

TWO NEW THERMOTOLERANT SPECIES OF *Myceliophthora* sp. FROM SOIL AND COMPOST PILES (ASCOMYCOTA: ONYGENALES)

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Abstract:

During a mycological survey of thermotolerant species in environmental samples, four interesting isolates showed morphological characteristics of taxa belonging to the genus *Myceliophthora*. Initially, the isolates were identified as *Myceliophthora thermophila*, the type strain of the genus, according to colony morphology, microscopic characters of conidiophores and conidia, in addition to optimum growth at 45° C. Data derived from GenBank-BLASTn showed that three isolates shared the same sequence identity (99%) in the D1/D2 domains in the 28S rDNA and were considered co-specific. In addition, phylogenetic analysis using ITS-rDNA gene sequences derived from public databases further resolved the two groups as distinct species and new to science. These two groups were represented by isolate *Myceliophthora* sp. M.7.7 recovered from sugar cane compost piles and *Myceliophthora* sp. F.2.1.4. recovered from soil. Similar to other species in the genus both isolates produced large quantities of cellulases and proteases. Based on molecular data the genus *Corynascus*, which has *Myceliophthora* anamorphs, formed the sister clade with a group comprehended by our isolates in addition to other undescribed *Myceliophthora* species. We briefly review the taxonomy of the genus in the light of recent molecular tools and propose two new species based on morphology and molecular approaches: *Myceliophthora olimpiensis* sp. nov. and *Myceliophthora ubaranaensis* sp. nov. Cultural characteristics revealed that both isolates have similar growth rate on different culture media and at different incubation temperatures. Additional enzymatic tests will be carried out in order to evaluate their potential use in biotechnological processes like the production of biofuels. Financial support: FAPESP - Fundação de Amparo a Pesquisa do Estado de São Paulo.

Key words: taxonomy, microfungi, ITS, thermotolerance