

Fungi of Gorakhpur. XIX. *Pseudocercospora*.

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Introduction

For the last few years, the authors have been collecting and describing the fungi parasitizing the phanerogamic flora of the Terai-belt of Uttar Pradesh, India. (KAMAL & al., 1977, 1978; SINGH & KAMAL, 1978). This communication is in continuation with this investigation and presents an account of three new species of *Pseudocercospora* viz., *Pseudocercospora acaciae* sp. nov. (on *Acacia concinna*), *Pseudocercospora cordiae* sp. nov. (on *Cordia myxa*) and *Pseudocercospora gymnematis* sp. nov. (on *Gymnema tingens*) collected during 1976—77 on the forest flora of this region.

Descriptions

Pseudocercospora acaciae KAMAL & SINGH sp. nov. — Fig. 1.

Contagionis maculae restricte hypophyllae, primo irregulares, demum effusae, vulgo paene totam foliorum superficiem ab instar strati crassi, nigri occupantes; stroma saepe evolutum, parvum, substomaticum, cum fasciculo, conidiopleorum facile separabile; conidiophori macronemati, mononemati, caespitiosi, vulgo flexuosi, raro recti, divergentes, crassi et leviter tunicati, haud ramosi, olivaceo-brunnei, transverse septati, crebre cylindrici, geniculati, erecti, apicem versus nonnumquam paulo inflati et semper pallidiores, denticulis conidiophoris notati, ad 270 (vulgo 100—180) \times 3.5 \times 9 μ m; cellulae conidiogenae integratae, terminales, saepe monoblasticae et juniores percurrentes, maturiores polyblasticae, sympodiales, denticulatae, denticulis brevibus, latis, conicis, cicatricibus nullis, quam cellulae ceterae pallidiores; conidia angularia, simplicia, acrogena vel acropleurogena, obscure olivaceo-brunnea, leves, transverse multi-septata (sept 0—8), obclavata, apice rotundata, pallidiora, basi conico-truncata, recta vel arcuata, 21.5—70 \times 7—11 μ m. In foliis vivis *Acaciae concinnae* WALL. (Mimosaceae), Gorakhpur, India; Feb.—March, 1978; leg. R. P. SINGH, 307; IMI 212613 (Typus).

Infection spots strictly hypophyllous, irregular, turning to effuse, usually covering almost all the lower surface of the leaflets in the form of a thick layer, black; stroma often present, small, substomatic, easily detachable along with the bunch of conidiophores; conidiophores macronematous, mononematous, caespitose, usually flexuous, rarely straight, divergent, thick and smooth walled, unbranched, olivaceous brown, transversely septate, often cylindrical,

geniculate, erect, sometimes slightly swollen towards the apex, paler towards the apex, with conidial denticles, up to 270 (usually 100—180) \times 3.5—9 μ m; conidiogenous cells integrated, terminal, often monoblastic and percurrent when young, later polyblastic, sympodial, denticulate, with short, broad conical denticles and no scars, slightly lighter in colour than the rest cells; conidia solitary, simple, acro- to acropleurogenous, dark olive brown, smooth walled, transversely multiseptate (0—8 septa), obclavate, with rounded and paler apex and conico-truncate base, straight to curved, 21.5—70 \times 7—11 μ m.

On living leaves of *Acacia concinna* WALL. (Mimosaceae); Gorakhpur, India; Feb.—March, 1976; leg. R. P. SINGH, 307; IMI 212613 (holotype).

This species does not resemble any of the known species of the genus (DEIGHTON, 1976; ELLIS, 1971, 1976). However, it falls nearest to *Pseudocercospora vitis* (LÉV.) SPEG. in structure of the fruiting bodies but the conidiophores of the present fungus are always mononematous and smaller than those of the latter species. The conidia are also smaller but broader in the present case. Moreover, no species of *Pseudocercospora* has ever been described on species of *Acacia*. The present collection, therefore, is described here as a new species.

Pseudocercospora cordiae KAMAL & SINGH sp. nov. — Fig. 2

Contagionis maculae hypophyllae, raro epiphyllae, parvae, irregulares, per paene totam foliae inferiorem superficiem sparsae, maturiore frequenter coalescentes in laminam fungi tenuem superficiem tegentem, olivaceo-brunneae; stroma parvum, forte evolutum, distinctum, brunneum, immersum, 10—20 μ m diam.; conidiophori macronemati, mononemati, laxe caespitose, simplices, haud ramosi, hyalini vel pallide brunnei, angusti, transverse septati, cylindrici, erecti, recti vel subflexuosi, leves, apice aliquid inflato, geniculati, denticulis conidiigenis induti, 54—90 \times 3.5—5.5 μ m (medio 70 \times 4.5) μ m; cellulae conidiogenae integratae, terminales, frequenter monoblasticae et in conidiophoris junioribus percurrentes, serius polyblasticae, sympodiales, denticulatae, denticulis brevibus latis praeditae; conidia singularia, simplicia, acrogena vel acropleurigena, obclavato-fusiformia, basi conico-truncata (apice acutulo vel obtuso), hyalina vel pallide brunnea, transverse multiseptata (septis perumque 3—10), ad septa paulo constricta, 21.5—30 \times 3.5—4.5 μ m. In foliis vivis *Cordia* myxae CLARKE (Boraginaceae); Feb., 1976; Gorakhpur, India; leg. R. P. SINGH, 2; IMI 204591 (Typus).

Infection spots hypophyllous, rarely epiphyllous, small, irregular, scattered along almost all the lower leaf surface, often coalescing with age and forming a thin layer of the fungus on the surface, olivaceous brown; stroma small, well developed, distinct, brown, immersed, 10—20 μ m in diam.; conidiophores macronematous, mononematous, loosely caespitose, simple, unbranched, hyaline to light brown, narrow, transversely septate, cylindrical, erect, straight or slightly flexuous, smooth, with somewhat swollen apex, geniculate,

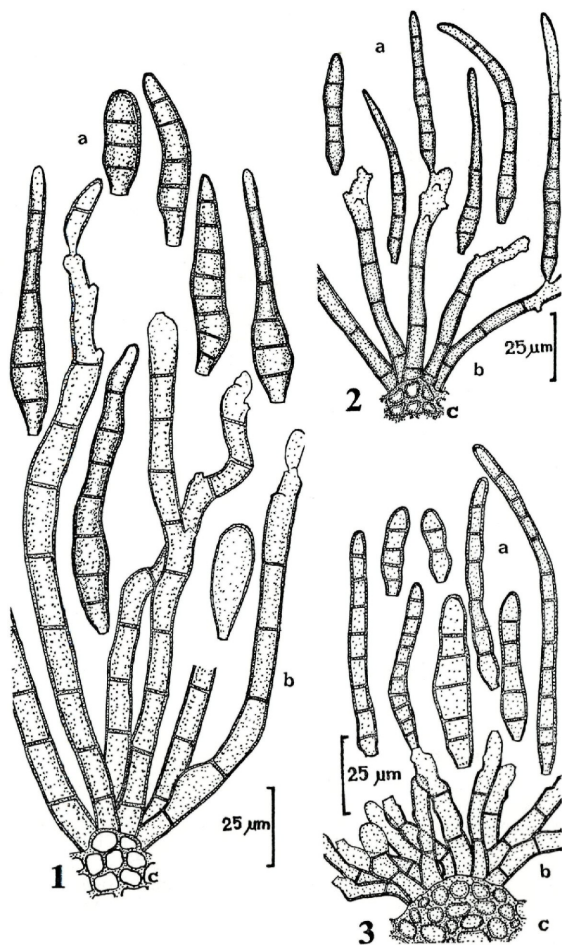


Fig. 1. *Pseudocercospora acaciae* KAMAL & SINGH (type). a. conidia. — b. conidiophores. — c. stroma

Fig. 2. *Pseudocercospora cordiae* KAMAL & SINGH (type). a. conidia. — b. conidiophores. — c. stroma

Fig. 3. *Pseudocercospora gymnematis* KAMAL & SINGH (type). a. conidia. — b. conidiophores. — c. stroma

54—90 × 3.5—5.5 μm (70 × 4.5 μm); conidiogenous cells integrated, terminal, often monoblastic and percurrent in young conidiophores, later polyblastic, sympodial, denticulate, with short and broad denticules; conidia solitary, simple, acro- to acropleurogenous, obclavate-fusiform, with conico-truncate base and slightly acute to obtuse apex, hyaline to light brown, transversely multiseptate (usually 3—10 septa), slightly constricted at septa, often germinating whilst still attached to the conidiophores, 21.5—30 × 3.5—4.5 μm .

On living leaves of *Cordia myxa* CLARKE (Boraginaceae); February, 1976; Gorakhpur, India; leg. R. P. SINGH, 2; IMI 204591 (holotype).

To compare this fungus with certain allied species like *Pseudocercospora vitis* (ELLIS, 1971), *P. helleri* (DEIGHTON, 1976), *P. terminaliae* (ELLIS, 1976), *P. pterocauli* (DEIGHTON, 1976) and *P. celastrii* (SINGH, 1977), the following comparative table is presented:

Species	Conidiophores		Conidia	
	Size (μm)	Structure	Size (μm)	Number of septa
<i>P. cordiae</i>	up to 90 × 3.5—5.5	unbranched	21.5—30 × 3.5—4.5	3—10
<i>P. vitis</i>	up to 500 × 2—7	unbranched	35—95 × 6—8	5—14
<i>P. helleri</i>	up to 400 × 3—5	branched	20—35 × 6—10	2—5
<i>P. terminaliae</i>	up to 100 × 8—10		50—115 × 7—9	2—9
<i>P. pterocauli</i>	up to 150 × 3—5	branched	20—75 × 4—7	1—3
<i>P. celastrii</i>	up to 250 × 3.5—8.5	unbranched	30—120 × 3—10	2—9

A perusal of the morphological features presented in the table suggests the distinct specific identity of the present fungus. Also, no species of *Pseudocercospora* has ever been described on *Cordia myxa* and hence this new species is proposed.

Pseudocercospora gymnematis KAMAL & SINGH sp. nov. — Fig. 3

Contagionis maculae amphigenae, rotundae vel irregulares, sparsae, saepe (et praesentim foliorum margines versus) coalescentes, obscure brunneae vel nigrae, marginibus crassis rufo-brunneis, rotundae ad 15 mm diam., fructificationibus sparsis, punctiformibus, olivaceo-brunneis stratae; stomata distincta, forte evoluta, immersa, pseudoparenchymatica, plerumque ad 70 μm diam.; conidiophori macronemati, mononemati, caespitiosi, plerumque breves, recti vel flexuosi, haud ramosi, pallide olivaceo-brunnei, leves, apicem versus paulo pallidiores, geniculati, denticulis conidiophoris notati, 15—50.5 × 8.5—5.0 μm ; cellulae conidiogenae integratae, terminales, cylindricae, quam centrae pallidiores, saepe in conidiophoribus juvenilibus monoblasticis et percurrentibus, deinde polyblasticae, sympodiales, denticulatae, denticulis brevibus latis; conidia solitaria, acrogena vel acropleurogena, simplicia, plerumque obclavato-cylindrica, olivaceo-brunnea, transverse 2—15 septata, interdum ad septa constricta, 20—125 (vulgo 25—55) × 2.5—7.5 μm . In foliis vivis *Gymnematis tingens* W. et A. (Asclepiadaceae); India, Gorakhpur; Jan.—Feb., 1977; leg. R. P. SINGH, 306; IMI 122612 (Typus).

Infection spots amphigenous, circular to irregular, scattered, often coalescing towards margin of the leaf, dark brown to black, with thick and brown margin, circular ones up to 15 mm in diam.; with scattered punctiform brown fruiting bodies; stromata distinct, well developed, immersed, pseudoparenchymatous, mostly up to 70 μm in diam.; conidiophores macronematous, mononematous, caespitose, usually short and closely packed, straight to flexuous, unbranched, light olivaceous in colour, smooth walled, slightly paler towards the apex, geniculate, more or less denticulate, $15\text{--}50.5 \times 2.5\text{--}5.0 \mu\text{m}$; conidiogenous cells terminal, integrated, appearing monoblastic in juvenile stage, becoming polyblastic with age, sympodial, cylindrical, paler than the rest cells of the conidiophore, denticulate, denticles more or less short and broad; conidia solitary, dry, simple, acro- to acropleurogenous, smooth, mostly obclavato-cylindrical, olivaceous brown, transversely septate (2—15 septa), sometimes slightly constricted along the septa, with more or less rounded apex and broad, conico-truncate base, measuring 20—125 ($25\text{--}55 \times 2.5\text{--}7.5 \mu\text{m}$).

On living leaves of *Gymnema tingens* W. and A. (Asclepiadaceae); India, Gorakhpur; Jan.—Feb., 1978; leg. R. P. SINGH, 306; IMI 122612 (holotype).

Since this collection neither appears to be conspecific with the known species of *Pseudocercospora* (ELLIS, 1971; 1976) nor any species of this sort has ever been described on *Gymnema tingens*, it merits the description as a new species.

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