

Editorial to the Special Issue dedicated to Prof. Richard P. Korf

Teresa Iturriaga^{1,2} · Marc Stadler³ · Donald H. Pfister⁴

Published online: 19 January 2018

© German Mycological Society and Springer-Verlag GmbH Germany, part of Springer Nature 2018

This Special Issue is dedicated to the memory of Prof. Richard P. (Dick) Korf, a pioneer in the systematics and taxonomy of the Ascomycota. Dick's career spanned the era in which systematists strived to understand the diversity of fungi through detailed field and laboratory investigations of morphology, development and life history studies.

Dick exemplified the best of this era, carrying out extensive field work and preparing treatments that became standard references for work on the cup-fungi. He rationalized the terminology used in descriptions of discomycetes, and he and his students prepared monographic treatments of groups in the Leotiomycetes and the Pezizomycetes. His enthusiasm toward this group of fungi was demonstrated by the many hours he would spend in the field, always knowing where to find these “discos”, and making comments that would add a “magical touch” to everything, as when his students were not finding any of these minute fungi: “*keep staring, they'll just start winking at you*”. This same theory was applied by him to the long hours spent looking into the microscope; there was always something he saw that no-one else had seen. He contributed to the stabilization of the nomenclature through his vast

knowledge of the literature and his acute reading and application of the Code.

With his friend and colleague, Grégoire Hennebert, he founded the journal *Mycotaxon*. He nurtured this venture, which has provided a reliable outlet for taxonomic and nomenclatural writings since 1974. As mycology and systematics took on molecular phylogenetics, he maintained a vivid curiosity as to how traditional systems and those that were molecularly based would reconcile. That field work and basic biology of these fungi were still both important and necessary was highlighted by his address, “*Dreams and nightmares of Latin American Ascomycete Taxonomists*”, to the Latin American Mycological Association in 2011 (Available at <http://www.mycotaxon.com/dreams.pdf>). In precise and lucid prose, he wrote not just about fungi but about the history of mycology at Cornell, and about the people who had influenced him over his career.

Several biographical notes have been published, and a number of *Mycotaxon* include reminiscences by many of those who knew Dick (Norvell 2016; Pfister et al. 2017; Rossman and Zhuang 2016). He collected fungi in many regions of the world, frequently taking his more than 35 students on these trips, since he considered that an important part of being a mycologist was to know how and where to find them, and to understand them in the field. His expeditions to Southeast Asia, the islands of Macaronesia, islands of the Caribbean, and the United States, mainly New York, resulted in almost 260 species new to science, and more than 5000 collections. Other specialists have recognized him by naming three genera and at least 16 species of fungi after him.

Dick retired from the Department of Plant Pathology at Cornell University in 1992, after 40 years of intense work. Probably the last fungus he collected from his own yard was a beautiful *Peziza phyllogena* in 2016. He had Kumi artistically draw it, described it and noted those things that others do not see: how it “shattered”. He called it, dearly, “Kumi's fungus”.

Section Editor: Teresa Iturriaga and Marc Stadler

✉ Marc Stadler
marc.stadler@helmholtz-hzi.de

¹ Illinois Natural History Survey, University of Illinois, Champaign, IL, USA

² Dpto. Biología de Organismos, Universidad Simón Bolívar, Caracas, Venezuela

³ Department of Microbial Drugs, Helmholtz-Zentrum für Infektionsforschung GmbH, Inhoffenstrasse 7, 38124 Braunschweig, Germany

⁴ Harvard University Herbaria and Department of Organismic and Evolutionary Biology, Harvard University, 22 Divinity Avenue, Cambridge, MA 02138, USA

The current Special Issue contains 16 papers, most of which deal with the polyphasic taxonomy, phylogeny or nomenclature of various groups of Ascomycota. The majority of our contributions have focused on “Discomycetes”, i.e., the genera that are now included in the classes Pezizomycetes, Leotiomycetes and Orbiliomycetes. Other studies have focused on further ascomycete taxa or even dealt with inventories of the fungi that colonize certain host plants. The paper by Baral et al. [1] resulted from intensive discussions about nomenclatural issues and was compiled by the members of the respective ICTF Orbiliomycetes Working Group (<http://www.fungaltaxonomy.org/subcommissions>). It offers various options on how a One Fungus–One Name concept can eventually be implemented in this class of Ascomycota. This Special Issue also includes the final paper of Dr. Walter Gams—another great mycologist of the past century, who worked contemporarily with Prof. Dick Korf. Unfortunately, our dear friend Walter suddenly passed away when the paper was still in the process of galley proof corrections, and he was not able to witness its publication.

Our Special Issue also includes the description of a new genus of Orbiliomycetes with an interesting ecology—the capacity to catch pollen grains. This is presented by Maygar et al. [2]. The Pezizomycetes are represented by three contributions, dealing with the *Pachyplodes* lineage in the Pezizaceae [3], a novel species of the genus *Peziza* [4] and several new *Otidea* spp. (Pyronemataceae) from Asia [5], while the Leotiomycetes are represented by a study on the genus *Capitotricha* [6]. The paper by Egertova et al. [7] follows on Dick’s footsteps and deals with new discomycete taxa from tropical Asia.

The Sordariomycetes are represented in several contributions, two of which [8, 9] deal with rearrangements of some important families of the Xylariales based on multi-gene phylogenies, paired with extensive morphological and/or chemotaxonomic studies. We are sure that these studies will be of great value for future work on the resolution of evolutionary relationships within the Xylariomycetideae. This research was conducted in parallel by different groups of investigators, but came to congruent conclusions. It ultimately also emphasizes the importance of phenotype-based characters because both studies showed that molecular phylogenetic data can be misleading if they are not corroborated by complementary evidence.

Further studies are directed toward other groups in the Sordariomycetes, in which novel genera and species are described. Gordillo and Decock [10] describe a new genus with affinities to the complicated and widely unstudied *Myrothecium* complex.

The trendsetting work by Raudabaugh et al. [11] not only describes a new species of *Coniella* (Diaporthales) but even provides a full genome sequence of the fungus. Moreover, an extensive polyphasic study on the genus *Cocconiella*

(Phyllachorales) is also provided [12], and the phylogenetic position of the genus *Symbiotaphrina* as a member of Xylonomycetes is clarified [13]. Last, but not least, the Dothideomycetes are also represented in two studies on the mycobiota of *Alnus* [14] and *Lotus* [15], respectively, and two new species in the Ostropales (Lecanoromycetes) are described [16].

In summary, this Special Issue comprises contributions from various leading research groups dealing with many taxa of filamentous Ascomycota, both large and small.

The Special Issue as a whole therefore represents a potpourri of polyphasic taxonomy, where morphological data and other phenotype-derived data are being taken seriously into account in order to unravel the biodiversity of the Ascomycota. Many examples are shown where morphological, ultrastructural and even chemotaxonomic data allow for a better interpretation of molecular phylogenetic traits. On the other hand, molecular phylogenetic data alone, and in particular ITS-based data (not proposed as a marker for phylogenetic studies but rather as a barcode), may seem useless for understanding phylogenies in the absence of phenotype-derived traits, although its usefulness as a barcode is well supported in ecological work. We would not have the deep knowledge of mycorrhizal relationships and communities if we did not have the barcode. In the cup-fungi, of which a great percentage of the existing species have never been sequenced, the ITS data appear to have some value at least for gross characterization of families, and to support morphology-based hypotheses from which more sophisticated concepts can be elaborated in the future.

However, in the Sordariomycetes and Dothideomycetes, where many data have been generated over the past decade, the ITS region has now been abandoned or is merely used in conjunction with several protein-coding genes. The species in question cannot be identified by merely “barcoding” them. Therefore, this Special Issue stands in great contrast to concurrent attempts to reduce fungal taxonomy to the inconclusive analysis of a non-coding, insignificant part of the fungal DNA. Careful morphological studies will therefore never become expedient, and the work undertaken by Richard P. Korf will remain highly valuable throughout time.

Contributions to this Special Issue

1. Baral HO et al. (2017) Generic names in the Orbiliaceae (Orbiliomycetes) and recommendations on which names should be protected or suppressed. DOI <https://doi.org/10.1007/s11557-017-1300-6>
2. Magyar D et al. (2017) *Mycoceros antennatissimus* gen. et sp. nov.: a mitosporic fungus capturing pollen grains. DOI <https://doi.org/10.1007/s11557-017-1275-3>
3. Healy R et al. (2017) An ultrastructural study of spore wall development and septal pores in species of the *Pachyplodes* (Pezizaceae, Pezizales) lineage with a

- description of the new species *Pachyphlodes anagardnerii*. DOI <https://doi.org/10.1007/s11557-017-1348-3>
4. Van Vooren N et al. (2017) Contribution to the knowledge of *Peziza* with multiguttulate ascospores, including *P. retrocurvatoides* sp. nov.. DOI <https://doi.org/10.1007/s11557-017-1335-8>
 5. Pfister DH et al. (2018) *Otidea* species from China, three new species with comments on some previously described species DOI <https://doi.org/10.1007/s11557-017-1373-2>
 6. Šandová M et al. (2017) Relationships within *Capitotricha bicolor* (Lachnaceae, Ascomycota) as inferred from ITS rDNA sequences. DOI <https://doi.org/10.1007/s11557-017-1346-5>
 7. Egertová Z et al. (2017) *Octosporopsis erinacea* and *Octospora kelabitiana* (Pezizales) – two new hepaticolous ascomycetes from Borneo. DOI <https://doi.org/10.1007/s11557-017-1354-5>
 8. Wendt L et al. (2017) Resurrection and emendation of the Hypoxylaceae, recognized from a multigene phylogeny of the Xylariales. DOI <https://doi.org/10.1007/s11557-017-1311-3>
 9. Voglmayr H et al. (2017) *Barrmaelia* and *Entosordaria* in Barrmaeliaceae (fam. nov., Xylariales), and critical notes on Anthostomella-like genera based on multigene phylogenies. DOI <https://doi.org/10.1007/s11557-017-1329-6>
 10. Gordillo A, Decock CA (2017) Myrothecium-like (Ascomycota, Hypocreales) species from tropical areas: *Digitiseta* gen. nov. and additions to *Inaequalispora* and *Parvothecium*. DOI <https://doi.org/10.1007/s11557-017-1302-4>
 11. Raudabaugh D et al. (2017) *Coniella lustricola*, a new species from submerged detritus. DOI <https://doi.org/10.1007/s11557-017-1337-6>
 12. Mardones Hidalgo M et al. (2017) Contribution to the phylogeny and a new species of *Cocodiella* (Phyllachorales). DOI <https://doi.org/10.1007/s11557-017-1353-6>
 13. Baral HO et al. (2017) A new connection between wood saprobism and beetle endosymbiosis: the rarely reported saprobic discomycete *Tromeropsis* is congeneric with the symbiotic yeast *Symbiotaphrina* (Symbiotaphrinales, Xylonomycetes) and two asexual morphs misplaced in *Hypozyma*. DOI <https://doi.org/10.1007/s11557-017-1340-y>
 14. Tian Q et al. (2017) Molecular taxonomy of five species of microfungi on *Alnus* spp. from Italy. DOI <https://doi.org/10.1007/s11557-017-1336-7>
 15. Chen KL, Kirschner R (2017) Fungi from leaves of lotus (*Nelumbo nucifera*). DOI <https://doi.org/10.1007/s11557-017-1324-y>
 16. Fernández-Brime S et al. (2017) *Cryptodiscus muriformis* and *Schizoxylon gilenstamii*, two new species of Stictidaceae (Ascomycota). DOI <https://doi.org/10.1007/s11557-017-1363-4>

References

- Norvell LL (2016) Richard Paul Korf (1925 – 2016): a celebration. Mycotaxon 131:963–1000
- Pfister DH, Burdsall HH, Iturriaga T, Kohn LM, Rossman AY, Zhuang WY (2017) Richard Paul Korf (1925 – 2016). Mycologia 109:529–534
- Rossman AY, Zhuang W-Y (2016) Richard P. Korf (1925 – 2016): leading specialist on discomycetes and inspiring mentor. IMA Fungus 7: 62–64