Morphological and molecular detection of Fusarium chlamydosporum from root endophytes of Dendrobium crumenatum

Abstract

Fusarium has a cosmopolitan distribution, with some species able to cause diseases in agricultural crops. A number of isolates of endophytic fungi were isolated from healthy roots of Dendrobium crumenatum (Orchidaceae) at Universiti Putra Malaysia campus. The isolates were primarily identified as Fusarium chlamydosporum based on morphological characteristics. The cultures were produced in a range of chicory pink to red and brown pigmentation. Only morphological studies of Fusarium can not give any guarantee at the species levels of identification but key the putative species names. Therefore, molecular studies based on gene sequencing of the internal transcribed spacer 1 and 2 regions of the ribosomal DNA (rDNA) were carried out. The amplified DNA was sequenced and aligned against the reference sequences, previously identified as Fusarium species. Results obtained have shown that all of the isolates putatively identified as F. chlamydosporum were in agreement with the ex-type strains of F. chlamydosporum gene sequences collected from the GenBank database. Thus, data from the present study suggested that the best conceivable connection between the morphological characters and the molecular characters are to use sequence based analysis of the ITS 1/2 regions of the rDNA of the original specimen at the same times as it could be removed any kind of controversial identification of F. chlamydosporum at the species level.