

Dothideomycetes: the contribution by the young generation in Asia

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ABSTRACT:

Dothideomycetes is the largest and most ecologically diverse class of fungi. It comprises endophytes, epiphytes, saprobes, pathogens (human and plant), lichens, nematode trapping and rock-inhabiting taxa. Members of this class are mainly characterized by bitunicate asci with fissitunicate dehiscence and occur on broad range of hosts in terrestrial and aquatic habitats. Currently, the class Dothideomycetes encompasses 60 orders, 222 families and 2154 genera. Though mycology was well-studied all over the world, it was significant under-studied in Asian countries until last two decades. Due to the huge economic expansion of Asian nations, the subsidy for research and development has impressively improved, and many young researchers have been well trained and start their carrier. This affected on mycology as well, and new journals and websites have been recognized as better platforms for Asian mycologists to publish their research. Hence, during last 20 years Asian young mycologists were able to introduce 20 orders (33% of orders), 94 families (42% of families) and 357 genera (20% of genera) within class Dothideomycetes. More interestingly, 31 families and all its genera (Anastomitrabeculiaceae, Aquasubmersaceae, Ascocylindricaceae, Bambusicolaceae, Camarosporidiellaceae, Cylindrohyalosporaceae, Eriomycetaceae, Fuscostagonosporaceae, Halojulellaceae, Lentimurisporaceae, Ligninsphaeriaceae, Lindgomycetaceae, Longiostiolaceae, Longipedicellataceae, Neobuelliellaceae, Neomassariaceae, Neomassarinaceae, Oblongohyalosporaceae, Occultibambusaceae, Parabambusicolaceae, Paralophiostomataceae, Phaeoseptaceae, Pseudoastrosphaeriellaceae, Pseudoberkleasmiaceae, Pseudocoleodictyosporaceae, Pseudolophiotremataceae, Pseudomassarinaceae, Salsugineaceae, Striatiguttulaceae, Tenuitholiascaceae and Tzeananiaceae) are introduced solely by Asian young mycologists. Another 25 families were composed with more than 50% genera introduced by young generation in Asia. These results indicate the case studies of plant pathogens, terrestrial saprobes, aquatic fungi, evolution studies, genomics and applied mycology of Dothideomycetes in Asia while discussing how it advanced during the last two decades. Obvious examples for prominent research groups actively cooperating in Asia are Beijing Forestry University, BIOTEC in Bangkok, Chiang Mai University, The University of Hong Kong, Mae Fah Luang University, Institute of Mycology & Lichenology in CAS, Kunming Institute of Botany and National Taiwan Ocean University. There is much research needed in future to exploit new species in Asia as it is not only to discover novel Dothideomycetes species, but also to understand their evolutionary relationships. Although this research might be descriptive, it will lead to numerous applications in future.

KEYWORDS:

Ascomycota; Classification; Fungal resources; Genome; New generation; Phylogeny