

## Studies on *Cercospora* like fungi of West Bengal-II

D. HALDAR<sup>1</sup> AND J. B. RAY<sup>2</sup>

<sup>1</sup>Department of Botany, K.N. College, Berhampore, Murshidabad 742101 and <sup>2</sup> Dinabandhu Mahavidyalaya, Bongaon, North 24 Parganas, West Bengal.

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Two new species of *Pseudocercospora* were described from West Bengal.

**Key words:** New species, Hyphomycetes, *Pseudocercospora*, taxonomy

### INTRODUCTION

The genus *Pseudocercospora* has been established by Spegazzini in 1910. Till then numerous species have been recorded and described by different mycologists and phytopathologists. The monographs by Deighton (1973, 1976, 1983) are valuable references which have added considerably to the elucidation of this interesting group of dematiaceous hyphomycetes. More recently, researchers from all over the world have made several taxonomic contribution on it. (Braun *et al.*, 2003; Beilharz and Cunnigteu; 2003; Dubey and Rai, 2003; Groenewald *et al.*, 2005; Haldar and Ray, 2009; Haldar *et al.*, 1998; 2001; Khan *et al.*, 1994; Kobayashi *et al.*; 2002; Kumar *et al.*, 2006; Rai, 2006; Soares and Barretfo, 2005; Sutton, 1996; Yinglan *et al.*, 2002 and Yuan *et al.*; 2000)

### 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 International Mycological Institute (IMI), Kew Surrey, England and P.G. Department of Botany, Presidency College, Kolkata, West Bengal, India as type materials. Morphotaxonomic study of the fungi were done from fresh collections scrapings and thin cut sections in lactofuchsin mounts (Carmichael, 1955). The host plants were tentatively identified in the field and finally their identities were confirmed by the expertise

available in the Central National Herbarium (CAL), West Bengal, India. 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 in natural light.

### RESULTS AND DISCUSSION

#### *Pseudocercospora cleidionae* Haldar and Ray sp. nov. (Fig.1)

*Maculae amphigenae, semiorbiculares vel irregulares, numerosae, plerumque dispersi, iuterdum coalescente, veridullae, perbrunneae vel atrobrunnea, venus limitatae, usque 1.5-5.0 mm latae; caespituli amphigenae, plerumque epiphylli, atra, punctiformes, effusi, inequaliter dispersi; stroma eumorpha, substomatalia, subglobosa, 29.5-36.0  $\mu$  x 26.5-43.0  $\mu$ ; mycelium primum immersum, pallidissime olivaceae, 2.5-3.0  $\mu$ . latae; mycelium secundarium superficiale, pallide vel pallidissime olivaceae, ex basibus conidiophorum fasciculorum oriundae, ramosae septata, 2.5, latae; conidiophora stromatalia, per stoma emergentia, fasciculata (10-58), brevia, divergentia, brunnei, recta vel leniter curvata, simplicia, laevia, crassa tunicata, plerumque aseptata, raro 1 septata, ad apicem obtusa roundata denticulares conidiophora, 7.5-20.0 x 3.0-4.5  $\mu$ ; conidia obclavato cylindrica, recta vel curvata, pallidissime olivaceae, laevia, tenues tunicata, pluriseptata (0-10), cellula basali in hilum attenuata, ad apicem subobtusa, 16.5-69.0 x 3.0-5.0  $\mu$ .*



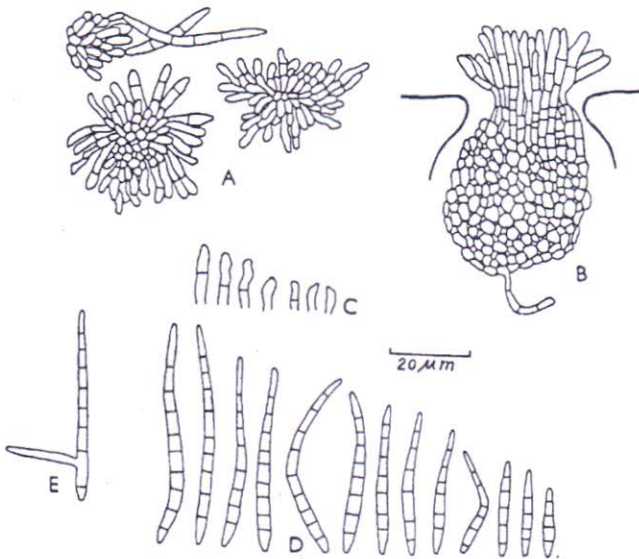


Fig 1. *Pseudocercospora cleidionae* sp. nov. A. Conidiophore fascicles, B. Section through the stroma, C. Conidiophores, D. Conidia, E. Conidium showing germ tube.

Habitat in *foliis Cleidion javanicum* Bl.; (Fam. Euphorbiaceae), Jhargram, West Midnapore, Bengal occidentales, indiae, IMI 297807, *typus*, 24.ii.1985

*Leafspots* amphigenous, semicircular to irregular, numerous, usually scattered, sometimes coalescent, virulent, initially yellowish brown becoming blackish brown to black, vein limited, 1.5-5.0 mm in extn; *caespituli* amphigenous, chiefly epiphyllous, black, punctiform, effuse, unevenly distributed over the spots; *stroma* well developed, substomatal, subglobose, composed of midbrown angular hyphal cells, 29.5 - 36.0  $\mu$ . wide and 26.5 - 43.0  $\mu$  (high; *primary mycelium* internal, pale olivaceous, 2.5 - 3.0  $\mu$ . wide, *secondary mycelium* superficial, very pale olivaceous brown, arising from the base of the conidiophores, branched, septate, 2.5  $\mu$ . wide; *conidiophores* stromatic, emerging through the stomata, fasciculates (10-58), very short, divergent, light brown, straight to mildly bent, simple, smooth, thick walled, mostly aseptate, very rarely 1-septate, apex bluntly rounded, sometimes dilated, old conidial scar present on the shoulder of the short lateral denticles or at the tip of the conidiophores, 7.5-20.0 x 3.0-4.5  $\mu$ ; *conidia* obclavate cylindrical, straight to bent, pale olivaceous, smooth, thin walled, indistinctly pleuriseptate (0-10), base tapers to hilum, tip subobtuse, 16.5-69.0 x 3.0-5.0  $\mu$ .

Specimen studied: On the living leaves of *Cleidion javanicum* Bl., (Fam. Euphorbiaceae), Jhargram,

West Midnapore, West Bengal, India, IMI 297807, 24 February, 1985.

Literature reveal that no *Pseudocercospora* has yet been reported and described on *Cleidion javanicum* Bl., (Fam. Euphorbiaceae). So the present fungus is suggested here as a new taxon of species rank..

***Pseudocercospora christellae* Haldar and Ray sp. nov. (Fig. 2)**

*Maculae amphigenae, irregulares et brunneae, plerumque margine, numerosae, gravis, dispersa, 3-5 mm. latae; stroma nullum; caespituli amphigenae, plerumque hypophylli; brunneae, inaequaliter dispersi, venas limitatae; conidiophora non stromatalia, stomatibus emergentia, fasciculatae (2-28), raro solitaria, atrobrunneae, apicem versus paliidiora, raro ramosa, laevia, crassa tunicata, pluriseptata (1-3), subrecta vel curvata, ad apicem conico vel obtusa, basim aliquando, apicem versus leniter ad apicem dilatae, denticulo brevia, cicatris, conidiophora, 23.0-30.0 x 3.0-5.0  $\mu$ ; mycelium primarium immersum; mycelium secundarium superficiale, emergentia per stoma ad conidiophora exbasim exoriunda pallide olivaceo brunneae, usque 2.5  $\mu$ ; latae, septata, secundaria conidiophora lateraliter et terminaliter oriunda; conidia obclavato-cylindrica, olivaceae brunneae, recta vel leniter curvata, laevia, pluriseptata (2-10), apicem obtusa, basim in hilum attenuata, 29.5-66.0 x 2.5-3.0  $\mu$*

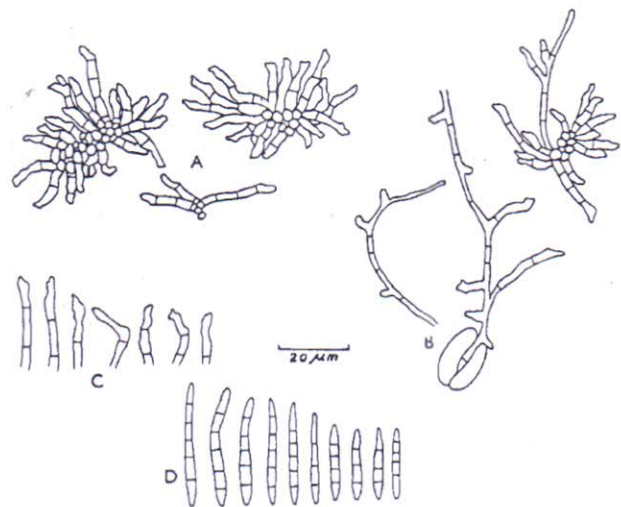


Fig 2. *Pseudocercospora christellae* sp. nov. A. Conidiophore fascicles, B. External mycelial hyphae bearing conidiophores C. Conidiophores, D. Conidia.



Habitat in foliis vivis *Christella dentata* (Forssk.) Browney & Jermy (Fam. Thelypteridaceae), Bibhutibhusan Reserve Forest, North 24 Parganas, Bengal occidentales, indiae, IMI 301285, *typus*, 15.xii. 1985.

*Leaf spots* amphigenous, irregular, light brown with brown halo, usually marginal, numerous, virulent, scattered, 3-5 mm extn; *stroma* none; *caespituli* amphigenous, chiefly hypophyllous, brown, unevenly distributed over the spots, vein limited; *conidiophores* non-stromatic, emerging through stomata, fasciculate (2-28), rarely solitary, dark brownish, paler towards the tip, simple, very rarely branched, smooth, thick-walled, pleuriseptate (1-3), sub straight to bent, tip conic to obtuse, base swollen, dilated at the apex, denticle short, scar lying flat against the side wall of the conidiophores, 23.0-30.0 x 3.0-5.0  $\mu$ ; *primary mycelium* internal; *secondary mycelium* superficial, emerging through the stomata or from the base of the conidiophores, or sometimes arising as proliferation of the conidiophores; pale olivaceous brown, upto 2.5  $\mu$ . wide, septate, producing *secondary conidiophores* laterally and terminally; *conidia* obclavate cylindric, pale olivaceous brown, straight to mildly curved, smooth, pleuriseptate (2-10), tip obtuse, base tapers to the hilum, 29.5-66.0 x 2.5-3.0  $\mu$ .

Specimen studied: On the living leaves of *Christella dentata* (Forssk.) Browney & Jermy; (Fam. Thelypteridaceae), Bibhutibhusan Reserve Forest, North 24 Parganas, West Bengal, India, IMI 301285, 15 December, 1985.

Evident from the survey of literature shows that no *Pseudocercospora* has yet been described and illustrated on *Christella dentata* (Forssk.) Browney & Jermy. Hence the present collection is treated here as a new species.

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