

Clavicipitaceous fungi on Commelinaceae, which have been recognized as smut fungi

Eiji Tanaka

Ishikawa Prefectural University, Japan

Purpose: A smut-like fungus was found on the flowers of *Murdannia keisak* (Commelinaceae, Monocots) in Japan. Infected flowers were filled with yellow to orange thick-walled conidia, and then the sori changed to olivaceous green. The fungus was identified to be *Ustilago aneilematis*, which have been recognized as a smut fungus (Ustilaginales, Basidiomycota). This study aimed to show that this species is included in the family Clavicipitaceae (Hypocreales, Ascomycota).

Methods: Isolates derived from a single spore of the smut-like fungi on *M. keisak* was used for DNA extraction. Molecular phylogenetic analysis was done based on DNA sequences from LSU, SSU, TEF, RPB1, and RPB2.

Results: Multi-locus phylogenetic tree showed that the fungus is grouped with the species of the tribe Ustilaginoideae (Clavicipitaceae, Ascomycota). The thick-walled conidia of the fungus developed on the apex of dichotomous or trichotomous conidiophores in contrast to the pleurogenously developing conidia of known Ustilaginoideae spp.

Conclusions: Based on these findings and taxonomical considerations, it was concluded that the fungus must belong to a new genus of the tribe Ustilaginoideae in the family Clavicipitaceae. This species is the first clavicipitaceous fungus found to infect a host plant species in the Commelinaceae.