



Multi-gene phylogeny of *Pithomyces* with the sexual morph of *P. flavus* Berk. & Broome

PRATIBHA J.¹ & PRABHUGAONKAR A.²

Department of Botany, Goa University, Goa – 403 206, India.

Email: ¹jalmipratibha@rediffmail.com; ²ashishprabhugaonkar@yahoo.co.in

²Botanical Survey of India, Eastern Regional Centre, Shillong 793003, India

Abstract

Pithomyces flavus collected from litter of palm, *Calamus thwaitesii* from Dudhsagar, Goa, India is re-described as sexual morph of *Astrosphaeriella vesuvius*. Combine molecular phylogenetic analysis of ITS, LSU, SSU and RPB2 is provided to support this new connection and identity of sexual morph.

Key words: palm fungi, ITS, SSU, taxonomy, LSU, RPB2

Introduction

Pithomyces Berk. & Br. was described with *P. flavus* Berk. & Br. (1873) as type species and genera *Neomichelia* Penz. & Sacc. and *Scheleobrachea* S. Hughes as its synonyms. *Pithomyces* till date has 46 species (Index fungorum). Another fungus *Sphaeria vesuvius* Berk. & Broome was also described in the same publication without having a clue that both are morphs of same fungi. Both fungi were collected from Sri Lanka but it was not evident that they were found in same collection or same host.

Genus *Astrosphaeriella* Syd. & P. Syd. was introduced with type species *A. fusispora* Syd. & Syd. from bamboo stems in Japan in 1912. Muller and Arx 1962 transferred all species of genus to *Microthelia* Korber. Howksworth 1981 re-introduced and amended the genus *Astrosphaeriella* with *Astrosphaeriella stellata* (Pat.) Sacc. as type species. *Astrosphaeriella* is isolated predominantly from monocots. Hawksworth and Boise in 1985 transferred *Sphaeria vesuvius* as a synonym of newly established species *Astrosphaeriella vesuvius* (Berk. & Broome) D. Hawksw & Boise. Latest data show that there are 60 epithets for *Astrosphaeriella* in Index Fungorum. Liu *et al.* (2011) in a review of genus *Astrosphaeriella* using molecular phylogeny showed that genus is polyphyletic and separated it in several clades, basal to family *Aigialaceae*.

During studies on diversity of microfungi associated with litter degrading fungi from Western Ghats, *Pithomyces flavus* was found associated with ascomycetous fungus *Astrosphaeriella vesuvius* on several collections of rattan, *Calamus thwaitesii* from Goa, India. Both fungi were cultured for the first time. This revealed similar culture characters with production of anamorphic conidia, which pointed to teleomorphic link of *P. flavus* with *Astrosphaeriella vesuvius*. This was further confirmed by molecular phylogenetic analysis of both cultures. Both type materials collected by Berkley and Broome in 1873 are un-culturable hence fungus is epitypified here.

Materials and methods

Collection and culturing

Freshly collected leaf litter samples were taken to the laboratory in sealed polythene bags. The sample was observed under stereomicroscope. Fungal material from the palm spathe was either picked with a fine-tipped needle or sectioned with fine blade and mounted on a slide containing a drop of lactophenol solution. This was examined under a light microscope for further details.