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Studies on Indian *Cercospora* like fungi from West Bengal-I

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Two new species of dematiaceous foliicolous hyphomycetes viz. *Cercosporella millettiae* and *Periconiella glochidionae* occurring on *Melettia* sp. and *Glochidion multiloculare var subsessile* respectively from Parmadan Reserve Forest, North 24 Parganas and Jhargram, Midnapore, West Bengal, India are described and illustrated in this communication.

Key words: Hyphomycetes, *Cercosporella, Periconiella,* taxonomy

INTRODUCTION

The genus *Cercosporella* and *Periconiella* both have been established by Saccardo (1880, 1885) and they are interesting fungi within foliicolous hyphomycetes. Researchers from all over the world have made a lot of taxonomic contribution on this dematiaceous hyphomycets. Some of them are : Arya *et al.* (1997), Bilgrami *et al.* (1991), Braun *et al.* (1993, 1995, 2002, 2003), Braun (2004), Chupp (1953), Deighton (1973a, b), Dubey *et al.* (2003), Ellis (1971, 1976), Haldar *et al.* (1997, 1998, 2000, 2001a, b, 2003, 2004), Kirschner *et al.* (2006), Kumar *et al.* (2006), Mirza *et al.* (2004), Rai (2006), Singh *et al.* (1998) and Sutton (1996).

MATERIALS AND METHODS

The fungal specimens having distinct symptoms were collected and kept in polythene bags during collection trips and carried to the laboratory. A part of which was deposited in the herbarium, Tropical Forest Research Institute (TFRI), Jabalpur, India and Presidency College, Kolkata, West Bengal, India as type materials. Morphotaxonomic study of the associated fungi were made by scrap mount and thin sections. The host plants were tentatively indentified in the field and finally their identities were confirmed by the expertise available in this department. Leaf symptoms were first studied with the help of naked eye and then with hand lens. Detailed taxonomic treatment was done with the help of compound microscope and camera lucida drawings.

RESULTS AND DISCUSSIONS

Cercosporella millettiae Haldar and Roy sp. nov. (Fig.1)

Maculae amphigenae, distinctae epiphyllae albido centro, brunnae margine, atrobrunneae cinctae, numerosae, irregularies (2-2.5 mm) latae; *caespituli* hypophylli, inaequaliter dispersi, atrobrunneae, *mycelium primarium* immersum, hyalina, septata (4.2-6.3 μ) latae; *mycelium secondarium* superficiale, hypha exbasibus fasciculorum conidiophororum oriundae, hyalina, septata, secondaria conidiophora vel erecta lateraliter ramosa; *stroma* modica evoluta, atrobrunneae, basibus cellulae isodiametrica composite, usque 25-42 μ lata et 21-29.4 μ alta; *conidiophora* fasciculo, exbasim exoriunda stroma, 5-30 per fasciculo, divergentia, emergentia per stoma, simplicia, geniculata (0-3), ad apicem sinuosa, laevia, amphicrassa tunicata vel tenues tunicata, septata (3-7), distinctae cicatrices conidiales subaccuta, convexae, adapicem dilatae, cicatrices distinctae crassa (2.1-4.2 μ) 126-197 × 7.35 - 8.4 μ; *conida* obclavato cylindrica vel cylindrica, olivacea, laevia, tunues tunicata, plerumque 1-2 septata, interdum 7 septata,

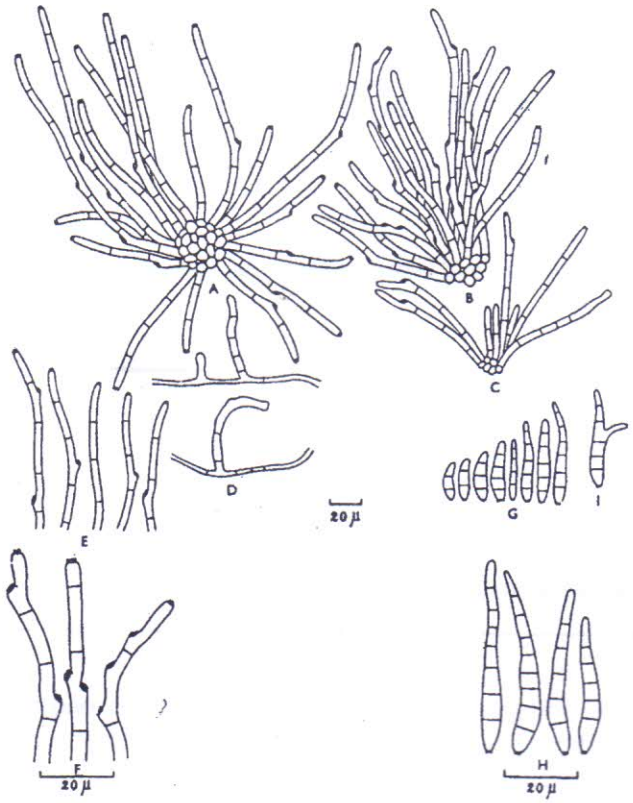

Fig. 1: *Cercosporella millettiae* sp. nov. A-C. Condiphore fascicles; D. External mycelial hyphae bearing condiophores; E-F. Conidiophores; G-H. Conidia and I. Conidium showing germ tube.

adapicem obtusa, plerumque recta vel interdum leniter curvata, 37.8-76.99×9.79-10.5 µ.

Habitat in foliis vivis *Mellettia* sp. (fam. Fabaceae), Parmadan Reserve Forest, North 24 Parganas, Bengal occidentales, indiae, TFRI S 12, typus, 8.ii, 1998.

Leaf spots amphigenous, distinct on dorsal surface, whitish centre surrounded by deep brown margin, numerous, irregular, 2-2.5 mm in extn; *caespituli* hypophyllous, unevenly distributed over the spots, dark brown; *primary mycelium* internal, hyaline, septate (4.2-6.3 µ wide); *secondary mycelium* superficial, hyphae arising from the base of the conidiophore fascicles, hyaline, septate, bearing secondary conidiophores as erect lateral branches; *stroma* moderately developed, dark brown, consisting of isodiametric type of basal cells, wide (25-42 µ) and up to 21-29.4 µ high; *conidiophores* fasciculate, arising from the base of the stroma, 5-30 in a fascicle, divergent stalks emerging through stomata, simple, geniculate (0-3), sinuous towards the apex, smooth, both thick and thin walled, septate (3-7), distinct conidial scars convex, apex dilated, scars conspicuously thickened, (2.1-4.2 µ) diam with a minute frill, situated at the tip or at the point of geniculations or lying flat against the side wall of the conidiophore, 126-197 × 7.35-8.4 µ, *conidia* obclavate cylindric to cylindric, pale olivaceous, smooth, thin walled, mostly 1-2 septate, occassionally 7 septate, tip obtuse, sometimes with thickened hilum, usually straight but occassionally slightly curved at the edge of which often be seen a minute frill, 37.8-76.99 × 9.79-10.5 µ.

Specimen studied : On the living leaves of *Mellettia* sp. (fam. Fabaceae), Parmadan Reserve Forest, North 24-Parganas, West Bengal, India, TFRI S12, 8 February, 1998.

A perusal of literature shows that no species of *Cercosporella* has been reported on the host genus *Mellettia*. The most striking characters of the specimen are well developed compact stroma, 25-42 µ, in wide and up to 21-29.4 µ high, conidial scars convex, scars conspicuously thickened, 2.1-4.2 µ, conidiophore, 126-197 × 7.35-8.4 µ and conidia, 37.8-76.99 × 9.79-10.5 µ. Studying all these morphotaxonomic characters in details and after consultation of the relevent literature, the fungus has been described and illustrated here as a new taxon of species rank.

***Periconiella glochidonae* Haldar and Ray sp. nov. (Fig. 2)**

Maculae amphiginae, distinctae epiphyllae; atrobrunneae, angulatae, gravis, numerosae, dispersi vel coalescentes, venus limitatae, 1-10 mm latae; *caespituli* amphiginae, atrobrunneae; *mycelium* superficiale, septata, pallide olivacea brunneae, laevia, hyphis, 1.5-6.0 µ crassa; *conidiophora* solitaria vel terminaliter et lateraliter oriunda vel externale mycelium hyphis; stipite erecta, simplicia, cylindrica, septata usque 15, atrobrunneae, apicem versus pallidiora, laevia, crassa tunicata, usque 478.5 µ longa, 3.0-6.5 µ crassa; ramosa 2-6, simplicia, cylindrica, olivaceo brunneae, tunues tunicata, uspue 33.0 µ longa, 3.0-5.0 µ crassa; *conidia* acropleurogenosa, solitaria vel catenata (0-2), recta, cylindrica vel ellipsiformia, 0

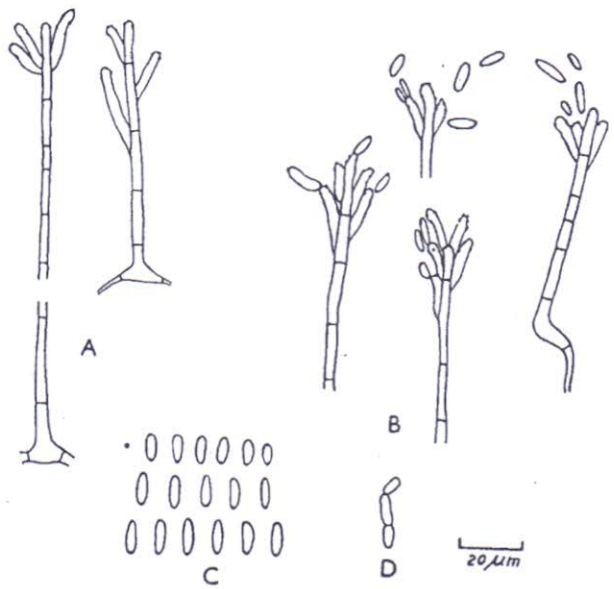

Fig. 2 : *Periconiella glochidionae* sp. nov. A. External mycelial hyphae bearing conidiophore, B. Conidiophores, C. Conidia and D. Conidia in chain.

septata, pallide olivaceis, laevia, cicatries conidiales, 6.5-26.0 µ longa, 3.0-6.0 µ crassa.

Habitat in foliis vivis *Glochidion multiloculare* var *subsessile* Muell. Arg., (fam. Euphorbiaceae), Jhargram, Midnapore, Bengal occidentales, indiae, PDK 5344, typus, 24.ii, 1985.

Leaf spots amphigenous, prominent on dorsal surface, dark blackish brown, angular, virulent, numerous, scattered to coalescent, veinlimited, 1-10 mm; *caespituli* amphigenous, dark blackish brown, velvety; *mycelium* superficial, composed of a net work of branched and anastomosing, septate, pale olivacious brown, smooth, hyphae, 1.5-6.0 µ thick; *conidiophores* arising singly or terminally and laterally on the external mycelial hyphae, each composed of a mononematous stipe and a complex head of branches bearing conidia, stipes erect, straight, simple, cylindrical, septate (up to 15), dark brown, paler towards the apex, smooth, thick walled, up to 478.5 µ long, 3.0-6.5 µ thick; branches 2-6, simple, cylindrical, olivaceous brown, thin walled, with many conidial scars, up to 33.0 µ long, 3.0-5.0 µ thick; *conidia* acropleurogenous, solitary or in short chains of 2, straight, cylindrical to elliptical, 0 septate, pale olive, smooth, scar present either on one end or both the ends 6.5-26.0 µ long, 3.0-60 µ thick in the broadest part.

Specimen studied : On *Glochidion multiloculare* var *subsessile* Muell. Arg., (fam. Euphorbiaceae), Jhargram, Midnapore, West Bengal, India, PCC 5344, 24 February, 1985.

It is evident from literature that no species of *Periconiella* has earlier been described on the host *Glochidion multiloculare* var subsessile Muell. Arg. The fungus in question is distinct in having caespituli 1.5-6.0 µ thick, conidiophore arising on external mycelial hyphae, stipes 478.5 µ long and 3.0-6.5 µ thick, conidial scars 33.0 µ long, 3.0-5.0 µ thick and conidia 6.5-26.0 µ long, 3.0-6.0 µ thick. All these morphological features and illustrations of the collection to be recalled that *P. glochidioriae* sp. nov. is significantly different from the previously described species. Hence the present collection is treated here as new species of *Periconiella*.

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