

# Abstract

Section *Restricti* is one of the last sections of the genus *Aspergillus* that hasn't been revised in the modern taxonomic era. All species are osmophilic, have simple morphology and they are mainly important because of the food, feed and seed spoilage, some of them also have negative influence to the indoor air. The section consists of seven species according to the last taxonomic revision from 2008 based only on molecular data. It currently consists of six asexual and one homothalic species. 126 isolates from the section coming from four continents were studied in this thesis, including ex-type strains. Revision of the section was carried out combining molecular phylogenetic analysis and conventional taxonomic methods. Modern methods of species delimitation based on multispecies coalescent model were used for the phylogenetic reconstruction. From the conventional methods analysis of morphology (macro- and micromorphology including scanning electron microscopy) and physiology (ability of growing in osmotic gradient and several different temperatures) was performed. Apart from the seven known species, eight new undescribed species were discovered. Majority of the new species belongs to the *Aspergillus penicillioides* species complex.

**Key words:** *Aspergillus restrictus*, osmophilic fungi, species delimitation, multispecies coalescent model, multigene phylogeny, osmotic gradient