

Studies on the genus *Pseudocercospora* Speg. from West Bengal, India

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Eight species of *Pseudocercospora* Speg., are collected, figured and described from West Bengal: *Ps. atromarginalis*, *Ps. baliospermi*, *Ps. cocculi*, *Ps. jasminicola*, *Ps. polygonicola*, *Ps. riachueli*, *Ps. stizolobii* and *Ps. terminaliae*

Key Words : *Pseudocercospora*, West Bengal.

The genus *Pseudocercospora* was established by Spegazzini. Later Deighton (1976-1987) made valuable contributions to the genus.

During the taxonomic studies of dematiaceous hyphomycetes it is observed that very little work has been done from West Bengal on *Pseudocercospora* Speg. Ray (1988-90) described a few species of *Pseudocercospora* from West Bengal.

The genus is characterised in having broad conical denticle and unthickened conidial scars on conidiogenous cells and coloured conidia with tapered to abruptly tapered basal cells to unthickened hilum.

By considering above characteristics features Deighton (1976-1987) is of opinion that many species already described in *Cercospora* are to be transferred to *Pseudocercospora*.

MATERIALS AND METHODS

The fungal specimens were collected from living leaves forming characteristic symptoms i.e. spots, blotches and blights throughout the different seasons of

West Bengal. They are dried and preserved. They are worked out from natural and preserved substrates and their identifications upto species level were confirmed from Commonwealth Mycological Institute (IMI), England.

DESCRIPTION OF THE SPECIES

Pseudocercospora atromarginalis (Atk.) Deighton
Mycol. pap. Nos. 140, 139 (1976).

= *Cercospora atromarginalis* Atkinson
J. Elisha Mitchell Sci. Soc. 8 : 59 (1892)

(Fig. 1)

Spots amphigenous, circular to irregular blackish brown on upper surface but grey olivaceous on lower surface, 3-5 mm extn.; caespituli amphigenous, chiefly hypophyllous profoundly effuse, velutinous; true stroma absent, loose mass of brownish cells emerging through stomata; conidiophores fasciculate, fascicle dense, pale olivaceous to brownish olivaceous, 1-2 indistinctly septate, 12.00-38.00x3.00-4.00 μm ; conidia obclavate, pale olivaceous, indistinctly pluriseptate, basal cell tapers sharply to indistinct hilum, sub-obtuse at the apex, 10.5-82.00x1.5-4.00 μm .

On living leaves of *Solanum nigrum* L. (Fam. Solanaceae), Pirpukur, Burdwan, West Bengal, (IMI 222713), Leg. J. B. Ray, March 27, 1977.

Pseudocercospora baliospermi (Chowdhury) Deighton
Mycol. Pap. Nos. 140, 139, (1976).

= *Cercospora baliospermi* Chowdhury
Lloydia 24 : 94 (1961)

(Fig. 2)

Spots amphigenous, angular to irregular, rusty brown surrounded by yellow halo, sometimes coalescent occupying larger area, 2-10 mm extn.; caespituli amphigenous, chiefly hypophyllous; mycelium internal; stroma well developed; conidiophores fasciculate (2-84), olivaceous brown, paler toward the apex, dilated, simous, scar dot-like, lying flat against the side of the conidiophores, 6.5-56.00x3.00-5.00 μm ; conidia obclavate, hyaline to light olivaceous brown, indistinctly pluriseptate (3-13), basal cell obconic, obtuse at the apex, 7.5-72.5x1.5-4.00 μm .

On living leaves of *Baliospermum montatum* E. D. (Fam. Euphorbiaceae), Adisaptagram, Hooghly, West Bengal, (IMI 231244), leg. J. B. Ray, March 30, 1978.

On *Pseudocercospora*

Pseudocercospora cocculi (H. Syd.) Deighton
Mycol. pap. Nos. 140, 142 (1976).

= *Cercospora cocculi* H. Sydow
Annals Crypt. expt. 2 : 264 (1929)
(Fig. 3)

Spot amphigenous, angular to irregular, dark brown surrounded by yellow halo, 5-5 mm extn. ; caespituli hypophyllous, slightly effuse floccose ; mycelium internal ; stroma absent or very poorly developed ; conidiophores fasciculate (4-14), olivaceous to olivaceous brownish, simple or branched, 0-4 septate, apex rounded or wider with denticle, $16.5-57.5 \times .00-4.5 \mu\text{m}$; conidia obclavate-cylindric, very pale olivaceous, 0-5 septate, $15.00-51.5 \times 3.00-4.5 \mu\text{m}$.

On living leaves of *Tinospora cordifolia* Miers (Fam. Menispermaceae) Guma, 24 Pargs (N), West Bengal, (IMI 237386), leg. J. B. Ray, Dec. 12, 1978.

Pseudocercospora jasminicola (Muller & Chupp ex.) Deighton
Mycol Pap. Nos. 140.74 (1976).

= *Cercospora jasminicola* Muller & Chupp
Archos Inst. Biol. Veg., Rio de J 8 : 93 (1936).
(Fig. 4)

Spot amphigenous, circular to semi-circular, greyish brown, centre with distinct brown margin within yellow areas of the leaf, 1-4 mm in diam. ; caespituli amphigenous, minute black pustules distributed on upper surface of the spot ; mycelium both internal and external ; mycelial hyphae hypophyllous, superficial, olivaceous, producing conidiophores laterally and terminally, $1.5-2.00 \mu\text{m}$ in wide ; stroma present, well developed ; epiphyllous conidiophores stromatic, fasciculate, upto 60, pale olivaceous, 1-2 septate, usually simple, undulate, dilated, apex bluntly rounded, $15.00-42.5 \times 3.00-6.00 \mu\text{m}$; hypophyllous conidiophores fascicles, $9.00-36.5 \times 2.5-4.5 \mu\text{m}$; conidia cylindric obclavate, very pale olivaceous, indistinctly pluriseptate, base tapered, obtuse at the tip, $18.00-109.00 \times 1.5-3.00 \mu\text{m}$.

On living leaves of *Jasminum* sp (Fam. Oleaceae) Permaden forest, Bongaon, 24 Pargs (N), (IMI 237404), leg. J. B. Ray, Jan. 14, 1979.

Pseudocercospora polygonicola (Kar & Mandal) Deighton
Trans. Br. Mycol. Soc. 88 (3) : 388 (1987).

= *Cercospora polygonicola* Kar & Mandal,
Trans. Br. Mycol. Soc. 53 : 354 (1959)
(Fig. 5)

Spots amphigenous, circular to slightly irregular, brown to dark brown, sometimes necrotic leaving shot-hole, 2-7 mm in diam. ; caespituli centrally effuse, faintly

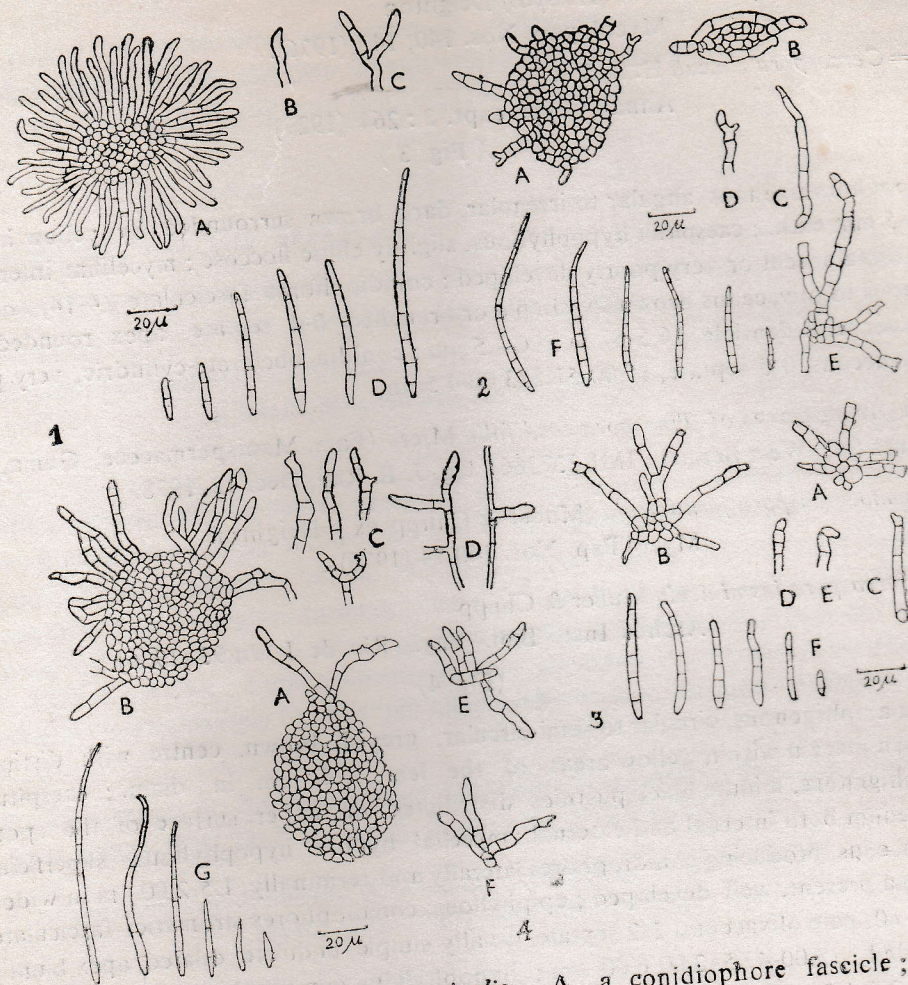


Fig. 1. *Pseudocercospora atromarginalis*. A, a conidiophore fascicle; B-C, conidiophores, D, conidia.

Fig. 2. *Pseudocercospora baliospermi*. A, an epiphyllous conidiophore fascicle; B, conidiophore emerging through stoma; C, a single conidiophore; D, conidiophore; E, a hypophyllous conidiophore fascicle; F, conidia.

Fig. 3. *Pseudocercospora cocculi*. A-B, conidiophores fascicles; C, a single conidiophore; D-E, conidiophore; F, conidia.

Fig. 4. *Pseudocercospora jisminicola*. A-B, epiphyllous conidiophore fascicles; C, conidiophores; D, external mycelial hyphae bearing conidiophores; E-F, hypophyllous conidiophores; G, conidia.

floccose; mycelium both internal and external; mycelial hyphae colourless to very pale olivaceous, closely septate, 2.00-2.5 μm in wide, producing conidiophore laterally and terminally; stroma present, very small; conidiophores stromatic,

fasciculate upto 19, olivaceous to very light brown, indistinctly septate, denticulate (terminal and lateral), denticle usually broad and blunt to cylindrical, apex rounded, 12.00-45.5x2.00-4.30 μm , scar dot-like; conidia obclavate-cylindric, very pale olivaceous, indistinctly pluriseptate (2-8), base tapers to hilum, apex obtuse, 19.5-88.00x1.5-3.00 μm .

On living leaves of *Polygonum orientale* L. var. *galvata* (Fam. Polygonaceae), Hridaypur, 24 Parganas (N), West Bengal, (IMI 234113), leg. J. B. Ray, July 3, 1978.

Pseudocercospora riachueli (Speg.) Deighton
Mycol. Pap. Nos. 140.129 (1976)

= *Cercospora riachueli* Speg.
An. Soc. Cient. Argent. 9 : 131 (1880)

(Fig. 6)

Spots amphigenous, prominent on dorsal surface, circular to irregular, reddish to dark red, 2-8 mm extn.; mycelium internal; caespituli amphigenous, stroma present, developed; conidiophores stromatic, fasciculate, 4-19, pale olivaceous, 1-septate, denticle very short, apex more or less conic, 15.00-42.5x2.00-4.5 μm ; conidia obclavate, pale olivaceous, distinctly pluriseptate (4-7), basal cell tapers to hilum, apex obtuse, 33.5-84.00x2.00-4.00 μm .

On living leaves of *Vitis rependa* W. A. (Fam. Vitaceae), Gopal Nagar, Nadia, West Bengal, (IMI 234122), leg. J. B. Ray, Nov. 17, 1980, and on *Vites repens* W&A (Fam. Vitaceae), Dhapdhapi, 24 Parganas (S), West Bengal (IMI 237398), leg. J. B. Ray, Jan. 26, 1980

Pseudocercospora stizolobii (H. P. Sydow) Deighton
Mycol. Pap. Nos. 140.153 (1976).

= *Cercospora stizolobii* H. P. Sydow
Annals, Mycol. 11 : 270 (1913).

(Fig. 7)

Spots amphigenous, circular to semi-circular or irregular, dark brown surrounded by yellow halo, .5-5mm extn.; caespituli amphigenous, chiefly hypophyllous, faintly floccose; mycelium both internal and external; external mycelial hyphae superficial, colourless to pale olivaceous brown, septate upto 2.5 μm in wide, producing conidiophores laterally; stroma present, well developed; conidiophores stromatic, fasciculate, fascicles dense, irregular in width, 1-5 septate, scar laying flat against side of the conidiophores, apex obtuse, 7.5-106.00x3.00-4.00 μm ; conidia obclavate-cylindric, sub-hyaline to pale olivaceous, 0-9 septate, base abruptly tapers to hilum, apex obtuse, 6.00-85.00x3.00-4.00 μm .

On living leaves of *Mucuna puriens* DC. (Fam. Fabaceae), Shantipur, Nadia, West Bengal, (IMI 242951A), leg. J. B. Ray, Dec. 8, 1978.

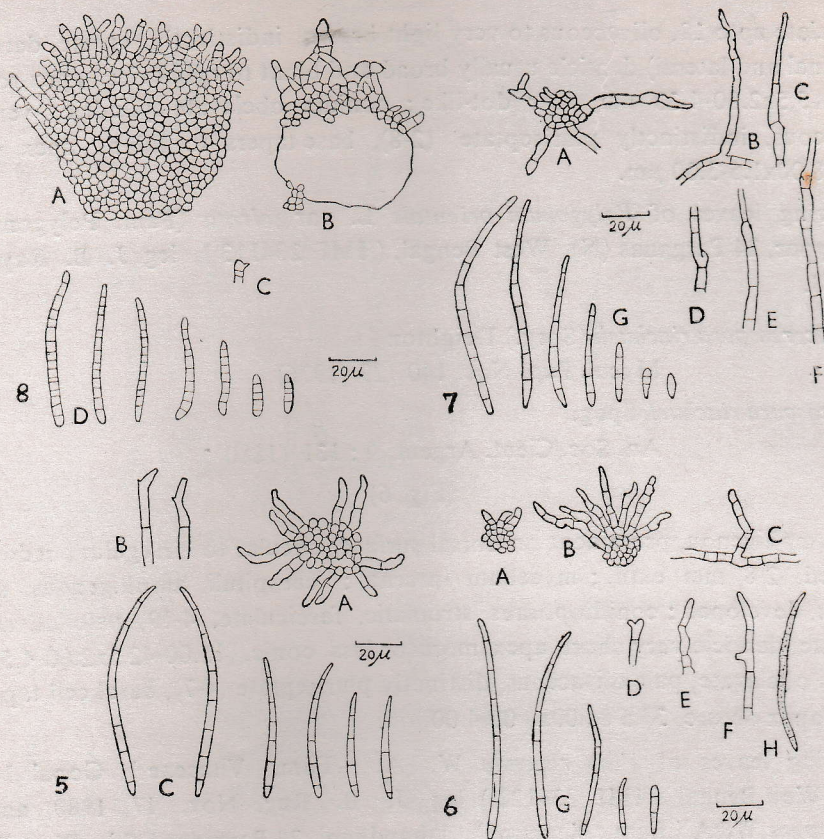


Fig. 5. *Pseudocercospora polygonicola*. A-B, conidiophore fascicles; C, an external mycelial hypha bearing conidiophore; D-F, conidiophores; G, conidia H, conidium showing shining globular structures on the surface.

Fig. 6. *Pseudocercospora riachueli*. A, conidiophore fascicle; B, conidiophores; C, conidia.

Fig. 7. *Pseudocercospora stizolobii*. A, a conidiophore fascicle; B, an external mycelial hypha bearing conidiophore; C-F, conidiophores; G, conidia.

Fig. 8. *Pseudocercospora terminaliae*, A-B, conidiophore fascicles; C, conidiophores; D, conidia.

Pseudocercospora terminaliae (Syd.) M.B. Ellis

More Dematiaceous Hyphomycetes p. 176 (1976).

= *Cercospora terminaliae* Sydow

Ann. Crypt. Exof. 2 : 270 (1929).

(Fig. 8)

Spot amphigenous, round, semi-oval to irregular, highly irregular at maturity, pale to grey, centre marked with light rusty brown margin, upto 3.5 μ m extn. ; caespituli

hypophyllous, effuse, punctiform over the spot; mycelium internal; stroma present, well developed, prominently large, black in colour; conidiophore stromatic, fasciculate, fascicles dense, pale brown to brown, 0-4 septate, dilated, denticle short and terminal, scar dot-like, apex bluntly rounded, 9.00-33.5x3.00-6.5 μm ; conidia obclavate, pale brown, 3-15 septate, septa prominently dark and thick, basal cells slightly tapers to hilum, apex rounded, 12.00-63.5x3.00-4.5 μm .

On living leaves of *Terminalia belerica* Roxb. (Fam. Combretaceae), Jhargram, Midnapore, West Bengal, (IMI 237405), leg. J. B. Ray, Jan. 24, 1979.

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