

## REVIEWS

LAURA BARSATI & PAOLO GUALTIERI: **Algae: anatomy, biochemistry, and biotechnology.** CRC Press / Taylor & Francis Group, LLC, 2006. 301 pp., 188 text figures. ISBN 978-0-8493-1467-4. Price: EUR 119.95.

The authors state that an exhausting review on ‘all things algae’ would require a multi-volume encyclopaedic work. “However”, they proceed, “the new book offers students in phycology a more practical and useful approach”. Instead of trying to cover everything in these pages, the authors concentrate on highlighting interesting and illuminating topics, with the idea of inciting the sort of wonder and curiosity that “will encourage further outstanding research”. The book is meant to cover freshwater, marine, and terrestrial algae, but freshwater algae gets most attention and that also is within the expertise of the authors.

The first chapter presents an overview of the classification of all algae (up to class level), mainly based on the work of Van den Hoek et al. (1995) and of Graham & Wilcox (2000). No reasons are given why these books have been chosen, or why the authors of the present volume accept this classification. Other sections in Chapter 1, however, are about the structure of the thallus (unicells, colonies, filaments, siphonous algae and more complex structures), nutrition (trophic status), reproduction and life cycles, resulting in summaries on the ten algal divisions accepted in this book (although one can count 11 algal divisions in Table 1.1 and 1.4 as well as in the summaries). Here it is stated that the phylogenetic reconstruction adopted in the book is intended to be more or less speculative, although “all the studies that compare the sequence of macromolecules genes (sic!) and the 5S, 18S, and 28S ribosomal RNA sequences tend to assess the internal genetic coherence of the divisions that were accepted in this book”. However, the explanation of the process of classification is very scanty and from Table 1.4 one can learn that apparently the main characteristics of the divisions are pigments and storage products, although many other characters have been recorded in an historical context. This may be done on purpose, because the authors state that “their treatment of many topics was going to be superficial and that they have tried to highlight those things that they found interesting, sacrificing completeness in so doing”. “It is all too easy”, the authors state, “when reviewing an intricate field to give a student new to the area the feeling that everything is now known about the subject. We would like this book to have exactly the reverse effect on the reader, stimulating by deliberately leaving more doors ajar, so as to let new ideas spring to mind by the end of each chapter”. The reader of this review cannot check if the strategy of the authors will succeed, but the reviewer tends to have doubts about that.

When we proceed with the contents of the book, Chapter 2 is on anatomy. A mysterious sentence is “levels of organization are examined from the subcellular, cellular, and morphological standpoints”. It was not possible to find that, although the contents of this Chapter 2 are acceptable, not only containing anatomical data, but also data on the physiology of swimming, and photoreception. Chapter 3 is mainly a general text on photosynthesis, with some additional data on algae. This is not needed in a specialized book on algae. However, Chapter 4 on the biogeochemical role of algae is very relevant. Here the role of matter and energy in the four different components of the earth (atmosphere, hydrosphere, lithosphere and biosphere) is reviewed and discussed.

But what about geosphere? That name is used in the text of Chapter 4, but it is not explained (there is no glossary and ‘geosphere’ is not in the index). On the other hand one would expect to hear something about ‘Gaia’ here, but not such a thing is available. There are sections on limiting nutrients and on algae and different cycles (phosphorus, nitrogen, silica, sulphur and oxygen/carbon cycle). Under the nitrogen cycle there is some talk of organic and anorganic ‘species’. Why not sort, kind, or category? ‘Species’ seems confusing here. And why is there only a discussion about the phosphorus cycle in fresh water, but not about the one in the sea? This is the only chapter that is related to ‘biochemistry’ as used in the title of the book. Is that clever? Chapter 5 is on working with light. This again seems to be mainly a general text on that topic, without many additional data related to algae. Seems superfluous. The Chapters 6 (Algal culturing) and 7 (Algae and men) provides where the book was written for: to provide up-to-date (but selected) information on interesting topics.

The Chapters 3–7 provide addresses of websites that can be interesting for the different topics. Why not also for Chapters 1 and 2? Is it acceptable that in a book like this addresses like those of AlgaeBase, Algal-L, or Index Nominum Algarum are not mentioned? Even when one deliberately tries not to be complete, this is incredible. What to think of the format and the objectives for this book. The reviewer is afraid that this book, without any colour print and with many nice but old-fashioned pointillated drawings, will not stimulate students to do more than very superficial reading when not forced to use it for compulsory study. It will not popularize or stimulate phycology in the student’s world. And that certainly is a pity, for there is much interesting stuff in this book, that has to be bought and read by at least all professional phycologists.

WILLEM F. PRUD'HOMME VAN REINE

NATALIA DUDAREVA & ERAN PICHERSKY (eds.): **Biology of Floral Scent**. CRC Press, Taylor & Francis Group, LLC, Boca Raton, Florida, USA, 2006. xiii + 346 pp., illus. ISBN 0-8493-2283-9. Price: GBP 85 (USD 149.75).

Fragrance of flowers is one of the most important agents in the interaction of plants and animals. Flower visitors, nectar feeders and pollinators alike, are mostly at first attracted, sometimes over long distances, by the smell of the flowers. Humans have also a longstanding interest in flower fragrancy. Biology of Floral Scent is the very first comprehensive overview of floral scent, its composition and some of the genes involved in the production of scent compounds.

Biology of Floral Scent is divided into five parts dealing with the chemistry, biochemistry, molecular biology, cell biology and physiology, with plant-insect interaction, pollination ecology and commercial aspects of floral scent. Section 1: Chemistry of floral scent contains two chapters dealing with the detection and identification of scent compounds and their chemical diversity. Several extraction methods and chemical/physical identification tools are briefly discussed. An enormous amount of scent compounds is introduced. Section 2: Biochemistry and molecular biology of floral scent discusses biosynthesis and metabolic pathways. The last chapter of this section introduces a genomics approach to the identification of the genes of floral scent in roses. Section 3: Cell biology and Physiology of floral scent discusses where floral scent is produced and where the compounds are released, including so-called floral scent glands (‘osmophores’). Section 4: Plant-Insect interaction and Pollination ecology is with

6 chapters by far the largest section of the book. Here the relation between floral scent and various types of flower visitors (nectar foragers and pollinators) are discussed: Who are attracted and why. Section 5: Commercial aspects of floral scent discusses bioengineering of certain biological pathways aiming at enhancing scent production or restoring scent in plants that through selection have lost their scent. The aim is, of course, to get better commercial results.

People with an interest in fragrancy, perfumes, etc. will find several interesting papers in this book.

FRITS ADEMA

LINDA E. GRAHAM, JAMES M. GRAHAM & LEE W. WILCOX: **Plant Biology**. 2nd ed. Pearson Education, Inc., Upper Saddle River, New Jersey, 2006. xxix, 670 pp., colour illus. ISBN 0-13-145906-1. Price: USD 63.95.

Plant Biology is a text book for teacher and student alike. As such it tries to cover the whole of plant biology from cells to plant communities, from molecules to 'plant behaviour' and plant/animal interactions. As can be seen from the introduction and several other chapters plants are here taken in a wide definition including Protokaryotes, Protists and Fungi. After the introduction, that tells what plants are and what the book is all about, the various fields of research have been combined into groups (parts) of ± related subjects. Part 2 covers plant structure and function; Part 3 plant reproduction, genetics, and evolution; Part 4 diversity of plants, prokaryotes, protists, and fungi; Part 5 ecology and plant adaptations to the environment. As the book covers an enormous amount of topics the individual treatments are of course brief; however, as a whole Plant Biology is a very good introduction on the biology of plants. Being a student's textbook each chapter ends with a number of questions (answers at the end of the book). Indices and lists of references are included.

In brief: This very well-designed and illustrated book holds a wealth of information useful not only for student and teacher, but also for interested amateurs.

FRITS ADEMA

R.J. JOHNS, P.J. EDWARDS, T.M.A. UTTERIDGE & H.C.F. HOPKINS: **A guide to the Alpine and Subalpine flora of Mount Jaya**. Kew Publishing, Royal Botanic Gardens, Kew, 2006. 653 pp., (colour) illus. ISBN 1-84246-057-9. Price: GBP 85, USD 155.55.

Local floras of parts of the Flora Malesiana area are rare and old. The publication of a new local flora, even this one of a very small area of New Guinea, is a complimentary event. This guide describes the high mountain flora of Mount Jaya in the province of Papua, Indonesia. The Mount Jaya project, which is the basis for this flora, is described in the introduction, including notes on the collection sites. This part is illustrated by colour photographs of collection sites and of plants in situ. The next chapter describes the environment: geology, climate, vegetation. Although the introductory chapters are short they offer enough information about the area. These two chapters are followed by the treatments of the families named, at p. 8, a checklist. This means that no family or genus description and no keys to families, genera and species are given. The species treatments, however, include names and synonyms, a short but adequate description, notes on ecology and distribution, and a list of specimens seen. Most of the genera are illustrated by at least one pen and ink drawing.

Although this book may be, by the lack of keys, a bit hard to use as a flora, the information it offers is interesting and useful. The whole is well written, amply illustrated and well produced. We recommend 'A guide to the Alpine and Subalpine flora of Mount Jaya' to all interested in tropical mountain floras or alpine plants. Congratulations to the authors.

FRITS ADEMA

ROB KESSELER & WOLFGANG STUPPY: **Seeds. Time capsules of Life.** Papadakis Publisher, London, Royal Botanic Gardens, Kew, 2006. 264 pp., colour illus. ISBN 1-901092-66-6. Price: GBP 35. E-mail: alex@papadakis.net

This coffee-table book, at least by size!, describes and illustrates the main plant dispersal unit: the seed. It has strong connections with The Millennium Seed Bank Project of the Royal Botanic Gardens, Kew. Aptly subtitled: Time capsules of Life this book discusses all aspects of seeds (and similar dispersal units) from germination of seeds to seeds again. Sections deal with life cycles, flower structure, pollination and fertilization, fruits, seeds and embryos. Useful discussions and definitions of fruit types, modes of dispersal, function of seed appendages and sculpture of seed surfaces are included. Separate chapters deal with the Millennium Seed Bank Project and with a comparison of architectural shapes with fruit and seed shapes. The book is profusely illustrated by colour photographs and coloured SEM-micrographs, and some colour drawings. The colours of the SEM-micrographs are, as the authors explain, not the true colours but often chosen inspired by the colours of the flowers which produced the seeds. A glossary and an index of names conclude the volume.

Seeds. Time capsule of Life is a very impressive book, as a work of science as well as a work of art! It is very well written, beautifully illustrated and very well produced. Congratulations to the authors and publishers. I recommend this book to all botanists, scientists and amateurs alike. The price is more than right!

FRITS ADEMA

AXEL DALBERG POULSEN: ***Etlingera* of Borneo.** Natural History Publications (Borneo), Kota Kinabalu, Sabah, Royal Botanic Garden Edinburgh, 2006. 263 pp., colour photographs, pen and ink drawings. ISBN 983-812-117-7. Price: RM 180 or USD 49 (without postage).

Axel Poulsen is one of the foremost experts on Zingiberaceae. *Etlingera* is one of his specialisms. He has assembled his great knowledge of this genus for the Island of Borneo in a magnificent book, gorgeously illustrated by a great number of colour photographs.

After a brief introduction, Chapter 2 describes the plant, several of the important characters, and special terminology. Illustrations include drawings of flower parts, indicating the way they are measured, SEM-micrographs of hairs, pollen grains and stigmas. This is followed by a chapter on *Etlingera* in Borneo, including a map of all collections, notes on ecology with pictures of one of the pollinators, speciation, ethnobotany and conservation status. The introductory chapters are concluded by Chapter 4 Materials and Methods. This chapter is followed by a key to the species which starts off the main part of the book: The Species. In this part 42 taxa are described and illustrated. Several of the species are new to science and here described for the first

time. The older species are provided with names, synonyms and literature. All species treatments include a comprehensive, precise description, notes on local names, uses, ecology, distribution, conservation status, and a list of specimens studied. Each species is illustrated by several very good colour photographs, pen and ink drawings and a map.

*Etingera* of Borneo is an impressive book that should attract all ginger lovers and other botanists. Well meant congratulations to the author.

FRITS ADEMA

J. PROSPERI, B.R. RAMESH, P. GRARD, S. ARAVAJY & D. DEPOMMIER: **Mangroves V1.0. A multimedia identification system of Mangrove species.** CD-ROM. IFP/CIRAD, 2005. ISBN 2-87614-589-8. Price: Rs 300 (EUR 11).

Mangroves V1.0 is a CD-ROM with an interactive key to 50 species of mangrove plants of SE India and Sri Lanka. One should read the accompanying booklet carefully before starting operating this CD. The booklet explains what to do and what to expect. The CD-ROM starts directly with the first screen of the identification toolkit. By just clicking on any indicated part (roots, (parts of) leaves, flowers, fruits) you will get to a screen to choose the right shape or quality, after validation you can return to the first screen and select another character. At every entered choice the number of taxa remaining with the percentage of the score is indicated at the lower right hand corner of the screen. If you have finally reached an identification (one or two species) you can view the results by clicking on 'results' or by asking for results by way of 'View' of the toolbar. The results give you the name(s) of the species, several colour photographs and descriptions. It is an easy-to-handle interactive key, that quickly leads to results.

FRITS ADEMA

LUKE SWEEDMAN & DAVID MERRITT (eds.): **Australian Seeds. A Guide to their Collection, Identification and Biology.** CSIRO Publishing, 2006. 258 pp., (colour) illus. ISBN 0-643-09132-7. Price: AUD 99.95.

After reading and reviewing the impressive book 'Seeds. Time capsules of Life' of Kesseler & Stuppy (see p. 601) it was difficult to review a book that covers, at least in part, the same subject. Luckily, however, the subject seeds is in 'Australian Seeds' taken from a totally different point of view. Australian Seeds is meant as a guide both for collecting, storing and conserving seeds as well as for the identification of seeds. After the introduction and chapters on seeds through time, seed and fruit structure, and biology and ecology of seeds the main chapters deal with collecting and storing of seeds. The central part of the book is formed by Chapter 9 'A photographic guide'. This chapter contains photographs of seeds of c. 1250 species ordered alphabetically by genus and species name. Identification should be done by comparison as no other tool, interactive or not, is offered. Mention is made of collecting a voucher specimen, when in doubt of the identification. However, it should have been better if the need to collect voucher specimens from the same plants from which the seeds are collected was given more attention. Any confusion later on may be prevented in that way.

Australian Seeds is an important book for people with interests in seed banking, seed collecting and habitat restoring.

FRITS ADEMA