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Morphology and phylogeny of *Chaetospermum* (asexual coelomycetous Basidiomycota)

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Abstract

Five asexually reproducing basidiomycetous fungi, isolated from northern and southern provinces of Thailand, characterized by slimy, setulate conidia in creamy white pycnidia and classified in the genus *Chaetospermum*, are studied in detail. Two species, *C. camelliae* and *C. artocarpi,* are redescribed and epitypified. A phylogenetic tree based on 28S large subunit rDNA (LSU) sequence was used to analyze their taxonomy and relationships. The study confirmed that *Chaetospermum* belongs to the *Sebacinales*, a poorly studied order of Agaricomycetes.

Key words: biodiversity, LSU, Sebacinales, taxonomy

Introduction

Tubercularia chaetospora Patouillard (1888: XL), was described as a fungus in its asexual morph, from decaying grass. In view of its marked morphological differences from the genus *Tubercularia* Tode (1790: 18), it was transferred to a new genus *Chaetospermum*, as *C. tubercularioides* Saccardo (1892: 706). *C. tubercularioides* was a *nomen illegitimum* since the epithet 'chaetospora' should have been adopted. Thus, Smith & Ramsbottom (1914) redisposed the fungus as *C. chaetosporum* (Pat.) Smith & Ramsbottom (1914: 328). Nag Raj (1993) provided a detailed account of the genus *Chaetospermum* and accepted four species—*C. artocarpi* (Nag Raj) Nag Raj (1993: 194), *C. camelliae* Agnihothrudu (1962: 115), *C. chaetosporum* and *C. gossypinum* (G.F. Atk.) Nag Raj (1993: 198)—based on the position of appendages on the conidia and conidial length/width ratio. He also clarified that conidial appendages in all species in this genus are tubular. Earlier, Sutton (1980) had accepted three species of *Chaetospermum viz*., *C. carneum* Tassi (1900: 130), *C. chaetosporum* and *C. gelatinosum* Petch (1917: 255). However, Nag Raj (1993) placed *C. gelatinosum* in synonymy with *Mastigonema gelatinosum* (Berk. & Broome) Nag Raj (1993: 472) and, following an examination of the type specimen, considered *C. carneum* as *nomen dubium*. Talde (1981) described *C. indicum* Talde (1981: 288) from India. Rajeshkumar *et al.* (2010) wrote that the type specimen of *C. indicum* was missing in the herbarium of AMH and not available for re-examination. Comparing the description and illustration of *C. indicum,* they suggested that this species is identical with the type of the genus, *C. chaetosporum*.

The genus *Chaetospermum* has a worldwide distribution (Muntanola-Cvetkovic & Gomez-Bolea 1993, Marincowitz *et al.* 2010, Rajeshkumar *et al.* 2010). The species are common saprobes in terrestrial, freshwater and litter habitats (Rajeshkumar *et al.* 2010). The genus is characterized by conidiomata that are variable in nature, *i.e.* closed when dry and becoming gelatinous, pulvinate and wide open following rehydration (Sutton 1980). This flexible feature of the conidiomata led to the usage of different terms such as 'pycnidium', 'sporodochium' and 'acervulus' by various

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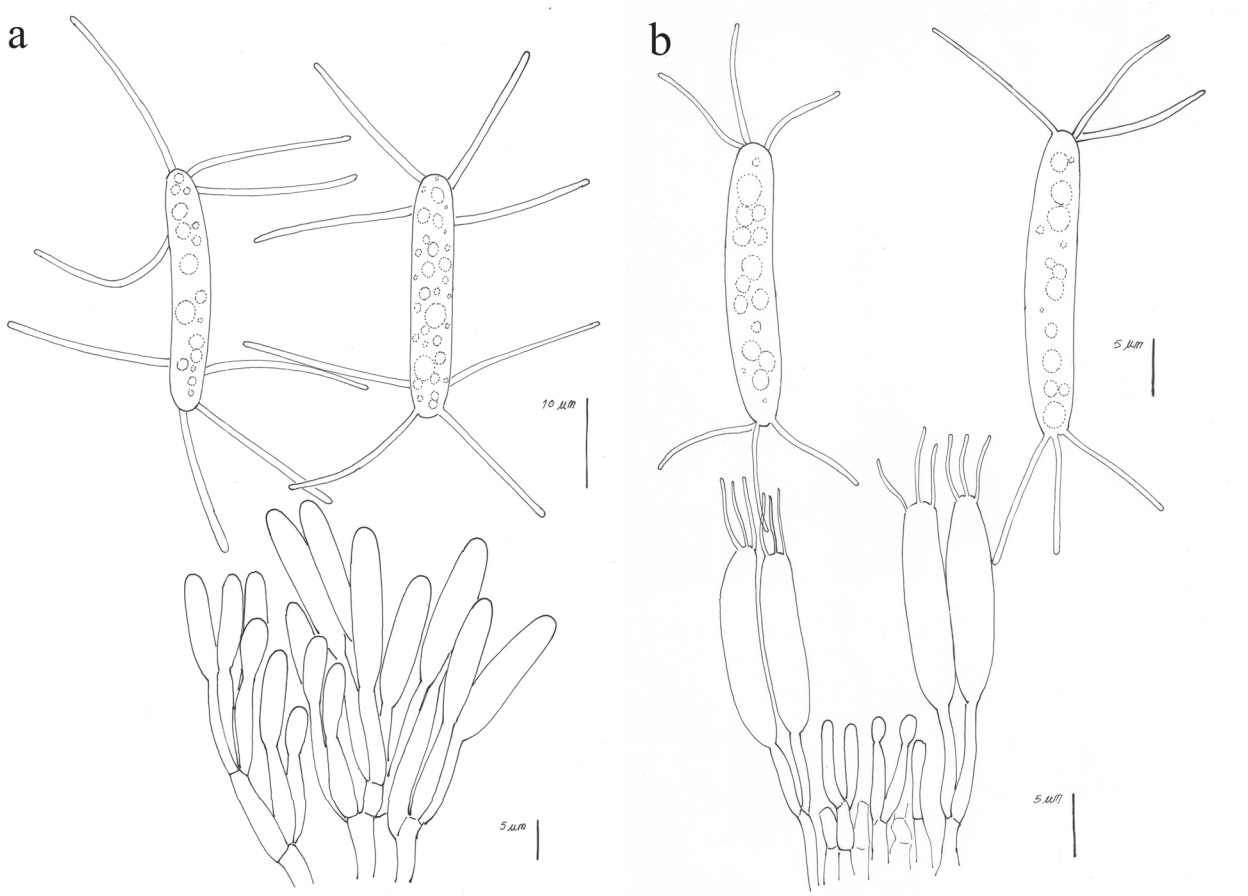

FIGURE 4. Conidia with appendages and conidiophore. a. *Chaetospermum camelliae* b. *Chaetospermum artocarpi.*

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