

# Three new fungal species from Andhra Pradesh, India

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During a survey of diverse habitats in the forests of Andhra Pradesh, three interesting fungi were encountered. They do not match with any of the described species, hence described as new species. Conidia in *Pithomyces djbhatii* sp. nov. are unique, having short to very long (21-97  $\mu\text{m}$ ) appendage like rostrum. *Polyschema ylnenei* has elliptical, cylindrical to obclavate, smooth, brown conidia, with 3-5 dark band like transverse septa and one vertical septum towards the lower end of the conidium. *Cercosporidium terminali* sp. nov. is characterized by conidiophores densely packed in fascicles; conidia with 10-18 septa, 40-85  $\mu\text{m}$  long, and 3.4-3.8  $\mu\text{m}$  wide at the broadest part, besides occurring on a new host *Terminalia tomentosa*.

**Key-words** – Dematiaceous, fascicles, conidia, rostrate, transverse bands

*Pithomyces* is a large genus with several species (Ellis, 1971, 1976; Rao et al., 1986; Kirk et al., 2001). In the present study, a fungus that cannot be accommodated in the known species of *Pithomyces* is described as new species, viz. *Pithomyces djbhatii*.

***Pithomyces djbhatii*** sp. nov. (Fig. 1)

*Coloniae effusus, velutinous, umbrinus ad atrobrunneus, elevatus, usque ad 0.5 mm diametro insidens hospitis. Mycelium subimmersus, partim superficialis, conidiophora semi-macronematous, mononematous, erecta, rectus, brunneus, ad medius brunneus, laevis, septatus, usque ad 30  $\mu\text{m}$  longi, 4.5-5.5  $\mu\text{m}$  crassus. Conidiogenous cellulae monoblastic, integrated, terminalis, determinatus, cylindricus. Conidia solitarii, acrogenous, holoblastic, ovatus ad pyriformis, rostratus, rostrum brevis ad longissimus, pallidus brunneus, usque ad 15 septatis, conidia muriformis, atrobrunneus-memnonius, 136-180  $\mu\text{m}$  longi, 3.0-4.25  $\mu\text{m}$  latus ad maximus.*

Colonies effuse, hairy, dark brown to brownish black, forming raised colonies up to 0.5 mm in diam on host substratum. Mycelium almost immersed, partly superficial, the immersed mycelium composed of pale brown hyphae in host tissue while the superficial mycelium is composed of branched, anastomosing, septate, smooth, pale brown 2.5-3.5  $\mu\text{m}$  thick hyphae. Conidiophores semi-macronematous, mononematous, erect, straight, simple, brown to mid brown, smooth,

septate, up to 30  $\mu\text{m}$  long, 4.5-5.5  $\mu\text{m}$  wide. Conidiogenous cells monoblastic, integrated, terminal, determinate, cylindrical. Conidia solitary, dry, acrogenous, holoblastic, ovate to pyriform, rostrate, rostrum short to very long, appendage like, 21-97  $\mu\text{m}$  long, 5.5-8.5  $\mu\text{m}$  wide at the base, tapering to 2-4.5  $\mu\text{m}$  at the tip, pale brown, transverse septa up to 15; except rostrum, conidia muriform, septa thick, deeply constricted at the septa forming crenate surface, dark brownish black, sometimes obscuring the septa, body of the conidia 27-45  $\mu\text{m}$  long, 19-26  $\mu\text{m}$  wide at the broadest part, over all conidium size including the appendage 55-135  $\mu\text{m}$  long.

Holotype: On unidentified palm spathe in a forest near Rampa falls, Rampachodavaram, east Godavari Dist., A.P., on 2-11-1985, Coll. by N.K. Rao, HClO - 46,462.

This interesting fungus shows some peculiar characters like short to very long, septate, appendiculate rostrum as seen in *Piricauda paragayanensis* (Speg.) Moore (Moore, 1958), but differs from it in size of the crenate conidia, and in the absence of arched loops in the conidiophore. Dark brownish black pigmentation sometimes obscuring the septa and large size of the conidium, are reminiscent of the conidia of *Bilgramia* Panwar, Purohit & Chouhan (Panwar et al., 1974), but in *Bilgramia* the conidia are catenate and connected by isthmi, however other characters warrant its disposition in *Pithomyces*.

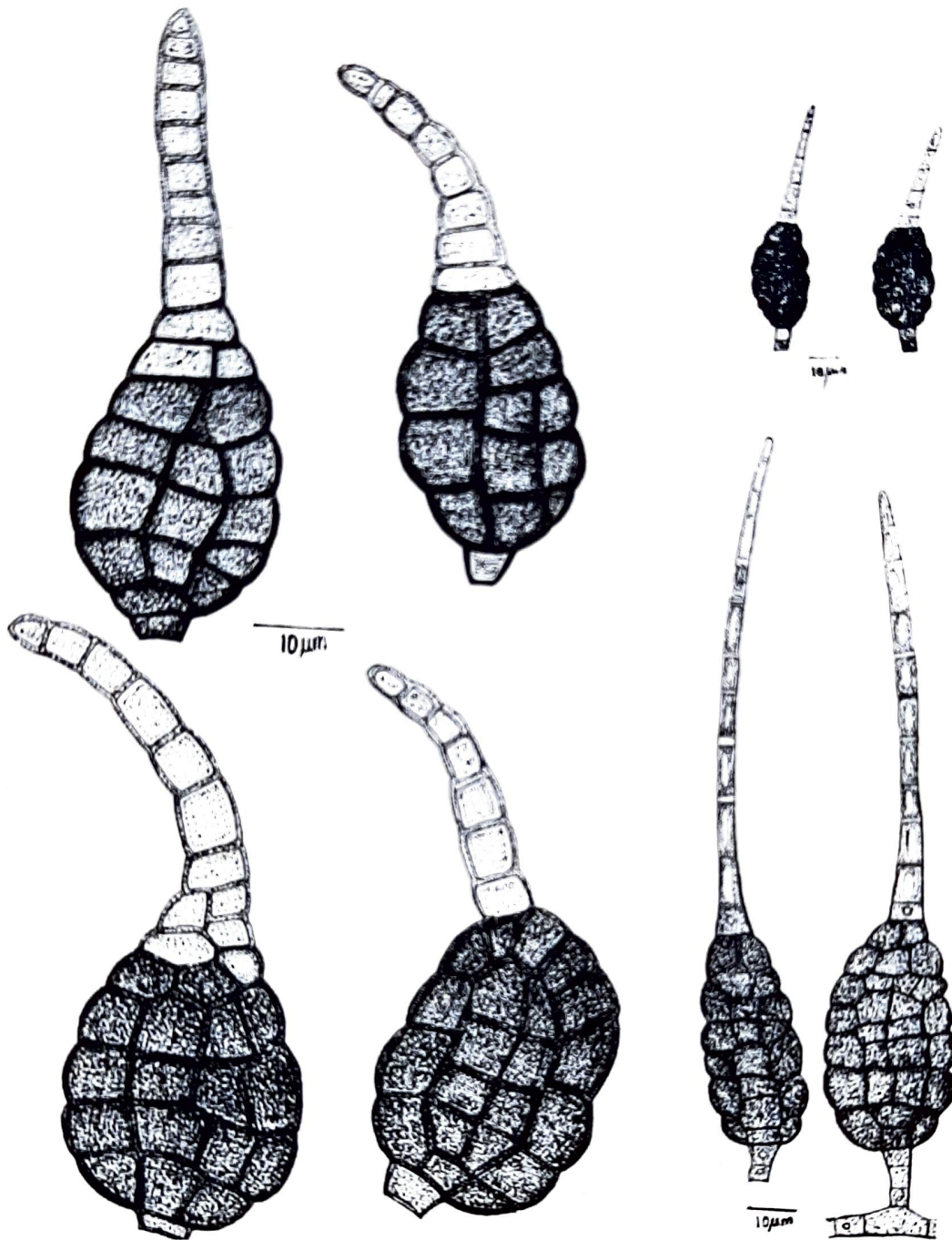


Fig. 1. *Pithomyces djbhatii* sp. nov. Conidiophores and conidia.

The appendiculate rostrum and crenate conidia encountered in this fungus are not observed in any of the 35 known species of *Pithomyces* (Ellis, 1971, 1976; Matsushima, 1975; Rao and de Hoog, 1986; Kirk et al., 2001) and hence this is disposed as a new species of *Pithomyces* viz. *Pithomyces djbhatii*, species named in honour of Prof. D.J. Bhat, Goa, an eminent mycologist of the country.

*Polyschema ylnenei* sp. nov. (Fig. 2)

*Colonize effuses vel punctiformis, atrobrunneus vel memnonius. Mycelium maxim partim superficialis, hyphis pallide brunneis, 4-4.5 μm latus. Conidiophora micronematous, mononematous. Conidiogenous cellulae monotretic, discretus, sphaericus, laevis, determinatus, 3-4.5 μm diametro. Conidia solitarius, siccus, ellipticus, cylindricus ad obclavati, laevis, pachyparies, vulgo habens 3-5 vittiformis transversalis septatus, et vulgo uncus*

*verticalis septa versus infernos extremum, medius brunneus ad atrobrunneus, 21-31  $\mu\text{m}$  longi, 7-11  $\mu\text{m}$  latus ad maxim partum ex conidium.*

Colonies effuse or punctiform, dark brown to blackish brown. Mycelium mostly superficial composed of branched, anastomosing, septate, smooth, pale brown, 4-4.5  $\mu\text{m}$  wide hyphae. Conidiophores micronematous, mononematous. Conidiogenous cells monotretic, discrete, spherical, smooth, determinate, 3-4.5  $\mu\text{m}$  in diam. Conidia solitary, dry, elliptical, cylindrical to obclavate, smooth, thick walled, usually

with 3-5 dark band like transverse septa (rarely 6 septa) and generally one vertical septum towards the lower end of the conidium, mid brown to dark or blackish brown, sometimes obscuring the septation, 21-31  $\mu\text{m}$  long, 7-11  $\mu\text{m}$  wide at the broadest part of the conidium.

Holotype: On dead unidentified twigs, collected in a forest near Rampa falls, Rampachodavaram, East Godavari, Dist., A.P. on 2-11-1985, Coll. by N.K. Rao, HCIO - 46,464.

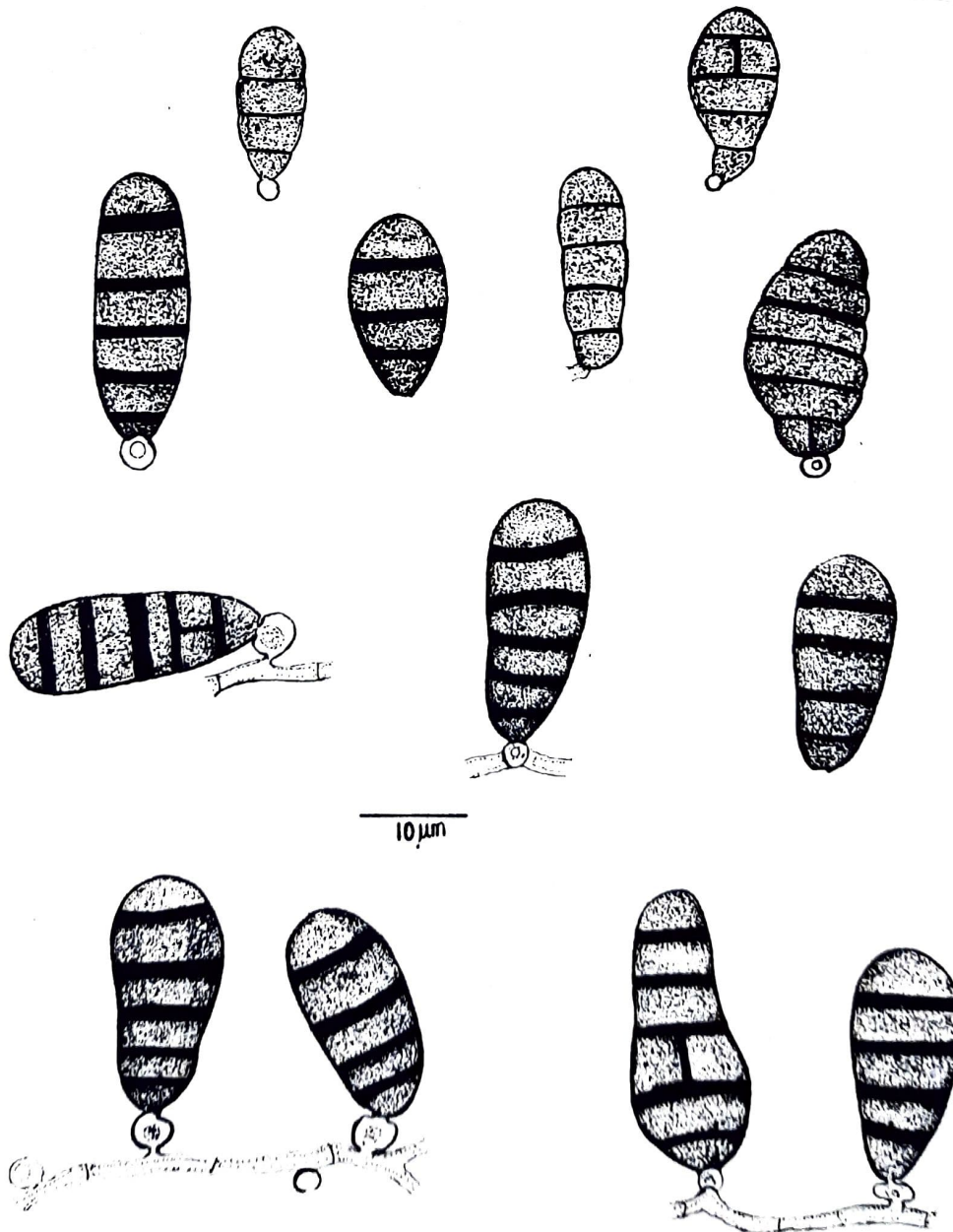


Fig. 2. *Polyschema ylneni* sp. nov. Conidiophores and conidia.

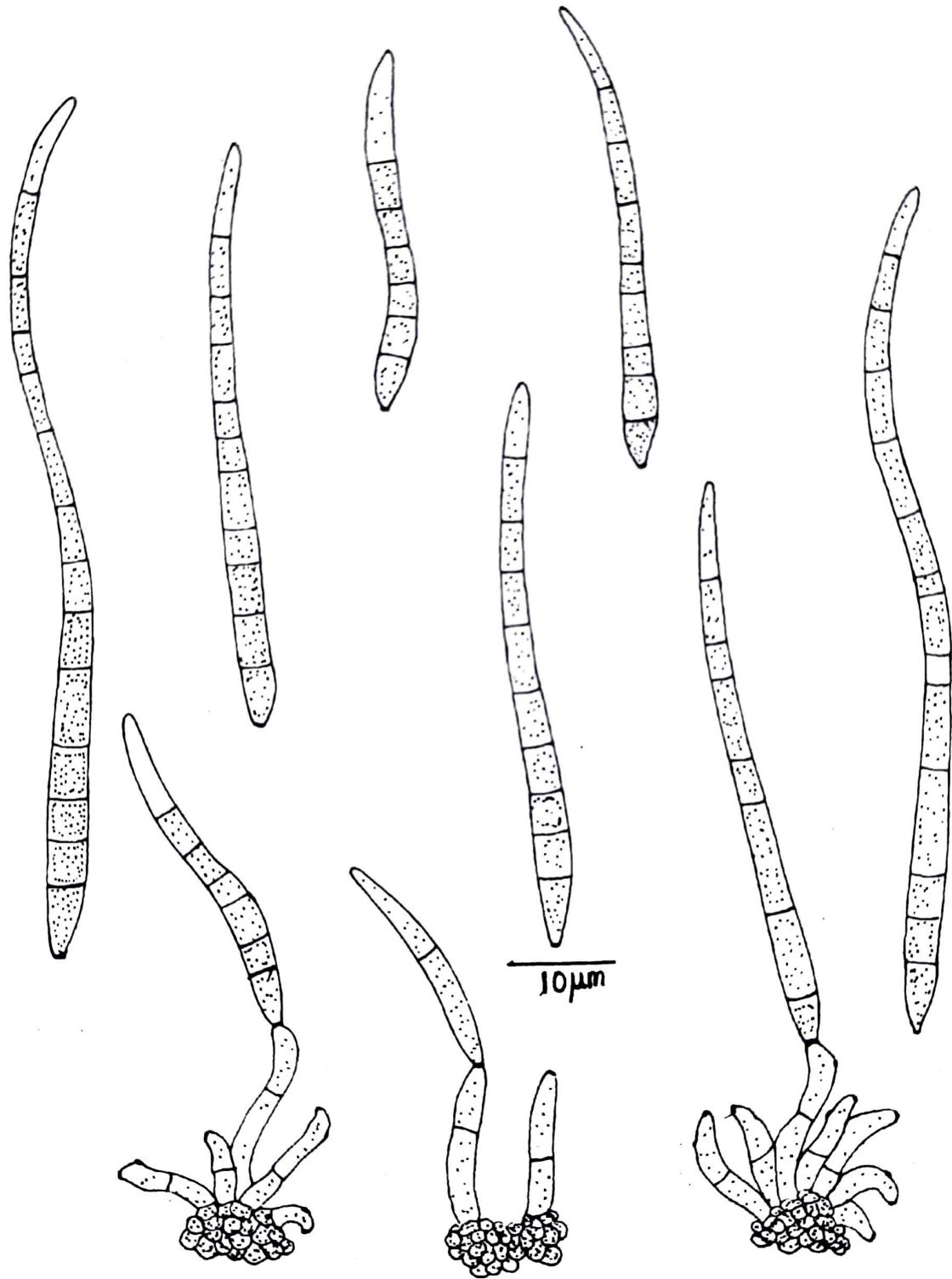


Fig. 3. *Cercosporidium terminali* sp. nov. Conidiophores and conidia.

This fungus shows distinct characters in conidium size, shape, septation and size of the conidiogenous cells that warrant its disposition as separate species in the genus *Polyschema* and no known species comes close to it (Ellis, 1976; Matsushima, 1975; Kirk et al, 2001). Hence, it is erected as a new species viz.

*Polyschema ylnenei* named in honour of Dr. Y.L. Nene, International Plant Pathologist, ICRISAT, for his outstanding contributions.

***Cercosporidium terminali* sp. nov.** (Fig. 3)

*Coloniae hypophyllous, olivaceous-griseus ad viridis, elevatus, mycelium immersus, hyphis*

*ramosus, laevis, 2.5-3.5 µm latus. Stroma adsent, prosenchymatous, immersum in subepidermicus ex hospitis, 50-70 µm crassa. Conidiophora macronematous, mononematous, erecta, flexuosus, im compactus fasciculis, laevis, 1-2 septatis, geniculatus, sub-hyalinus, 10-38 µm longi, 2.4-4 µm crassa. Conidiogenous cellulae polyblastic, integrated, terminalis, sympodialis et cicatricatus. Conidia solitarii, siccus, acrogenous, obclavata, longi, rectus, curvus vel flexuosus, laevis, paries tenuis, euseptatus, septa 10-18, subhyalinus vel pallid olivaceous fuscus 40-85 µm longi, 3-4.2 µm crassa ad maximus, apic 2 µm crassa.*

Colonies hypophyllous, spots on the host raised, irregular, olivaceous green, 4-8 mm. Mycelium immersed, composed of branched subhyaline, septate, smooth, 2.5-3.5 µm wide hyphae. Stroma present, well developed, prosenchymatous, immersed in subepidermal region of the host, 50-70 µm across. Conidiophores macronematous, mononematous, arising from the immersed stroma, erect, flexuous, packed closely in compact fascicles, smooth, septate, septa 1-2, geniculate, subhyaline, 10-38 µm long, 2.4-4 µm wide. Conidiogenous cells polyblastic, integrated, terminal, sympodial and cicatrized, conidial scars prominent. Conidia solitary, dry, acrogenous, simple, obclavate, long, straight, slightly curved or flexuous, rounded at the apex, somewhat flat at the base, smooth, thin walled, euseptate, septa 10-18, subhyaline or very pale olivaceous brown, 40-85 µm long, 3-4.28 µm wide at the broadest part, up to 2 µm wide at the apex.

Holotype: On fallen leaves of *Terminalia tomentosa*, collected in a forest near Maredmilli, East Godavari,

A.P., on 1-11-1985, Coll. by N.K. Rao, HCIO - 46,456.

*Cercosporidium* is either parasitic or saprophytic on leaves of many tropical plants. In the present study, the fungus was collected occurring on the leaves of *Terminalia tomentosa* causing irregular olivaceous green spots. Material examined and described above exhibited characters hitherto not encountered in any of the known species of *Cercosporidium* (Ellis, 1971, 1976; Matsushima, 1975; Kirk et al, 2001) in having well developed somewhat raised stroma; conidia long, up to 18 septate, besides occurring on the leaves of *Terminalia tomentosa*, the host not reported so far for the species of *Cercosporidium*. Hence, the taxon in discussion is described as a new species of *Cercosporidium* viz. *C. terminali*.

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