

Toward a natural classification of Venturiales

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Purpose: 1) to delineate the phylogenetic lineages, families and generic boundaries of Venturiales; 2) and to designate appropriate types to stabilise the application of names of Venturiales.

Methods: Five loci, ITS, LSU, *tef1*, *tub2* nuDNA and *rpb2*, are used for analysing 110 venturialean taxa representing 27 genera and four families in the current classification of Venturiales.

Results and conclusions: Two new families, viz. *Cylindrosympodioidaceae* and *Cylindrosympodiaceae*, as well as eight new genera are introduced, namely *Bellamyces*, *Faguscola*, *Fraxinucola*, *Neofusicladium*, *Parafusicladium*, *Phaeohlia*, *Pinicola* and *Sterilla*. In addition, 12 species are described as new to science, and 40 new combinations were proposed. The formation of conidia, i.e. solitary or in chains, showed significance at generic classification. The tendency of sporulation also showed phylogenetic significance in some degree. The current clade of *Venturia* seems representing a genus complex. The ancestral state of Venturiales is most likely to be saprobic, and plant pathogens seems a new evolutionary state. The type specimens of 50 *Venturia* species are described and illustrated with 27 species accepted within *Venturia* s. str.