaceae (by M. Shaffer-Fehre), Vittariaceae (by M. Shaffer-Fehre) and Woodsiaceae (by M.J. Zink). After the introduction, which includes a list of families in ‘taxonomical’ order with alternative names for families and genera, follows a key to the fern and fern-allies of Sri Lanka. This is followed by the treatment of the families in alphabetical order. Each family treatment includes: family description, key to the genera, genus description, key to the species, species descriptions. All descriptions include accepted names and synonyms. The species descriptions include also lists of specimens examined. Depending on author, family of ferns and available material the descriptions are brief to quite long, but always adequate.

A useful addition to the fern literature.

FRITS ADEMA

MICHAEL G. SIMPSON: **Plant Systematics.** Elsevier Academic Press, Burlington, MA, 2006. xi, 590 pp., (colour) illus. ISBN 0-12-644460-9. Price: USD 69.95.

In the set of similarly titled textbooks this ‘Plant Systematics’ is the most recent and probably the best. Simpson clearly places plant systematics in the wider context of plant biology and the book provides a good overview of several subdisciplines of plant biology apart from plant systematics in the strict sense. All modern insights in systematics, evolution and speciation are discussed.

The book is divided into several units. Unit I, Systematics, is an introduction to plants and systematics and gives definitions, relationships, classification and importance of plants, and concepts and principles of systematics in Chapter 1. Chapter 2 discusses phylogenetic systematics in more detail, and explains the theory and methodology of producing phylogenetic trees. The main part of the book is formed by Unit II, Evolution and Diversity of Plants. In twelve chapters it discusses in detail the characteristics and classification of plants from green algae to Dipsacales following modern insights in the origin of green plants and the present state of the art APG system for Angiosperms. It includes full descriptions of the most important families of plants. Unit III, Systematic evidence and Descriptive Terminology, discusses the daily work of systematists. What

do you describe in plants and how do you describe plants and their parts. It discusses tools from the naked eye to scanning electron microscopes to DNA sequences. It also gives the terminology to use including amongst others an annotated and illustrated glossary. Unit IV, Resources in Plant Systematics, discusses topics like identification, nomenclature, collecting, herbaria, etc. Plant Systematics is a textbook for undergraduates, graduates and their teachers and all chapters and units end with questions, exercises, further reading (references) and useful websites. The book is concluded by three appendices and a glossary.

Plant Systematics is a well-designed, amply illustrated book. The many black-and-white drawings and colour photographs very well illustrate the many aspects of plant systematics, showing a myriad of characters in fine detail.

I heartily recommend this book to students, teachers of botany, systematists, as well as other people interested in plants and plant systematics.

FRITS ADEMA

C.G.N. TURNBULL (ed.): **Plant Architecture and its Manipulation. Annual Plant Reviews, Vol. 17.** 2005. 336 pp., illus. ISBN 1-4051-2128-9. Price: GBP 110.

Plant architecture specifies both form and function, and nowadays embraces genetic, chemical and environmental factors as well as the plasticity of plant development. Manipulation of plant architecture has been one of the greatest mainstays of plant improvement, from simple pruning to high-tech genetic regulation of stem growth.

The chapters provide a broad coverage of our current understanding of plant architecture and its manipulation, ranging from the architecture of the individual cell to that of the whole plant.

Chapter 1 (Cellular architecture – regulation of cell size, cell shape, and organ initiation, A. Fleming) explores the intercellular processes. Chapters 2 (Leaf architecture – regulation of leaf position, shape, and internal structure, J. Kang & N.G. Dengler), 3 (Shoot architecture I – regulation of stem length, J.J. Ross et al.) and 4 (Shoot architecture II – control of branching, C.G.N. Turnbull) detail the structure and regulation of vegetative shoot systems, from the linear extension processes of shoot elongation to the efficient development of planar leaves and 3-dimensional branching patterns. Phyllotaxis is discussed at length as well as the molecular regulation of e.g. simple and compound leaves and stomate patterns. Substantial attention is paid to the role of hormones in plant growth, and to the mechanisms controlling branching patterns. Chapter 7 (Root architecture, J. López-Bucio et al.) succinctly presents the root version of these aspects. Chapter 5 (Floral architecture – regulation and diversity of floral shape and pattern, E.M. Kramer) moves to the reproductive phases of the shoot development, contrasting the highly conserved ordering of floral parts with the diversity of final flower structures. In a thorough overview, the genetic control of floral phyllotaxy, merosity, symmetry and organ identity is discussed in an evolutionary context, with special attention for the significance of gene duplication and patterns (i.e. shifts) in gene expression. Chapter 6 (Inflorescence architecture, A.M. Bhatt) deals with the genetic regulation of the diversity of inflorescence arrays, and provides i.e. extensive lists of inflorescence mutants. Chapter 8 (Woody tree architecture, F. Sterck) turns to the woody plants. The mechanisms and constraints of architectural tree models and reiteration are discussed. Chapter 9 (Plant architecture modelling – virtual plants and



complex systems, C. Godin) presents a rather technical discussion of modelling plant architecture. The last chapter, no. 10 (Applications of plant architecture, N. Battey) rounds off the volume with a perspective on applications of the manipulation and control of plant architecture in horticultural and agricultural contexts.

The book presents a fine, state-of-the-art overview of the evo-devo aspects of all parts of the plant body. It is directed at researchers and professionals in plant physiology, developmental biology, molecular biology, genetics and biotechnology. However, also systematists can find much of interest for better understanding of the morphology of their taxa.

M.C. ROOS

**BEN-ERIK VAN WYK & MICHAEL WINK: Medicinal Plants of the World.** Briza Publications, Pretoria, South Africa, 2004. 480 pp., colour illus. ISBN 1-875093-44-3. Price: GBP 25.

This book on medicinal plants gives an overview of the world's most important medicinal plants and their uses and properties. The main part of the volume is formed by a discussion of 322 species, alphabetically arranged by the scientific genus names. Each page-long discussion gives: scientific and common names (English, French, German, Italian, Spanish), several colour photographs, a brief description, place of origin and (secondary) distribution, parts used, therapeutic category, uses and properties, preparation and dosage, active ingredients, pharmacological effects and status, where needed notes and warnings on negative side effects are added. This main part is preceded by some short chapters on general aspects of medicinal plants: medicine systems of the world, plant parts used, dosage forms, use of medicinal plant products, active ingredients, quality, safety and efficacy of medicinal plant products and regulations of herbal remedies and phytomedicines. The species treatments are followed by chapters on health disorders and medicinal plants, an overview of secondary metabolites and their effects, a quick guide to commercialised medicinal plants, a glossary and an index.

Although the book starts off with an important warning not to use it as a guide to self-diagnosis and self-treatment, the information it contains invites one to do just that. So, to paraphrase the authors: Don't try this at home!

As far as a quick reading for this review permits I conclude that this book contains a wealth of information about medicinal plants and their uses. I recommend *Medicinal Plants of the World* to all with an interest in medicinal plants and their uses.

FRITS ADEMA