

Book Reviews

Consiglio, G., D. Antonini & M. Antonini (2004). Il genere *Cortinarius* in Italia, Parte prima. – Associazione Micologica Bresadola, Fondazione Centro Studi Micologici (eds.), Grafica Sette, Bagnolo Mella, Italy, 200 pp.; in Italian.

“Il Genere *Cortinarius* in Italia” is an ambitious work, its first part was published in 2003. The authors announce an annual periodicity, each delivery including 50 plates. The preface was written by the French cortinariologist André Bidaud, one of the most credible specialists for this difficult genus.

The first delivery agrees with its ambition. Each species is presented by a double page including two colour pictures of nice specimens, a SEM picture of spores, a distribution map of the taxon in Italy, the original diagnosis, and its translation into Italian, and a complementary macro- and microscopical description in Italian.

The system of ring binders seems to be the most convenient way to present the “accordion-like” taxonomy of *Cortinarius*, presenting well-defined species and promising at the end a wide overview of the genus, an option already chosen by the famous “*Cortinarius*, Flora photographica” of T. E. Brandrud and co-authors. It is undoubtedly more difficult to present monographs of whole groups, as proposed by the Atlas des Cortinaires of Reumaux et al. Unfortunately, accomplishing a complete monograph of Cortinarii looks increasingly unrealistic, as more and more new taxa are described each year. Thanks to its attractive presentation and to his clear and non-polemic texts, Il Genere *Cortinarius* in Italia will certainly attract a number of mycologist up to now reluctant to look at Cortinarii, and when the series comes to be completed it will serve as a choice iconographic reference for this frightening genus. This work is promising as a serious, critical but understandable work on Cortinarii. The iconography is indeed its best asset. Also the toxicological part, treated by A. Vizzini on the basis of a nearly exhaustive bibliography, is remarkable.

On the other side, a few points can be marked:

Most of the pictures are strongly contrasted with a red dominant tone (e. g. *Cortinarius ionosmus*); at the opposite the greenish colours are absent or almost absent (e.g. *C. ionochlorus*, *C. odorifer*), an unfortunate, common problem for all photographs, but painful in *Scauri* subsect. *Scauri* and *Dermocybe*, where colours are especially important for identification.

The illustration of six schematised spores (representing minimal and maximal length, width, and quotient) is a very ingenious idea: it is easy to notice that these sporograms are a reproduction on a single spore drawing, widened or stretched by computer. Therefore this illustration system looks somewhat artificial, and the equivalence of this system to the reality requires to be proved.

The SEM photos are of good quality and complete line drawings, but do not replace them. The reader must be aware that spores observed through usual optical microscope cannot be compared to SEM pictures, which can only serve as comparative documentation between illustrated taxa.

The presentation is highly homogenous, what sometimes hides structural originalities (like cheilocystidia of *C. subtorvus*) which one would like to see emphasized in such an illustrated book. Of course, exceptions are difficult to take into account in a model, and unfortunately extravagant characters are not numerous in *Cortinarius*!

My most important reserve concerns the quality of the descriptions, which sound like fixed pictures: variations of colours and shapes are not considered according to their natural variation in fruit bodies, but listed as an enumeration of variants. By the way, the descriptions are not more informative than the colour pictures, when they should complete them. Thankfully, the original diagnosis is sometimes more informative than the description. Kühner, Maire or Moser having taken much care of the developmental stages of fruit bodies.

In spite of these several dampers, which make this first delivery sound somewhat mechanistic, the authors must be encouraged, and certainly thanked at the end, for going on with this courageous and important contribution. Their work will incite many mycologists to start working with *Cortinarii*, and will certainly help to demystify this "terrible genus".

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Chaverri, P. & Samuels G. J. (2003). *Hypocrea/Trichoderma* (Ascomycota, Hypocreales, Hypocreaceae): species with green ascospores. – *Studies in Mycology* 48: 116 pp.

After issues 41, 42, and 46 of the CBS-series *Studies in Mycology*, this is another dedication to the Hypocreales, a group of ascomycetes comprising economically important fungi. In this monographic work results achieved by molecular techniques along with a detailed phylogenetic analysis are successfully combined with classical, morphology based concepts.

The first part of the book mainly presents a critical, comprehensive review of *Hypocrea/Trichoderma* taxonomy and systematics, in which the necessity of the holomorph recognition for the identification and description of species is pointed out clearly: neither teleomorph characters alone give a good *Hypocrea* classification, nor anamorph characters a good system for *Trichoderma* species. Frequently, the authors refer to molecular data without skipping current morphological concepts for this fungal group. To my opinion, this is one of the strenghts of their work. Also a critical view on characters like the stroma structure as a criterion for species-level classification is not missing. The authors explain and discuss Rifai's (1969) and Bissett's (1991) concepts of *Trichoderma* subdivision. Relationships between traditional families of Hypocreales (Bionectriaceae, Clavicipitaceae, Hypocreaceae, Nectriaceae, Niessliaceae) are discussed in the light of new molecular data. Moreover, in their molecular work, they consequently follow modern methodical approaches including multigene phylogenetic analyses (EF-1 α and RPB2 sequences were used).

This general systematic part is followed by a short outline of the ecological and economical impact of *Hypocrea/Trichoderma* species, highlighting host specialisation and geographic distribution as well as principles of biocontrol effects along with examples. Applied molecular, morphological, and statistical methods

are described extensively. The accuracy with which the results are presented is impressive. Trees for each analysed gene were constructed by different methods (Neighbour Joining, Bayesian analysis) and a combined NJ-tree for both genes is presented. All trees refer to morphological data.

The discussion of the presented results is dominated by explaining molecular subgroups and the evolution of teleomorph and anamorph characters. In this context, a table listing subgroups and species would have been helpful for a better overview about the actual taxonomic structure, especially for non-specialists.

The second part of the book consists of two dichotomous keys, one based on teleomorph characters and one on anamorph characters, and descriptions of 40 accepted species (11 new *Hypocrea* species and two new combinations within this genus plus 20 new *Trichoderma* species). In addition, 11 excluded or doubtful species are shortly characterised.

The detailed descriptions are illustrated with 454 monochrome micrographs and line drawings, 40 colour pictures of *Hypocrea* stromata on their natural substrates, and 24 colour pictures of cultures. Species descriptions are completed with information on etymology of their names, habitats, and geographical distribution.

Recapitulatory, the publication of Chaverri and Samuels is more than noteworthy, rather it is a must for everybody working in this field of fungal biodiversity, biocontrol, and fungal evolution. The pictures are of excellent quality, a broad index and bibliography will make this book one of the Hypocreales reference works.

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Samson, R. A. & Frisvad J. C. (2004). *Penicillium* subgenus *Penicillium*: new taxonomic schemes, mycotoxins and other extrolites. – *Studies in Mycology* 49: 260 pp.

The book in general consists of four separated chapters (papers) addressing results achieved by different methods (morphology, chemotaxonomy, molecular phylogeny, electrospray mass spectrometry) of nowadays taxonomy of *Penicillium* subgenus *Penicillium*. In the first and longest part – headed as “Polyphasic taxonomy of *Penicillium* subgenus *Penicillium*. A guide to identification of food and air-borne terverticillate *Penicillia* and their mycotoxins.” by Frisvad and Samson – sections and series of *Penicillium* subgenus *Penicillium* are introduced with descriptions and drawings, also giving a historical view on the presented concept. Fifty-eight species, among them four new species and two new combinations, four new sections and two new series are included. Morphological terms are partly illustrated by photos (culture appearance), micrographs, and line drawings. Also simple chemical tests are explained (Ehrlich test). This ensures a good understanding of descriptions especially from the practical point of view. This part is a synthesis of new taxonomic studies based on different levels of the phenotypes – here called “polyphasic taxonomy” – and its impact on routine work. Much weight was laid on the significance of extrolites for taxonomy. A synoptic key based on “classical” characters is presented for series, whereas box keys based on characters from different levels (extrolites, morphology, ecology) are provided for the delimitation of species within these series. The composition of the keys mirrors the complex taxonomy of this group. The authors state that “simple keys for *Peni-*

cillium identification are unrealistic”: thus, the question arises how this economically important fungi can be identified in the routine laboratory without expensive and time consuming methods like sequencing and/or extrolite profiling. Concise descriptions, high quality colour photos and micrographs for each species and the overview over sections, series and accepted species with their synonyms as well as information on produced extrolites complete the taxonomic part of this paper.

The second paper by Samson *et al.* is focused on the verification of the proposed concept by partial β -tubuline gene phylogeny. They show, that most of the phenotypically determined taxa can be found also in the phylogenetic analysis as separated clusters or branches. In some cases (e.g. ser. *Italica* and ser. *Digitatum* ser. nov.) extrolite profiles served as justification for the separation. Overall, the analysis and discussion is comprehensive and traceable. The statement of the authors that the phylogeny of one gene is probably not enough to fully understand *Penicillium* subgenus *Penicillium* is plain and logic with the consequence that a multigene phylogeny, also including relevant representatives of *Eupenicillium*, should be published soon.

The third paper (Frisvad *et al.*) consists of an overwhelming compilation of extrolites produced by species of *Penicillium* subgenus *Penicillium*. The authors discuss these data in their taxonomic as well as practical context. Very informative tables illustrate the complexity and significance of extrolites.

The last chapter mainly deals with methodic approaches. Smedsgaard *et al.* show that an automated analysis of extrolite profiles is principally possible by electrospray mass spectrometry. They tested this method for 429 strains of 58 species (*Penicillium* subgenus *Penicillium*) and obtained convenient results for 72 % of them. Those results also show that automated identification will always have uncertainties. Therefore, specialized taxonomists will always be required. From the taxonomic point of view, this paper is another, highly welcome contribution for the task of assembling the complicated puzzle of *Penicillium* taxonomy.

In general, this volume is the presentation of the current concept of *Penicillium* subgenus *Penicillium* and thus an indispensable reference work for both taxonomists and practitioners. We are strongly awaiting similar works for the remaining groups of the genus *Penicillium* and related teleomorph genera.

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Crous W. P. et al. (2004). CBS Centenary: 100 Years of fungal biodiversity and ecology. – *Studies in Mycology* 50(1, 2): 586 pp.

The two parts of the centenary volume of *Studies in Mycology* (SIM) at hand is at first – concerning the number of pages – an impressive compilation of new taxonomic entities: 118 taxa are newly described, among them two new families and 17 genera, further 26 new combinations and 15 new holomorphs top this list. Secondly, it is a visionary reflection of mycological work and research in the past, present and future, and this is at least as important as the taxonomic part. The preface gives an impression of the CBS's understanding of research on fungi in the 21st century. It can also be seen as a programmatic article of the “new” director P. W. Crous, who is obviously standing for methodically comprehending, fundamental as well as applied research at the top of science.

Starting from the history of microbiological experiments the development and necessity of culture collections, or as it is called accurately in the first paper “microbial resource centres”, is discussed. The progress of the CBS from a private collection comprising 78 cultures to one of the leading institutions in mycology and its role during the last century is described in detail followed by an article of D. L. Hawksworth addressing estimations of fungal biodiversity. Hawksworth also points out the important role and legitimation of culture collections as indispensable basis for the preservation, research and economic utilisation of the world’s genetic resources.

At last Crous *et al.* present the implementation of an online database on fungi with descriptions and illustrations as addition to Index fungorum, GenBank and similar portals. The authors declare the so called “Mycobank” and its links, a step towards a unique database for fungi.

The rest of the two parts of SIM (pp. 23–572) is dedicated to the description and discussion of new taxa from many different fungal groups starting with *Aspergillus westerdijkiae* Frisvad & Samson (Mycobank MB500001). Some of them are applied with keys. Drawings and colour photographs of good quality are presented as well. To mention all addressed groups would go beyond the scope of this review. As Crous stated in the preview, the aim of this compilation is mainly to give an impression of the various approaches used to describe taxa in all the diverse fungal groups as there are: morphology and anatomy, chemotaxonomy, DNA sequencing, physiology, and ecology.

Altogether, *Studies in Mycology Vol. 50* is a powerful sign of an active community in the field of fungal taxonomy, biodiversity and ecology, in which the CBS plays a major role. In the end, it only remains to congratulate the CBS to its 100th birthday and to hope that this strong institution will be enabled to stimulate research in mycology also in the future.

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Sydowia](#)

Jahr/Year: 2005

Band/Volume: [57](#)

Autor(en)/Author(s): Anonymus

Artikel/Article: [Uromyces euryopsidicola sp. nov., a rust species that forms witches` brooms on Euryops \(Asteraceae\) in South Africa. 144-148](#)