Novel Collophorina and Coniochaeta species from Euphorbia polycaulis, an endemic plant in Iran

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Abstract

During a study on the biodiversity of yeasts and yeast-like ascomycetes from wild plants in Iran, four strains of yeast-like filamentous fungi were isolated from a healthy plant of Euphorbia polycaulis in the Qom Province, Iran (IR. of). All four strains formed small hyaline one-celled conidia from integrated conidiogenous cells directly on hyphae and sometimes on discrete phialides, as well as by microcyclic conidiation. Two strains additionally produced conidia in conidiomata that open by rupture. The internal transcribed spacer (ITS) sequences suggested the placement of these strains in the genera Collophorina (Leotiomyces) and Coniochaeta (Sordariomyces), respectively. Blast search results on NCBI GenBank and phylogenetic analyses of ITS, the glyceraldehyde-3-phosphate dehydrogenase (GAPDH) and the translation elongation factor 1 α (EF-1 α) sequences, and the nuclear large subunit ribosomal gene (LSU), partial actin (ACT), and β -tubulin (TUB) sequences, respectively, revealed the isolates to belong to three new species, that are described here as Collophorina euphorbiae, Coniochaeta iranica, and C. euphorbiae. All three species are characterised by morphological, physiological, and molecular data.

Keywords: Lecythophora · Morphological characterisation · Multi-locus sequence analysis · Phylogeny · Systematic