

Microxyphispora, A New Sooty Mold Genus (Order Dothidiales) from India

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A hitherto undescribed pycnidial sooty mold, *Microxyphispora corticola* gen. et sp. nov. colonizing the dried twigs of *Albizzia odorotissima* Benth. is described from India. The long, narrow, beaked, fimbriate, ostiolate, prosenchymatous pycnidia produce thallic, two- to four- celled, pseudoseptate, hyaline conidia covered with mucilaginous sheath.

Keywords: Pycnidia, thallic conidia, pseudoseptate, mucilaginous sheath

INTRODUCTION

Sooty molds is the term used for a group of fungi belonging especially to Dothideales and their anamorphs. They are widespread especially in tropical and subtropical regions. Sooty molds form a network of hyphae, a pellicle, a velutinous growth or a pseudo-parenchymatous crust on living leaves and small twigs of many plants (Hughes 1976). They are often associated with honey dew exudates of insects. Hyphae of many sooty molds have a markedly mucilaginous outer wall which absorbs water readily, acts as an adhesive and undoubtedly maintains a moist leaf surface for a longer period. The growth is usually more robust on trunks and larger branches and may be in the form of lumpy pseudoparenchymatous stromata, or spongy subicula composed of loosely interwoven hyphae (Hughes 1976). A number of hyphomycetous and coelomycetous anamorphs are known in the order (Barr 1987).

MATERIALS AND METHODS

A pycnidial fungus belonging to sooty molds was collected growing on the dried twigs of *Albizzia odorotissima* Benth (Caesalpiniaceae) during the rainy

season of September 2000 from the Botanical Garden, Osmania University, Hyderabad, India. The fungus was observed under the microscope and herbarium specimen was kept at Osmania University, India.

RESULTS AND DISCUSSION

Our pycnidial fungus produces black, dense and appressed growth on the host. Long, beaked, membranous, fimbriate and ostiolate pycnidia arise from a dense pseudoparenchymatous mass. The conidia are entero-thallic, continuous, broadly ellipsoidal, two- to four-celled, pseudoseptate, hyaline, covered with mucilaginous sheath. Various types of pycnidia are produced by the sooty mold genera *Aithaloderma*, *Antennariella*, *Catenuloxylum*, *Conidiocarpus*, *Conidioxyphium*, *Fumagospora*, *Microxyphiella*, *Phaeoxyphiella*, *Polychaeton*, *Scolecoxyphium* and *Stalagnochaetia* (Batista & Ciferri 1963; Hughes 1976; Barr 1987; Ganju & Nair 2000) (Table 1). Comparison of pycnidia showed that they may be stalked or sessile, globose, elliptic, cylindrical or subulate, with or without setae, ostiole with blunt ends of hyphae or fimbriate or with subulate hyphal extensions. The conidia could be hyaline or colored, 0-15 septate, bacillar, ellipsoidal or fusoid. The ostiole is

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Table 1. Types of pycnidia and pycnidiospores/conidia in sooty mold genera

Genera	Pycnidia	Pycnidiospores/conidia
<i>Aithaloderma</i>	Conical-conical subglobose, lageniform, ostiolate, setae +nt or –nt	Minute, hyaline, continuous
<i>Antennariella</i>	Globose-obovoid, on erect hyphae, ostiolate	Bacillar, hyaline, 0-septate
<i>Catenuloxylum</i>	Subulate to flask shaped, ostiole with short inconspicuous fringe	Hyaline, 2-3 septate, brown on maturity
<i>Conidiocarpus</i>	Stalked (long, narrow), broadly ellipsoidal to lageniform, ostiole fringed with hyaline, subulate hyphal extensions	Ellipsoidal, hyaline, 0-septate
<i>Cylindroxylum</i>	Stalked, ellipsoidal or obovoid, setose	Hyaline, ellipsoidal, continuous
<i>Fumagospora</i>	Stalked (robust), flask shaped-cylindrical-long subulate, ostiole fringed with tapered hyphal extensions	Muriform, brown with 3-5 transverse septa
<i>Microxyphiella</i>	Sessile, elongated	Hyaline or chlorinous, 1-septate
<i>Phaeoxyphiella</i>	Flask shaped with tapered neck	Fusoid, reddish brown-brown, 15 septate
<i>Polychaeton</i>	Stalked (robust), subulate to cylindrical neck, ostiole with hyaline, subulate extensions	Ellipsoidal, hyaline, 0-septate, gather in a droplet
<i>Scolecoxylum</i>	Irregularly cylindrical, straight or flexuous	Ellipsoidal, hyaline, continuous
<i>Stalagnochaetia</i>	Globose, borne on setose hyphae	Broad ellipsoidal, hyaline, continuous
<i>Microxyphispora</i> gen nov.	Cylindrical, ostiolate with subulate extensions	Broad ellipsoidal, hyaline, 1-3 pseudosepta with mucilaginous sheath

fringed with subulate or tapered hyphal extensions in the genera *Conidiocarpus*, *Fumagospora* and *Polychaeton*. But the conidia are 0-septate in *Conidiocarpus* and *Polychaeton*. Whereas, in *Fumagospora* the conidia are muriform with 3-5 transverse septae. It is evident from Table 1 that entero-thallic ellipsoidal two- to four- celled, pseudoseptate conidia covered with mucilaginous sheath are not produced by the known genera of pycnidial sooty molds. Therefore, the present fungus is described as a new genus *Microxyphispora corticola* Manohar and Kunwar gen. et sp. nov.

***Microxyphispora* Manohar, Kunwar et Ramesh gen. nov. (Figs. 1-7)**

Atroniger, fuliginous fungorum similis, parasiticus, vegetativus hyphis immersio et superficialis, brunneoatro, pseudoparenchymatus-pseudoprosenchymatus textura, hyphis si adsunt septatus, attenuatus ad septa, constatus brevis cylindricus cellulis; pycnidiae longus cylindricus, fimbriatus, membranaceus, ostiolatus, atro-brunneus cum complanatus vel inflatus basi; pycnidium apice cum decrescens hyphis faciens fimbria; conidia internus-thallic, laevis, hyalinus cum mucilaginus vagina, pseudoseptatus, duo-quadriceellularis.

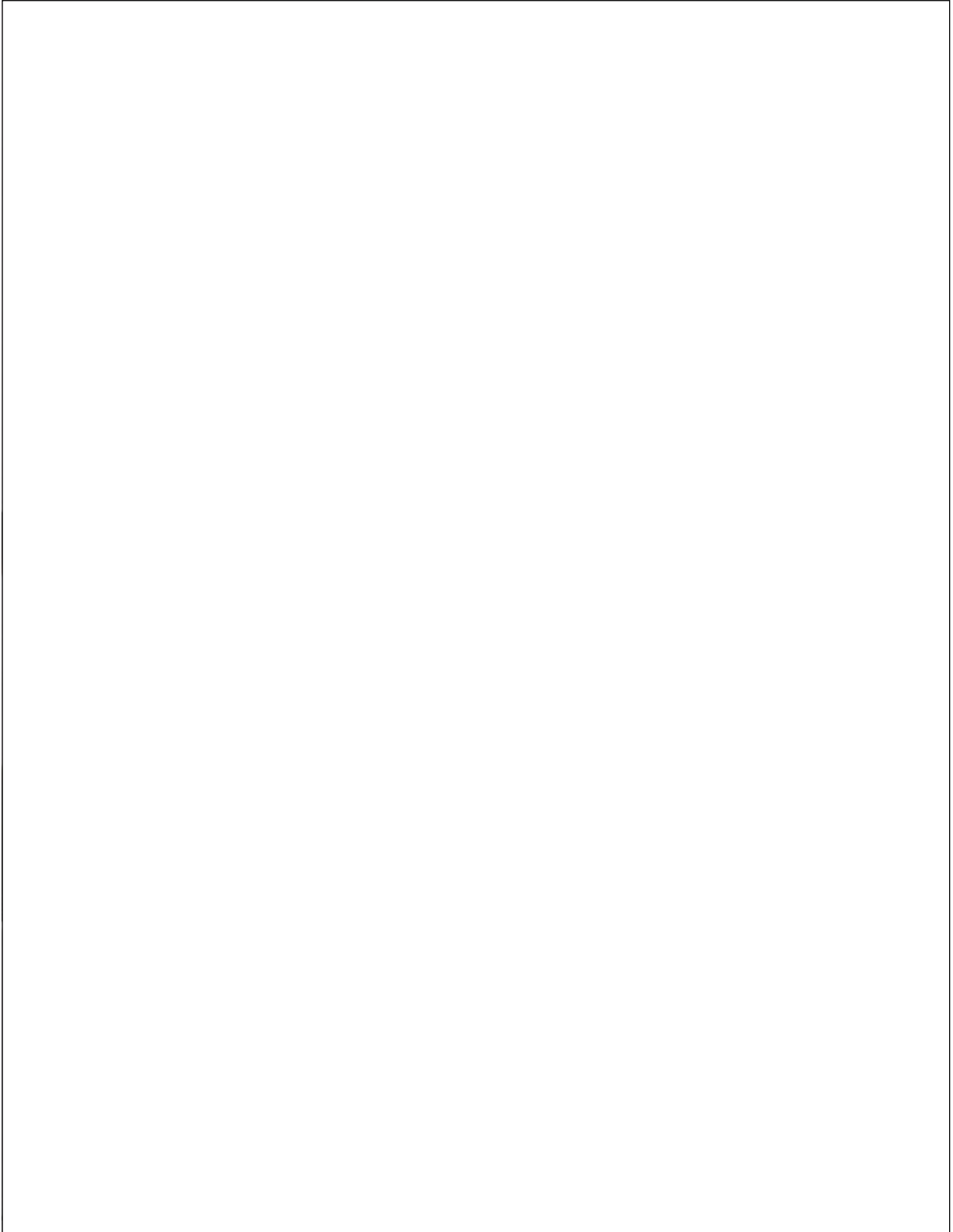
***Microxyphispora* Manohar, Kunwar and Ramesh gen. nov. (Figs. 1-7)**

Black, sooty mold-like, parasitic, vegetative hyphae immersed and superficial, brown-black, pseudoparenchymatus-prosenchymatus tissue,

hyphae, if present, septate, attenuated at septa, made up of short cylindric cells; pycnidia long, cylindric, beaked, fimbriate, membranous, ostiolate, blackish-brown with flattened or swollen base, apex of the pycnidium has narrowing hyphae forming frills; conidia entero-thallic, smooth, hyaline with mucilaginous sheath, pseudoseptate, two- to four- celled.

***Microxyphispora corticola* Manohar, Kunwar et Ramesh sp. nov. (Figs. 1-7)**

Atroniger, fuliginous fungorum similis, parasiticus, vegetativus hyphis immersio et superficialis, brunneoatro, pseudoparenchymatus-pseudoprosenchymatus textura, hyphis si adsunt septatus, attenuatus ad septa, constatus brevis cylindricus cellulis 6.9-10.4 X 4.3-6.9 μm ; pycnidiae longus cylindricus, maximum partem hovens longus rostro, fimbriatus, membranaceus, ostiolatus, atro-brunneus cum complanatus vel inflatus basi 156.0-347.0 μm longo, basi pars pseudoparenchymatus, ceterus pars prosenchymatus, basi pars 24.8-90.0 μm latitudo, medius pars 25.2-103.8 μm latitudo, apicis 12.0-32.0 μm latitudo, ostiolum circumcinctus quintus-octavus pallidus brunneo, septatus, contractus hyphis faciens fimbria 7.5-20.0 μm longis, viscus plerumque in juniores pycnidiae; conidia internus-thallic, continnus, late ellipsoidalis, duo-quadriceellularis, pseudoseptatus, laevis, hyalinus cum rotundatus extremis, tectus cum mucilaginus vagina, 9.5-18.4 x 3.0-6.0 μm .



Figures. 1-7. *Microxyphispora corticola* gen. et sp. nov. **1.** Sooty mold on *Albizia odoratissima* stem. **2.** Pycnidia with enterothallic conidia (arrow). Scale bar = 60 μm . **3-5.** Pycnidia with tapering hyphae on the ostiole. Scale bar= 60 μm . **6.** Conidia coming out in a mass from the pycnidium. Scale bar = 60 μm . **7.** Two to four celled, pseudoseptate conidia coming out from ostiole. Scale bar = 30 μm .

TYPUS: In speciei *Albizzia odorotissima* Benth (Caesalpiniaceae). Holotypus a P. Ramesh, Osmania Universitatum, A.P., Indie, Die 12 Septembris anni 2000. Lectus et positus in HCIO, IARI, Indie, sub numero 43,913. Isotypus depositus in Herb. Osmania Universitatum, Indie, sub numero OUFH-145.

***Microxyphispora corticola* Manohar, Kunwar and Ramesh sp. nov. (Figs.1-7)**

Black, sooty mold like, parasitic, vegetative hyphae immersed and superficial, brown-black, pseudoparenchymatous-prosenchymatous tissue, hyphae, if present, septate, attenuated at septa, made up of short cylindric cells 6.9-10.4 μm x 4.3-6.9 μm ; pycnidia long, cylindric, mostly with a long beak, fimbriate, membranous, ostiolate, blackish-brown with flattened or swollen base 156.0-347.0 μm long, basal portion pseudoparenchymatous, remaining portion prosenchymatous, basal region 24.8-90.0 μm across, middle region 25.2-103.8 μm across, apex 12.0-32.0 μm across, ostiole surrounded by 5-8 pale brown, septate, tapering hyphae forming frill, 7.5-20.0 μm long, seen mostly in younger pycnidia; conidia enterothallic, continuous, broadly ellipsoidal, two to four celled, pseudoseptate, smooth, hyaline with rounded ends, covered with mucilaginous sheath, 9.5-18.4 μm x 3.0-6.0 μm .

TYPE: Collected by P. Ramesh on 12 September 2000 from dried twigs of *Albizzia odorotissima* Benth (Caesalpiniaceae), Botanical Garden, Osmania University, Hyderabad, Andhra Pradesh, India. Holotype in HCIO, IARI, India, number 43,913, Isotype in Herbarium, Osmania University, India, number OUFH-145.

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