

Four foliicolous Hyphomycetes from Nagaland

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Four foliicolous hyphomycetous fungi viz. *Cercospora adinae*. T. S & K. Ramakrishnan, *C. argyreiae* Gobindu & Thirumalachar, *C. cocciniae* Munjal, Lall & Chona and *C. wrightiae* Thirumalachar & Chupp were collected from Nagaland. These are described and illustrated in this paper. These are reported for the first time from Nagaland.

Key words : Follicolous hyphomycetes, *Cercospora*, Nagaland

During mycological survey in some areas of Nagaland in 2002-2006, several foliicolous hyphomycetous fungi are collected. This paper deals with description of four hyphomycetous fungi : *Cercospora adinae* T. S. & K. Ramakrishnan, *C. argyreiae* Gobindu & Thirumalachar, *C. cocciniae* Manjal, Lall & Chona and *C. wrightiae* Thirumalachar & Chupp. The fungi are collected from the districts of Wokha, Zunheboto and Dimapur of Nagaland respectively.

The fungal specimens are sent to Indian Agricultural Research Institute (IARI), New Delhi, India for confirmed identification. The voucher specimens are deposited in Mycological Herbarium, Post Graduate department of Botany, Presidency College as Presidency College Collection (PCC).

OBSERVATIONS

Cercospora adinae T. S. & K. Ramakrishnan, *Proc. Indian Acad. Sci.* 26 (Sect B) : 9, 1947. (Fig. 1)

Leaf spots amphigenous, circular to subcircular, scattered, sometimes coalescent, numerous, on upper surface greyish brown to rusty brown with dark to almost black zone, on lower surface uniformly dull brown, sometimes leaving a shot hole, 1-7 mm in diameter. *Caespituli* chiefly hypophyllous, evenly distributed over the spots, dark brown. *Stroma* poorly developed, globular to slightly irregular, deep brown, 14-30 µm in diam. *Conidiophores* fasciculate, fascicles dense, usually emerging through stomata, pale brown to medium brown, paler and narrower

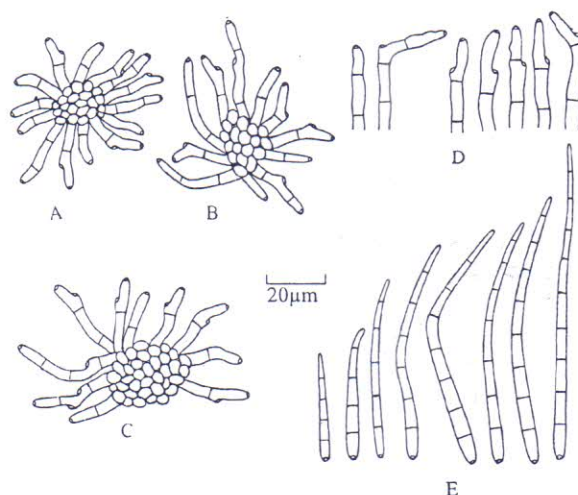


Fig. 1 : *Cercospora adinae*.

A-C : Conidiophore fascicles ; D : Conidiophores ; E : Conidia

towards the tip, slightly irregular in width, straight to curved, unbranched, occasionally branched, smooth, thick walled, distinctly multiseptate (0-5), geniculate (up to 3) near the apex, conspicuous scars (1-5) lying at the tip or at the point of geniculation of the conidiophores, tip rounded to subconic, 16-55 × 4-6.5 µm. *Conidia* subhyaline to medium olivaceous, straight to mildly curved, multiseptate (4-9), tip acute to subobtuse, base obconically truncate with a prominent hilum, 40-112 × 4-7 µm.

Specimen studied : On the living leaves of *Adina cordifolia* (Roxb.) Hook. f. (Family-Rubiaceae), Tiyi

Mountain, near Wokha Town, Wokha, Nagaland, India, T. K. Jana, 11.8.2000, PCC 5140, ITCC 4440.01.

Cercospora argyreiae Gobindu & Thirumalachar, *Sydowia* 10 : 272, 1956 (Fig. 2)

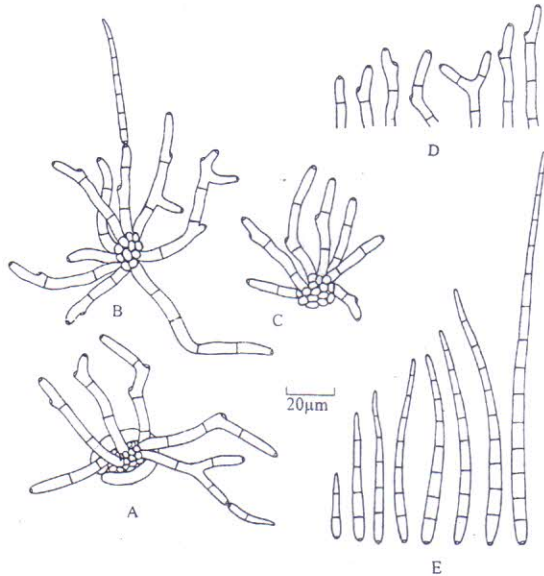


Fig. 2 : *Cercospora argyreiae*

A-C : Conidiophore fascicles ; D : Conidiophores ; E : Conidia

Leaf spots amphigenous, prominent on dorsal surface, older leaves more affected, circular to subcircular, scattered, sometimes coalescent, dark reddish brown centre with narrow yellowish brown margin, vein limited and 1-5 mm in diameter. **Caespituli** amphigenous, chiefly epiphyllous, dark brown, unevenly distributed over the spots. **Stroma** poorly developed, globular to subglobular, composed of compact mass of isodiametric deep brown cells. **Conidiophores** usually fasciculate, fascicles not dense, 3-10 divergent stalks in a fascicle, pale to medium olivaceous brown, slightly paler towards the tip, almost uniform in width, pleuriseptate (1-5), straight to curved, sometimes 1-3 geniculate, simple to occasionally branched, conidial scars (0-4) distinct, tip rounded to subconic with scar, 20-125×3.5-5 µm. **Conidia** subhyaline to very faintly olivaceous, acicular to obclavate cylindrical, 2-15 indistinctly septate, straight to slightly curved, base truncate to obconically truncate, tip acute to subacute, 25-109×3-6 µm.

Specimen studied : On the living leaves of *Argyreia hookeri* Clarke. (Family Convolvulaceae), South point Colony, Zunheboto, Nagaland, India, T. K. Jana, 24.02.2001, PCC 5183, ITCC 4926.01.

Cercospora cocciniae Munjal, Lall & Chona. *Indian Phytopath.* 12 : 86, 1959. (Fig. 3)

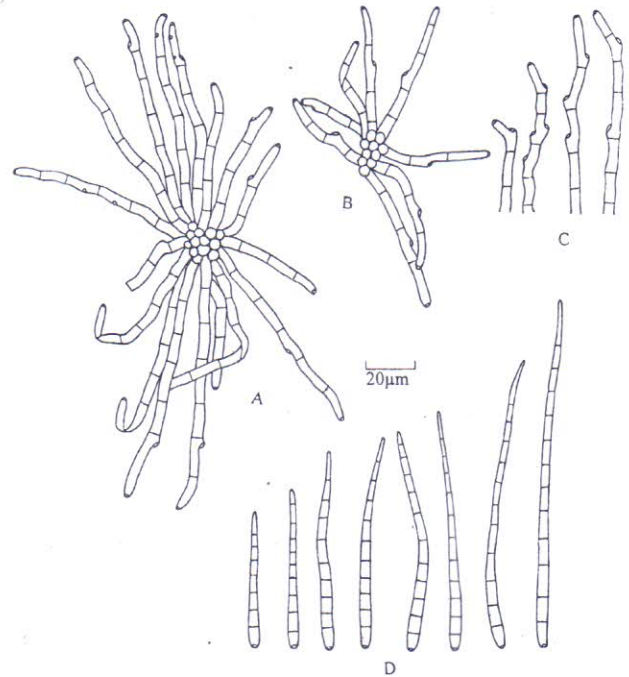


Fig. 3 : *Cercospora cocciniae*

A-C : Conidiophore fascicles ; D : Conidiophores ; E : Conidia

Leaf spots amphigenous, distinct on upper surface, few, scattered, rarely coalescent, circular to subcircular, grey to white in the centre surrounded by raised dark brown margin, sometimes leaving a shot hole, 1-4 µm in diameter. **Caespituli** amphigenous, mostly epiphyllous, densely and evenly distributed over the spots. **Stroma** poorly developed, subglobose to irregular, pale brown, 9-30 µm in extent. **Conidiophores** fasciculate, fascicles rarely dense, 5-20 divergent stalks in a fascicle, coming out through the stomata, medium olivaceous brown, straight to undulate, almost uniform in colour and width, distinctly mutiseptate (2-6), 1-4 geniculate, thick walled, smooth, conspicuous conidial scar lying at the tip or point of geniculation of the conidiophores, tip truncate, terminated with scar, 28-125×4-6 µm. **Conidia** narrowly obclavate, cylindrical, straight to mildly curved, indistinctly pleuriseptate (3-10), smooth, thin walled, subhyaline to pale olivaceous, base obconically truncate, tip acute to subobtuse, 40-155×3-6 µm.

Specimen studied : On the living leaves of *Coccinia grandis* (Linn.) Voigt. (Family Cucurbitaceae), Rail Colony, Dimapur, Nagaland, India, T. K. Jana, 14.03.2000, PCC 5129, ITCC 4866.01.

Cercospora wrightiae Thirumalachar & Chupp, *Mycologia* 40 : 362, 1948. (Fig. 4)

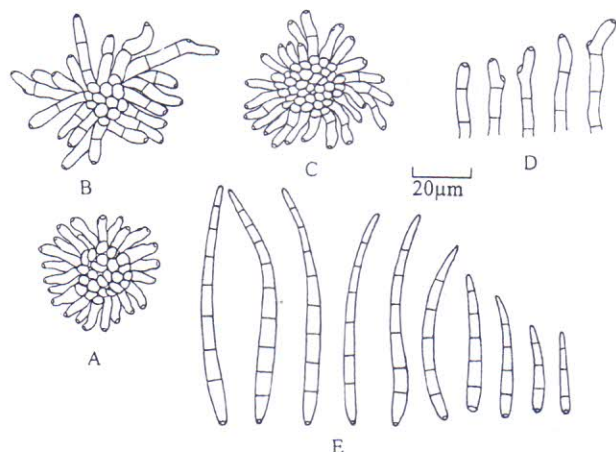


Fig. 4 : *Cercospora wrightiae*

A-C : Conidiophore fascicles ; D : Conidiophores ; E : Conidia

Leaf spots amphigenous, circular to subcircular, scattered, sometimes coalescent, pale brown to dull grey centre with yellowish brown margin, lesions occasionally developing a shot hole appearance, 0.5-5 µm in diameter. *Caespituli* amphigenous, evenly distributed over the spots. *Stroma* globular to subglobular, dark brown, small to medium sized, 15-50 µm in diam. *Conidiophores* emerging through the stomata, fasciculate, fascicles dense, 10-15 divergent stalks, pale to medium olivaceous brown, paler towards the tips, uniform to slightly irregular in width, distinctly 1-5 septate, unbranched, straight to curved, rarely 0-2 mildly geniculate, conidial scars distinct, medium sized, number of spore scars 1-3, tip bluntly rounded to subtruncate with spore scar, 8-30×35 µm. *Conidia* obclavate to obclavate-cylindrical, pale olivaceous brown, straight to mildly curved, 1-9 septate, base short obconically truncate, tip subobtuse, 18-80×3-5 µm.

Specimen studied : On the living leaves of *Wrightia tomentosa* Roem & Schult, (Family Apocynaceae), Diphu Road, Dimapur, Nagaland, India, T. K. Jana, 12.02.2000, PCC 5184, ITCC 4927.01.

Review of literature (Bagyanarayana, G *et al.*, Bilgrami *et al.*, 1979, 1981, 1991 ; Chupp, 1953 ; Das, A. K., 1989, 1990; De, T. K. 1992 ; Ellis, 1971, 1976 ; Govindu, H. C. *et al.*, 1970 ; Jamaluddin *et al.*, 2004 ; Narain, U. *et al.*, 1970 ; Rai, A. N. *et al.*, 1987 ; Ray, J. B. 1989 ; Sarbhoy *et al.*, 1996 ; Singh *et al.*, 1974 ; Thirumalachar *et al.*, 1962 showed

that the above mentioned species had yet not been reported from the state of Nagaland. Hence it is reported for the first time from this state.

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