

# The 8th International Congress of Culture Collections Symposium : Changing spectrum of fungal infectious diseases

## Preface

From 25 to 29 August, 1996 the 8th International Congress of Culture Collections was held in Veldhoven, The Netherlands. One of the symposia at this congress was devoted to fungi of medical interest. Over the last decennia we have witnessed a growing hospital population of severely immunocompromised patients. As these patients are invaded by fungi more easily than healthy humans, it is generally supposed that the number of potential etiologic agents of mycosis is also increasing (1, 2). However, the number of species reported in older medical literature is considerable : particularly during the first three decennia of this century, i.e. long before the era of AIDS and immunosuppression, a wide array of fungal taxa was described from humans and animals. It is not easy to prove unambiguously whether it is justified to speak of 'new and emerging opportunists,' or whether this increasing biodiversity rather is due to previously inadequate diagnostic expertise. Decisive evidence has to stem from a comparative study of voucher specimens from past and recent clinical cases. Certainly the number of patients with severe illness, from which fungal strains are isolated, is increasing, but the possibility is not excluded that the same species as known in the past are involved. The required monitoring of the fungal flora on humans is impossible without the professional support and infrastructure of recognized culture collections (3).

Taxonomy of fungi, including the clinically significant species, is increasingly based on molecular, physiological and biochemical criteria, in addition to morphology. The nature of taxonomy itself thereby changes fundamentally ; not only in daily practice in the laboratory, but also conceptually. Classical, morphological taxonomy basically uses a single data set. It is empirical, reaching conclusions by induction. Species recognized are optimally represented by more than just a single strain, but additional material does not contribute towards a more profound understanding of the taxon other than widening its range of variability. The taxon principally remains a man-made category which cannot be falsified. In contrast, with the application of non-morphological techniques, independent datasets are generated, which are supposed to match and should lead to similar conclusions. Hence taxonomy has become hypothetical, starting with a statement on the possible identity of the strain on the basis of morphology, and verifying this using non-morphological datasets. Since now the taxonomic statement on species identity can be verified, it has become necessary to test all material, as a basic prerequisite of scientifically sound work. New insights are gained by these additional experiments, independent of whether the species delimitation is confirmed, or whether unexpected variation is detected. The latter is often the case, it seems that in numerous instances molecular techniques are more precise than morphology. This may lead to a multiplication of taxa recognized.

The trends in the study of biodiversity of human-associated fungi outlined above all lead to a growing responsibility of culture collections. Large numbers of strains are needed in modern taxonomic studies, and a three- to five-fold multiplication of recognized species after completion of a revision is not uncommon. An enormous task of maintenance of strains will be ahead of us.

Several aspects of these newly emerging problems to culture collections are discussed in the following papers. Gräser et al. present an overview of fingerprinting techniques for epidemiological purposes and give examples of population biology studies, using large numbers of strains of a single species. Sigler et al. treat some fungi which have previously been overlooked, but now that diagnostic methodologies have become available appear to be more common. Summerbell et al. discuss the dermatophytes, where a large number of species have been described ; sound taxonomic concepts are developed providing a theoretical basis for the justification of species recognition. De Hoog et al. present a comparative study of the biodiversity found in two unrelated groups ; a kind of study which can only be executed when statistically sufficient material is available. All papers underline the growing need for living strains, preferably held and made available by culture collections.

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#### REFERENCES

1. Anaissie, E., Bodey, G.P. and Rinaldi, M.G. Emerging fungal pathogens. *Eur. J. Clin. Microbiol. Infect. Dis.* 8 : 323-330 (1989).
2. Chabasse, D. Les nouveaux champignons opportunistes apparus en médecine. *Revue générale. J. Mycol. Méd.* 4 : 9-28 (1994).
3. De Hoog, G.S. and Guého, E. A plea for the preservation of opportunistic fungal isolates. *Diagn. Microbiol. Infect. Dis.* 5 : 369-372 (1985).