

## Fungi of Gorakhpur. XVIII. *Stenella*.

KAMAL, R. P. SINGH & P. KUMAR

Department of Botany, University of Gorakhpur,  
Gorakhpur-273001 U.P., India

### Introduction

During recent years there has been an increasing interest concerning the parasitic fungi on the phanerogamic flora of the Gorakhpur region in India. And, as a consequence, several fungi have been reported and described either as a new record for the country or as new to science (KAMAL & al. 1977, 1978; KAMAL & SINGH, 1978; SINGH & KAMAL, 1978a, b).

This communication deals with the description and illustration of *Stenella capparidina* sp. n. (on *Capparis sepiaria* L.), *Stenella cassiae* sp. n. (on *Cassia fistula* L.), and *Stenella elaeodendri* sp. n. (on *Elaeodendron roxburghii* W. A.).

### Descriptions

*Stenella capparidis* KAMAL, SINGH & KUMAR sp. nov. — Fig. 1

Contagionis maculae amphigenae; coloniae hypophyllae, primum irregulares, denique coalescentes et paene totam folii superficiem occupantes, effusae, olivaceo-brunneae; mycelium ex hyphis plerumque superficialibus, hyalinis vel pallide olivaceobrunneis, septatis, levibus, ramosis, 4.5–6.0  $\mu\text{m}$  latis; conidiophori singulares apicibus vel lateribus, hypharum orientes recti vel flexuosi, septati, simplices vel ramosi, brunnei, apicem versus pallidiores, 20–110  $\times$  4.5–7  $\mu\text{m}$ ; cellulae conidiogenae polyblasticae, integratae, terminales, sympodiales, geniculatae, cylindricae, cicatricibus notati, conidiophori et cellulae ceterae pallidiores; conidia plerumque singularia, raro catenata, recta vel arcuata, cylindrica vel obclavata, septis 0–15 transversis divisa, plus minusue verruculosa, subhyalina, 23.5–180  $\times$  5.5–7  $\mu\text{m}$ . Hab. in foliis vivis *Capparis sepiariae* L. (Capparidaceae); India, Gorakhpur; Feb.—March, 1978; leg. P. KUMAR, 7: IMI 229188 (Typus).

Infection spots amphigenous; colonies hypophyllous, firstly irregular then coalescing to cover most of the leaf surface, effuse, olivaceous brown; mycelium of hyphae mostly superficial, hyaline to pale olivaceous brown, septate, smooth, branched, 4.5–6.0  $\mu\text{m}$  in width; conidiophores arising singly, terminal or lateral on the hyphae, straight to flexuous, septate, simple or branched, brown, paler near the apex, 20–110  $\times$  4.5–7  $\mu\text{m}$ ; conidiogenous cells polyblastic, integrated, terminal, sympodial, geniculate, cylindrical, cicatrized, paler than the cells of conidiophores, conidia mostly

solitary, rarely catenate, straight or curved, cylindrical to obclavate 0—15 transversely septate, more or less verruculose, almost subhyaline, 23.5—180 × 5.5—7 μm (Fig. 1).

On living leaves of *Capparis sepiaria* L. (Capparidaceae); India, Gorakhpur; Feb.—March, 1978; eg. P. KUMAR, 7; IMI 229188 (holotype).

When compared with the earlier described species of *Stenella* (DEIGHTON, 1975; ELLIS, 1971, 1976; MULDER, 1975) the present, fungus falls nearest to *Stenella pithecellobii* MULDER. It, however

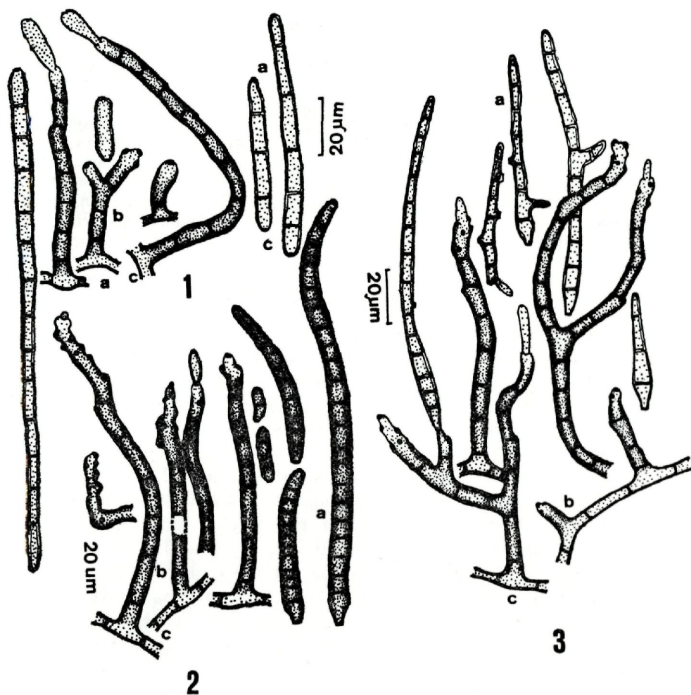


Fig. 1. *Stenella capparidis* KAMAL, SINGH & KUMAR (type). a. conidia. — b. conidiophores. — c. hyphae

Fig. 2. *Stenella cassiae* KAMAL, SINGH & KUMAR (type). a. conidia. — b. conidiophores. — c. hyphae

Fig. 3. *Stenella elaeodendri* KAMAL, SINGH & KUMAR (type). a. conidia. — b. conidiophores. — c. hyphae

differs markedly from *S. pithecellobii* in having up to 110  $\mu\text{m}$  long (as against up to 60  $\mu\text{m}$ ) conidiophores, 23.5—180  $\mu\text{m}$  long (as against 13—58  $\mu\text{m}$ ) and more or less verruculose (as against smooth) conidia which are almost subhyaline (as against olivaceous brown) in the present collection. Besides, no species of *Stenella* has yet been described on *Capparis sepiaria*. The present fungus, therefore, merits consideration as a new species.

*Stenella cassiae* KAMAL, SINGH & KUMAR sp. nov. — Fig. 2

Contagionis maculae amphigenae; coloniae hypophyllae, primo irregulares demum effusae, paene totam folii superficiem occupantes, brunneae vel obscure brunneae; mycelium principale ex hyphis immersis, hyalinis vel subhyalinis, septatis, levibus, ramosis, tenuibus, secundarium ex hyphis plerumque superficialibus, pallide olivaceobrunneis, septatis, nonnihil verruculosis, ad 2  $\mu\text{m}$  latis, compositum; stroma raro evolutum, substomaticum, haud distinctum, pseudoparenchymaticum; conidiophori macronemati, mononemati, vulgo ex hyphis superficialibus, interdum in fasciculis e stromate orientes, recti vel flexuosi, crasse et leviter tunicati, septati, geniculati, brunnei, apicem versus pallidiores, haud ramosi, 85—150 (vulgo 55—90)  $\times$  4.5—7  $\mu\text{m}$ ; cellulae conidiogenae polyblasticae, integratae, terminales, geniculatae, sympodiales, cicatricibus notatae, cylindricae, quam cellulae ceterae pallidiores; conidia singularia, sicca, acropleurogena, recta vel arcuata, brunnea, crasse tunicata, verruculosa, septis 1—22 (plerumque 3—12) transversis divisa, cylindrica vel obclavata, apice rotundato, basi truncata vel conicotruncata, 12—153  $\times$  3.2—8  $\mu\text{m}$ . Hab. in foliis vivis Cassiae fistulae L. (Caesalpiniaceae); India, Gorakhpur; Feb.—March, 1976; leg. R. P. SINGH, 302; IMI 212608 (Typus).

Infection spots amphigenous; colonies hypophyllous, firstly irregular then effuse covering almost the entire leaf surface, brown to dark brown; primary mycelium of hyphae immersed, hyaline to subhyaline, septate, smooth walled, branched, thin; secondary mycelium of hyphae mostly superficial, composed of light olivaceous brown, septate, slightly verruculose hyphae measuring up to 2  $\mu\text{m}$  in width; stromata rarely present, substomatic, indistinct, pseudoparenchymatous; conidiophores macronematous, mononematous, usually arising singly from the superficial hyphae but sometimes in fascicles from stromata, straight to flexuous, thick and smooth walled, septate, geniculate, brown, paler along the apex, unbranched, 85.5—150 (usually 55—90)  $\times$  4.5—7  $\mu\text{m}$ ; conidiogenous cells polyblastic, integrated, terminal, geniculate, sympodial, cicatrized, cylindrical, paler than the rest cells; conidia solitary, dry, acropleurogenous, straight to curved, brown, thick walled, verruculose, 1—22 transversely septate (usually 3—12), cylindrical to occasionally obclavate, with rounded apex and truncate to conicotruncate base, 12—153  $\times$  3.5—8  $\mu\text{m}$ .

On living leaves of *Cassia fistula* L. (Caesalpiniaceae); India, Gorakhpur; Feb.—March, 1976; leg. R. P. SINGH, 302; IMI 212608 (holotype).

This collection differs from the species of *Stenella* described so far (DEIGHTON, 1975; ELLIS, 1971, 1976; MULDER, 1975; PAVGI & SINGH, 1971). It resembles *Stenella schisandrae* PAVI & SINGH, but differs, however, in the strongly geniculated apex of the conidiophores and in the size of the conidiophores and conidia. Since, no species of *Stenella* has ever been reported on *Cassia*, the present collection is considered to be a new species.

*Stenella elaeodendri* KAMAL, SINGH & KUMAR sp. nov. — Fig. 3

Contagionis maculae amphigenae; coloniae hypophyllae, primum irregulares, denique coalescentes et paene totam folii superficiem occupantes, effusae, pallide vel obscure brunneae; mycelium plerumque superficiale, ex hyphis superficialibus, hyalinis vel subhyalinis, levibus, septatis, tenuibus, ad 2.5–5  $\mu\text{m}$  crassitudine compositum; conidiophori macronemati, mononemati, singulatim ex apicibus vel lateribus hypharum orientes, crebre ramosi, crasse et leviter tunicati, conferte septati, recti vel flexuosi, olivaceo-brunnei, apicem versus pallescentes et geniculati, ad 126  $\mu\text{m}$  longi, 4.5–6  $\mu\text{m}$  crassi; cellulae conidiogenae polyblasticae, integratae, terminales, cicatricibus conspicuis notatae, cylindricae, sympodiales, quam cellulae ceterae pallidiores; conidia plerumque singularia, raro catenata et ramulis lateralibus praedita, recta vel interdum curvula, cylindrica vel anguste obclavata, plerumque hyalina, transverse 1–17 septata, levia, apice rotundato, basi conicotruncata, cicatrice conspicua notata, 45–132 (vulgo 70–100)  $\times$  3.5–7  $\mu\text{m}$ . Hab. in foliis vivis *Elaeodendri roxburghii* W. & A. (Euphorbiaceae); India, Gorakhpur; Feb.—March, 1978; leg. R. P. SINGH, 303; IMI 212609 (Typus).

Infection spots amphigenous; colonies hypophyllous, firstly irregular then coalescent, covering most of the leaf surface, effuse, light brown to dark brown; mycelium mostly superficial, composed of hyaline to subhyaline, smooth walled, septate, thin hyphae measuring up to 2.5–5  $\mu\text{m}$  at the broadest part; conidiophores macronematous, mononematous, arising usually singly either terminally or laterally from the hyphae, often loosely branched, thick and smooth walled, closely septate, straight to flexuous, olivaceous brown, paler towards the apex, geniculate along the apex, up to 126  $\mu\text{m}$  long, 4.5–6  $\mu\text{m}$  thick; conidiogenous cells polyblastic, integrated, terminal, conspicuously cicatrized, cylindrical, sympodial, paler than the rest cells; conidia mostly solitary, rarely catenate with lateral branches, straight, sometimes curved, cylindrical or narrowly obclavate, usually colourless, transversely 1–17 septate, smooth with conspicuous scar at the base, with rounded apex and conicotruncate base, 45–132 (usually 70–110)  $\times$  3.5–7  $\mu\text{m}$ .

On living leaves of *Elaeodendron roxburghii* W. & A. (Euphorbiaceae); India, Gorakhpur; Feb.—March, 1978; leg. R. P. SINGH, 303; 212609 (holotype).

When compared with the earlier described species of *Stenella* (DEIGHTON, 1975; ELLIS, 1971; 1976; MULDER, 1975; PRASAD, 1968) the present fungus is related only to *Stenella aegles* PRASAD, but

differs in having smooth walled hyphae and conidia on one hand and hyaline to subhyaline conidia with comparatively larger number of septa (up to 17 as against up to 12) on the other. Moreover, no species of *Stenella* has so far been described on *Elaeodendron roxburghii*. The present fungus, therefore, is described as a new species.

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Autor(en)/Author(s): Kamal Shwet, Singh R. P., Kumar Pranav

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