

FREY, W. (ed.) 2016. Syllabus of Plant Families. – A. Engler’s Syllabus der Pflanzenfamilien. 13th ed. 1/2 Ascomycota. – Stuttgart: Gebrüder Borntraeger Verlagsbuchhandlung. – 322 Seiten. Hardcover. – ISBN 978-3-443-01089-8. – Price: EUR 119.-

In 2009, Wolfgang Frey started with the editorship of the 13th edition of Adolf Engler’s famous survey of the plant kingdom „Syllabus der Pflanzenfamilien/Syllabus of Plant Families“, for the first time in English. Although fungi are no longer part of the Plant Kingdom, they are included traditionally and formally with the classic Engler’s title. The first volume of the new edition published was Part 3 “Bryophytes and seedless Vascular Plants” (ferns and fern allies), followed in 2012 by Part 1/1 “Blue-green Algae, Myxomycetes and Myxomycete-like organisms, Phytoparasitic protists, Heterotrophic Heterokontobionta and Fungi p.p.”, in 2015 by Part 2/1 “Eucaryotic Algae [Glaucoobionta, Heterokontobionta p.p. (Cryptophyta, Dinophyta, Haptophyta, Heterokontophyta), Chlorarachniophyta, Euglenophyta, Chlorophyta, Streptophyta p.p. (except Rhodobionta)]” and Part 4 “Pinopsida (Gymnosperms), Magnoliopsida (Angiosperms) p.p., Subclass Magnoliidae [Amborellanae to Magnolianae, Liliae p.p. (Acorales to Asparagales)]. Now, 2016, part 1/2 “Ascomycota” is published, the most diverse group of fungi, distributed from the arctic and subarctic vegetation formations to tropical rainforests and semi-deserts, to freshwater and marine ecosystems. This volume indicates that it is possible to bring the new edition soon to an end. Missing parts include Part 1/3 “Basidiomycota”, Part 2/2 “Rhodobionta” and Part 5 “Seed Plants, Spermatophytes, Angiosperms p.p., Rosidae”.

With part 1/2 Ascomycota (including lichenized forms, the former “Lichenes”) a thorough treatise of the world-wide morphological and molecular diversity of these fungi is presented. As highly diverse as this phylum is the number of authors: H. T. Lumbsch (Chicago) and R. Lücking (Berlin) are responsible for the introduction, characterization, and the systematic arrangement of the Ascomycota, as well as the lichenized Ascomycota [Pezizomycotina (Arthoniomycetes, Coniocybomycetes, Dothideomycetes p.p., Lecanoromycetes p.p., Lichinomycetes)], W. Jaklitsch (Vienna) for the non-lichenized Ascomycota p.p. [Taphrinomycotina, Saccharomycotina, Pezizomycotina p.p. (Dothideomycetes p.p., Eurotiomycetes, Laboulbeniomycetes, Leotiomycetes p.p., Sordariomycetes, Xylonomycetes)], and H.-O. Baral (Tübingen) for the non-lichenized Ascomycota p.p. [Pezizomycotina p.p. (Dothideomycetes p.p., Leotiomycetes p.p., Orbiliomycetes, Pezizomycetes)] and lichenized Ascomycota p.p. (Lecanoromycetes p.p.). W. Jaklitsch and W. Frey (Berlin) provide the Synopsis of classification of the Ascomycota.

Most obvious on a first look for non-fungal specialists: the systematics of the Ascomycota has changed dramatically when compared to former textbook classification a decade ago. The phylum now contains three subphyla, the Taphrinomycotina, the Saccharomycotina, and the Pezizomycotina with a total of 18 formally recognized classes.

Responsible are phylogenetic revisions based on DNA sequence data which have become available recently and which have revolutionized the systematic classification at higher level dramatically, leading to a new understanding of fungal evolution and species delimitation.

The systematic arrangement followed, therefore reflects the current state of understanding of the Ascomycota and provides an updated synthesis of classical anatomical-morphological characters and modern molecular data.

The text consists of six chapters: 1 Introduction, 2 Ascomycota (including introduction, characterization and systematic arrangement), 3 Synopsis of classification of the Ascomycota, 4 Systematic arrangement of the Ascomycota, 5 Taxonomic novelties, 6 Appendix. It is com-

pleted by 17 coloured plates with 149 photos (habit, details) of almost high quality. They give a first impression of the various taxa treated.

Chapter 2 presents an excellent summary of the characters of the taxa of the phylum (sexual reproduction, asexual reproduction, ecology and distribution, evolution, importance and uses) and give valuable hints for a further reading (references).

The classes and all further taxa of Chapter 4 (main part) are arranged in alphabetical order. The total number of families is 406 (plus an additional 10 lineages at present not formally named), with approx. 6100 genera. Detailed descriptions for all families with estimates of species numbers at the family and genus level are given additionally (when possible).

Taxonomic novelties include the Thelocarpaceles Lücking & Lumbsch ord. nov. and Vezdaeales Lumbsch & Lücking ord. nov.

Volume 1/2 of the new 'Engler's Syllabus of Plant Families' – as the previous published volumes – is a well done, well based and solid book. It represents an outstanding and modern, up-to-date synopsis of the Ascomycota and include an informative and well based summary on the different plant lineages and the phylogenetic reconstruction that will serve as a prime reference for a long time. It is an important step towards a solid familiar and generic re-arrangement of the taxa for even less popular groups of organisms. This volume quickly will become an essential work in any library. It is an extremely handy source and a basic treatment for finding the most up-to-date classification, number of families, genera and further references, and is most valuable for students, botanists, ecologists and researchers, interested in fungi (incl. lichens) diversity.

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