

The genus *Anthopsis* and its phylogenetic position in *Chaetothyriales*

Tarek A. A. Moussa^{1,2,3} | Bert H. G. Gerrits van den Ende⁴ | Hassan S. Al Zahrani¹ |
Naif M. S. Kadasa^{1,2} | Sybren G. de Hoog^{1,2,4,5,6} | Somayeh Dolatabadi^{4,7,8}

¹Biological Sciences Department, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia

²Biological Sciences Department, Faculty of Science, University of Jeddah, Jeddah, Saudi Arabia

³Botany and Microbiology Department, Faculty of Science, Cairo University, Giza, Egypt

⁴CBS-KNAW Fungal Biodiversity Centre, Utrecht, The Netherlands

⁵Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Amsterdam, The Netherlands

⁶Research Center for Medical Mycology, Peking University Health Science Center, Beijing, China

⁷Faculty of Engineering, Sabzevar University of New Technology, Sabzevar, Iran

⁸Cellular and Molecular Research Center, Sabzevar University of Medical Sciences, Sabzevar, Iran

Correspondence

Somayeh Dolatabadi, Faculty of Engineering, Sabzevar University of New Technologies, Sabzevar, Iran.
Email: Somayeh99@gmail.com

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Summary

The genus *Anthopsis* was introduced for a black fungus with peculiar, inverted phialides and triangular conidia. The genus accommodates, in addition to the type species *Anthopsis deltoidea*, which once was reported as a cause of human phaeohyphomycosis, two further taxa: *A. catenata* and *A. microspora*. Current taxonomy is mainly based on microscopic structures of phialides. To assess the phylogenetic position of the genus, sequences of the internal transcribed spacer region and partial LSU rDNA were obtained for *Anthopsis* spp. and compared with sequences from public databases. Phylogenetic analyses based on both loci were used to assess the evolutionary relationships of *Anthopsis* spp. at the family and ordinal levels. *Anthopsis s.str.* was found to cluster in *Chaetothyriales*, while *A. catenata* proved to be of helotialean affinity. Thermotolerance and morphology of each species were recorded.

KEYWORDS

Anthopsis deltoidea, black yeast, *Chaetothyriales*, *Cyphellophoraceae*, melanised fungi, taxonomy

1 | INTRODUCTION

The genus *Anthopsis* was introduced by Filipello Marchisio et al.¹ in 1977 for a fungus isolated from soil near Torino in Italy (CBS 263.77). It was classified phenotypically as a dematiaceous hyphomycete because of its consistently melanised filamentous thallus. The fungus showed optimum growth at 18–22 °C, and was morphologically unique by having ampulliform phialides with the conidiogenous locus and hence the collarette near the base, close to the point of insertion of the phialide on the hypha. The genus was therefore considered to be closely related to the genus *Phialophora*,^{2,3} particularly based on

the morphological details of the collarette. *Phialophora* in the classical sense is, however, phylogenetically heterogeneous.⁴ Its type species, *P. verrucosa* belongs to the family *Herpotrichiellaceae*, order *Chaetothyriales*.⁵

Two additional species have been described in the genus *Anthopsis*, viz. *A. catenata*⁶ (CBS 492.81) and *A. microspora*.⁷ The species remained enigmatic, since very little reference was made in subsequent publications and the species were each represented by one or two strains only, a second strain ascribed to *A. deltoidea* having been reported from a human bursitis.^{1,7,8} The aim of this paper is to determine the taxonomic position of the genus *Anthopsis* and to establish