

SOME NEW COMBINATIONS INTO THE GENUS *PSEUDOCERCOSPORA* SPEG., FROM WEST BENGAL

BY

K. K. SARBAJNA

Department of Botany, Presidency College, Calcutta-700 073

Four new combinations into *Pseudocercospora* Speg., have been collected, figured and redescribed from West Bengal during 1983-1988: *Pseudocercospora psoraleae-bituminosae*, *Pseudocercospora leaeae-macrophyllae*, *Pseudocercospora dilleniae* and *Pseudocercospora morindae*.

Key Words : New combinations, *Pseudocercospora* Speg.

This paper is an attempt to deal with species which have hitherto been placed in *Cercospora* but in which the conidial scars are unthickened. The genus *Pseudocercospora* one of the largest members of "Cercospora-like fungi" raised much interest among the taxonomists dealing with this type of fungi. To deal with the "Cercospora-like fungi" it reveals that many species have already been included in the genus *Cercospora*. These are now transferred to more appropriate genus *Pseudocercospora* due to the presence of broad conical denticle, unthickened conidial scar on the conidiogenous cells, proliferation of conidiogenous cell, coloured conidia & conidia with tapered to abruptly tapered basal cell to unthickened hilum (characteristics of *Pseudocercospora* Speg). Though Ellis (1971, 1976) made valuable contribution on *Cercospora*, yet he did not give much emphasis on the character of conidiogenous cells in details. Deighton (1976, 1979, 1983, 1987) has critically studied the genus *Pseudocercospora* and transferred several species of *Cercospora* to the genus *Pseudocercospora* on the basis of the characters cited above.

Pseudocercospora psoraleae-bituminosae (Sauv. & Sandu.) K.K. Sarbajna Comb. Nov.
= *Cercospora psoraleae-bituminosae* Sauv. & Sandu.

Acad. Romane Memor. Sect. Stuntif Ser. III. 15 : 485(1941).

(Fig. 1)

Leaf spot amphigenous, more prominent on dorsal surface, circular to angular, greyish brown centre at maturity, scattered, effuse, 2-8 mm in extent; caespituli amphigenous, evenly distributed over the spots, deep brown to black; primary mycelium internal, hyaline, unbranched, septate, 2-2.5 μ wide; stroma present, substomatal well developed, mostly epiphyllous, globular to irregular, dark brown, composed of swollen hyphal cells and conidiophore bases, 16-48.5 μ in extent;

conidiophores mostly epiphyllous, fasciculate, in fascicle of 5-18 divergent stalks emerging through the stomata. pale olivaceous, smooth, sometimes branched, straight to bent, indistinctly septate (0-4), denticulate, sometimes tip dilated, tip subobtuse $3.6 \times 11.5-45.6 \mu$; secondary mycelium superficial, external mycelial hyphae pale olivaceous, septate, much branched, producing lateral secondary conidiophores, $3.8-4.5 \mu$ wide; conidia obclavate-cylindric, straight to slightly curved, pale olivaceous, smooth, thin walled, distinctly pluriseptate (2-10 septa), tip subobtuse, base tapers to unthickened hilum, $3-4 \times 22-121.5 \mu$.

Specimen studied : On *Psoralea corylifolia* Linn. (fam. Fabaceae), Baduria, 24-Parganas (North), West Bengal, India, PCC 4958 (=IMI 311122), leg. K. K. Sarbajna, 13 October, 1986.

Note : The species (*Cercospora psoraleae-bituminosae* Sauv. & Sandu.) has been reported on *Psoralea bituminosa* Linn. and *Psoralea corylifolia* Linn. The present collection agrees with *Cercospora psoraleae-bituminosae* in respect of the morphology and dimensions of the stroma, conidiophores and conidia except the presence

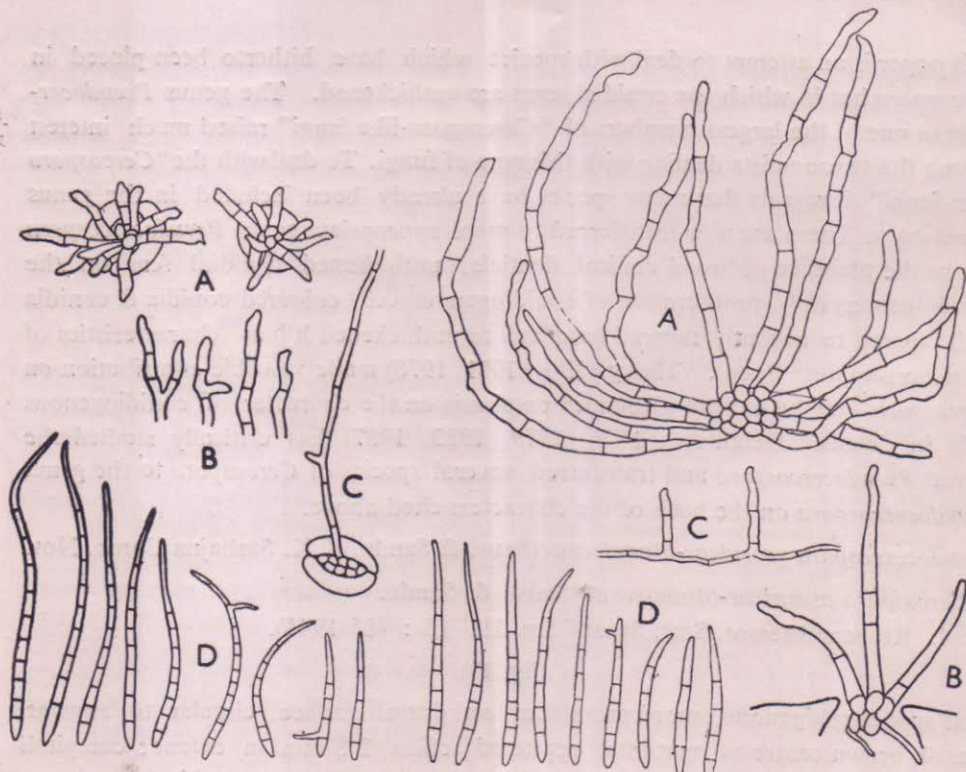


Fig. 1. *Pseudocercospora psoraleae-bituminosae*. A, Conidiophore fascicles; B, Conidiophores; C, Secondary mycelial hyphae emerging through stomata; D, Conidia.

Fig. 2. *Pseudocercospora leae macrophyllae*. A, Conidiophore fascicle; B, Section through a stroma; C, Secondary mycelial hyphae bearing conidiophores; D, Conidia.

of unthickened scar and denticles on the conidiophores (the characters of the genus *Pseudocercospora*). So, *Cercospora psoraleae-bituminosae* is transferred to *Pseudocercospora* as a new combination i. e. *Pseudocercospora psoraleae-bituminosae*.

Pseudocercospora leae-macrophyllae (Kar & Mondal) K.K. Sarbajna Comb. Nov.
= *Cercospora leae-macrophyllae* Kar & Mondal

Indian Phytopath. 26(4) : 679-680 (1973).

(Fig. 2)

Leaf spot amphigenous, more prominent on dorsal surface, not virulent, scattered, circular to angular, greyish white centre surrounded by blackish brown margin, 2-6 mm in extent; caespituli amphigenous, unevenly distributed over the spot, punctiform, dark brown; primary mycelium internal, hyphae pale olivaceous, septate and much branched, 2-3 μ wide; stroma present, not well developed, globose to subglobose, sometimes absent, contains a few brownish hyphal cells and conidiophore bases, upto 22.8 μ high and 38 μ wide; conidiophores amphigenous, fasciculate, in fascicle of 8-24 divergent stalks emerging through the stomata, pale olivaceous brown, straight to bent, geniculation rarely once, tip dilated, pluriseptate (1-12 septa), thin walled, denticulate, 4.3-4.9 x 57-204 μ ; secondary mycelium external, hyphae olivaceous brown, septate, branched, bearing lateral secondary conidiophores, 2-3.5 μ ; conidia obclavate-cylindric, very pale olivaceous, mostly straight, smooth, distinctly pluriseptate (0-7), tip subobtuse, base tapers to unthickened hilum, 3.5-4.5 x 19-104 μ .

Specimen studied : On *Leea* sp. (fam Ampelideae), Mallickpore, 24-Parganas (South), West Bengal, India, PCC 4929 (=IMI 313696), leg. K.K. Sarbajna, 11 January, 1987.

Note : The species (*Cercospora leae-macrophyllae* Kar & Mondal) has been reported on *Leea macrophylla* Hornem from West Bengal (Kar and Mondal, 1973). The present collection agrees with *Cercospora leae-macrophyllae* in respect of the morphology and dimensions of the stroma and conidia except the length of the conidiophores, presence of unthickened scar and the denticles on the conidiophores (the character of the genus *Pseudocercospora*). So, *Cercospora leae-macrophyllae* is transferred to *Pseudocercospora* as a new combination i. e. *Pseudocercospora leae-macrophyllae*.

Pseudocercospora dilleniae (Petch) K. K. Sarbajna Comb. Nov.

= *Cercospora dilleniae* Petch

Annals Roy. Bot Gard. Peradeniya 3 (Pt.-1) : 9(1906)

(Fig. 3)

Leaf spots amphigenous, initially small, circular to semi-circular, whitish centre surrounded by brownish margin, sometimes necrotic, later becoming irregular brownish spots, distinct, scattered, 2-7 mm in extents; caespituli hypophyllous, evenly distributed over the spots, deep brown to black; primary mycelium internal, hyaline, unbranched, septate, 2-2.5 μ wide; stroma present, well-developed, sub-stomatal, chiefly hypophyllous, globose to subglobose, dark brown, composed of

swollen, compact, brownish hyphal cells and conidiophore bases, $26.5\text{--}39.6\ \mu$ wide and upto $26.5\ \mu$ high; conidiophores hypophyllous, stromatic, fasciculate, in fascicle of 5-35 divergent stalks emerging through the stomata and almost completely rupturing it, straight to bent, pale olivaceous, simple, smooth, thick walled, non-geniculate, septate (0-1 septate), septa indistinct to distinct, tip sub-obtuse, $2.5\text{--}3 \times 10\text{--}23\ \mu$; secondary mycelium superficial, external mycelial hyphae pale olivaceous, septate, developing from the base of the stroma, producing lateral secondary conidiophores, $2\text{--}3\ \mu$ wide; conidia obclavate, straight to bent, subhyaline to olivaceous, smooth, thin walled, pluriseptate (3-9 septa), tip sub-obtuse, base tapers to unthickened hilum, $3\text{--}4 \times 16.5\text{--}66\ \mu$.

Specimen studied : On *Dillenia* sp. (fam. Dilleniaceae), Baruipur, 24 Parganas (South), West Bengal, India, PCC 3812 (=IMI 303919), leg. K. K. Sarbajna, 12 March, 1986.

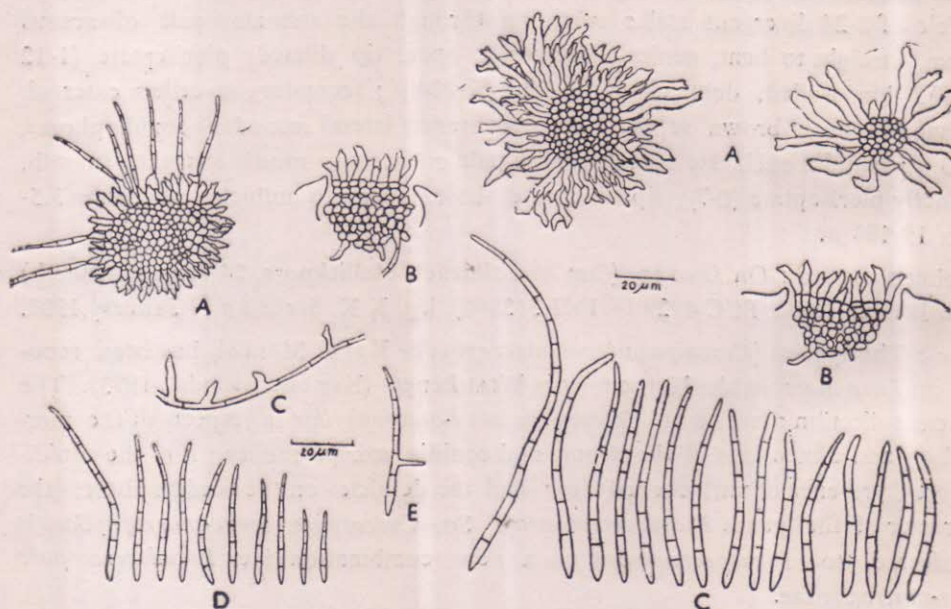


Fig. 3. *Pseudocercospora dilleniae*. A, Conidiophore fascicle; B, Section through a stroma; C, Secondary mycelial hyphae bearing conidiophores; D, Conidia; E, Conidium showing germ tube.

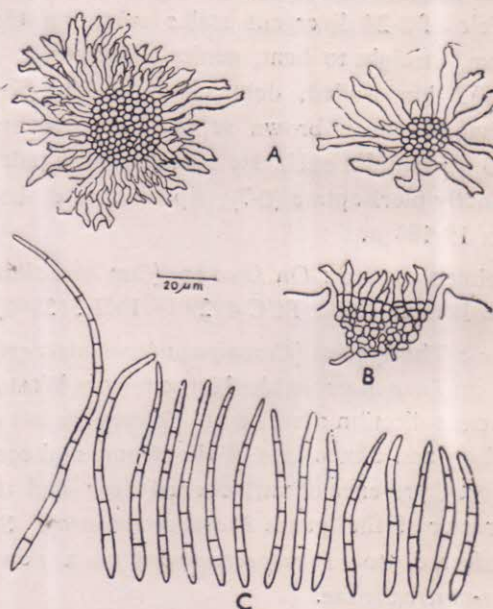


Fig. 4. *Pseudocercospora morindae*. A, Conidiophore fascicles; B, Section through a stroma; C, Conidia.

Pseudocercospora morindae (H. Sydow) K. K. Sarbajna Comb. Nov.
= *Cercospora morindae* H. Sydow, Ann. Mycol. 12 : 490 (1914)

(Fig. 4)

Leaf spots amphigenous, circular to irregular, sometimes coalescent, spots initially small, greyish brown centre surrounded by reddish brown margin becoming pale

tan to greyish centre with brown margin surrounded by reddish brown hallow, virulent, unevenly distributed, 1-10 mm in extent; caespituli almost hypophyllous, evenly distributed over the spot, deep brown to black; primary mycelium internal, subhyaline and septate, 2-3 μ wide; stroma present, well developed, substomatal, hypophyllous, globular to subglobular, deep brown, composed of swollen, thick walled hyphal cells and conidiophore bases, 15-57 μ wide and upto 45 μ high; conidiophores amphigenous, chiefly hypophyllous, generally dense fascicled, consisting of 2-50 divergent stalks emerging through the stomata, mostly straight, sometimes bent, pale olivaceous brown, unbranched, aseptate, smooth, thick-walled, very rarely once geniculate, irregular in width, sometimes dilated, tip obtuse, rarely minute unthickened scar at narrowly rounded tip, 2.5-4 x 5.33 μ (49.5 μ); secondary mycelium superficial, external mycelial hyphae originating from the base of the stroma, pale olivaceous, branched and septate, 1.5-2.5 μ wide, bearing secondary conidiophores laterally; conidia obclavate cylindric, straight to curved, subhyaline to pale olivaceous, smooth, thin-walled, distinctly pluriseptate (1-14 septa), tip subobtuse, base tapers towards hilum, 2.5 x 23-112.2 μ .

Specimen studied: On *Moruda citrifolia* Linn. (fam. Rubiaceae), Baruipur, 24 Parganas, West Bengal, India, PCC 3806 (= IMI 300721), leg. K. K. Sarbajna, 5 January, 1986.

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