Book Reviews

de Hoog, G. S. & M. Grube (eds) (2008) *Black fungal extremes*. – Studies in Mycology **61**: 194 pp.

Historically and till today, the practical designations "black fungi" or "dematiaceous fungi" have been/are used for anamorphic/dimorphic fungi producing olive-grey, brown or black pigments in their cell wall or conidia, although they do not comprise a single phylogenetic lineage, but stem from divergent branches of the fungal tree of life. (They have been grouped at least in four ascomycetous orders: Capnodiales, Dothideales, Chaetothyriales, and Pleosporales.) The ability of black fungi to adapt to extreme or strange habitats has raised special interest of medical mycologists and (myco-)ecologists.

The content of the issue is mainly based on new findings, which were recently presented by members of the working groups on "Black Yeasts" and on "Chromoblastomycosis" (both under auspices of the International Society for Human and Animal Mycology [ISHAM]) during international workshops in Graz, Austria (2006) and Utrecht, The Netherlands (2007). The issue presents an interdisciplinary blend of 18 articles that cover a broad spectrum of questions ranging from human infections, diseases on cold-blooded animals, fungi growing in lichens or on rock under extreme climatic conditions, fungal use in bioremediation of polluted environments, to black yeasts in drinking water, susceptibility testing, and molecular evolution.

Although there is no doubt that a proper classification of black fungi and their phylogeny are of vital innate importance in medical mycology and in other disciplines, the real surprises come with numerous data on extremophilic stunts of these eukaryotes. So, for instance, strains of the Antarctic rock-inhabiting meristematic fungi *Cryomyces antarcticus* and *C. minteri* (Dothideomycetes) were selected as suitable candidates to withstand space flight and long-term permanence in space: they survive pressures of 10^{-5} Pa (zero atmospheres), temperatures between –20 °C an +20 °C, and full solar and cosmic radiation, space conditions coming across on the outside of the International Space Station orbiting Earth at a heights of about 300 kilometres. Others, e.g. *Hortea werneckii* (also a member of the Dothideomycetes), grows optimally in a 17% NaCl solution and still grows near the saturation point of NaCl, thus, having skills similar to those of some prokaryotic organisms like halophilic Archaea. An equally exciting example of extremophily represents a member of the new genus *Acidomyces* as described in the issue: *A. acidophilus* (in affinity to Capnodiales) isolated from very acidic environments was able to grow very well at pH 1 and optimally below the neutral value.

Another focus of 'Black fungal extremes' concerns the panacea melanin (dihydroxynaphthalene-like melanins), the production of which is linked to almost all curious properties of these fungi. Evolutionary consequences regarding melanisation, medical aspects, physiology, and biochemical mechanisms are treated, down to the gene level.

If you wish to do yourself and mycology a favour, order this book! It is extremely interesting and useful.

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Sogonov M. V., Castelbury L.A., Rossman A. Y., Mejía L.C. & White J.F. (2008). *Leaf-inhabiting genera of the Gnomoniaceae, Diaporthales*. – Studies in Mycology **62**: 79 pp.

In this issue of Studies in Mycology (SIM) a revised taxonomy of the leaf-inhabiting genera of the Gnomoniaceae, Diaporthales is presented. Taxonomic concepts were re-evaluated using a multi-gene phylogeny of 64 isolates resulting in the description of one new genus (*Ambarignomonia*), 13 new species and 24 new combinations. Consequently, it could be demonstrated that traditional concepts for the classification of the Gnomoniacaea based on characteristics of the ascomata (e.g. position of the neck) as well as ascospores (e.g. septation) do not result in monophyletic genera. The new concept inferred by the DNA based phylogeny is supported by revised morphological concept based on seven characteristics (habitat of perithecia, presence or absence of stroma, behaviour of perithecia when dried, ascospore morphology, colony growth rate, conidia formation, and host plant). A dichotomous key for the 59 species is provided. The most common species of the leaf inhabiting genera *Gnomonia* (15 species), *Ambarignomonia* (1), *Apiognomonia* (5), *Gnomoniopsis* (8), *Ophiognomonia* (17), *Plagiostoma* (13) are described exhaustively in this monograph. A comprehensive description of genera and species is provided including synonyms, morphology, cultural characteristics, habitat, distribution, localisation of type material, and additional specimens analysed. The descriptions are illustrated once more by excellent figures of perithecia, asci and ascospores, as well as cultural characteristics when available. The taxonomic work is closed with a chapter on species which were excluded from the Gnomoniaceae or not included in this work.

The presented work provides a comprehensive overview on the leaf-inhabiting genera of the Gnomoniacea. Again the combination of genotypic, phenotypic and ecological data makes this issue of SIM a must for all mycologists interested in the plant associated ascomycetes belonging to the Diaporthales.

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