



Additions to *Stenella* Syd. from North Western Tarai Forests of U.P., India

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Abstract

This communication deals with the descriptions, latin diagnosis and illustrations of two hitherto undescribed species of fungus genus *Stenella* Syd. viz; *S. litseae* sp. nov. and *S. rajendrella* sp. nov. collected on living leaves of *Litsea glutinosa* (Lauraceae) and *Ficus* sp. (Moraceae) respectively from North Western Tarai Forests of U.P., India.

Keywords: Follicolous fungi, morphotaxonomy, *stenella* species novel.

Introduction

During our survey of North Western Tarai forests of U.P., collection of living leaves exhibiting leaf spots and blights were encountered of these, upon critical examination and comparison of morphotaxonomic features with those of allied forms, two taxa of species rank found to be hitherto undescribed. This is described and illustrated as *Stenella* viz; *S. litseae* Singh and Mall sp. nov. and *S. rajendrella* Singh and Mall sp. nov. parasitizing in the living leaves of *Litsea glutinosa* (Lauraceae) and *Ficus* sp. (Moraceae) respectively. Illustrations have been executed with camera-lucida and lation diagnosis.

Material and Methods

During collection trip infected leaf samples were taken in separate polythene bags from Dudhawa forest range and Katarniaghat Wildlife Sanctuary in North Western Tarai forest of Uttar Pradesh. Suitable mounts of surface scrapping and free hand cut sections were prepared from infected portions of the leaf samples. Microscopic slides were prepared in cotton-blue lactophenol mixture, slides were examined and camera lucida drawing were made. Morphotaxonomic determinations of taxa were done with the help of current literature and resident expertise available. Holotypes have been deposited in HCIO, IARI, New Delhi and Isotype retained in the departmental herbarium for further reference.

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Taxonomic Description

Stenella litseae Singh and Mall sp. nov. (Fig. 1)

Maculae hypogenseae, flucose, rotundatae, usque 6-12 mm in diam. rubeo-brunneisvelgriseae. Mycelium ex hyphis superficialibus, ramosis, septatis, verruculosis, pallideolivaceae 3-7 μ m latae. Stromatanullantata, conidiophorarecteavelflexuosarubeo-brunnea, semimicronemata, mononematosa, verruca losa, ramosavelsimplicia, cum terminalibus vel intercalarescicatribus, usque, 250 x 5.2 μ m. Conidia pallideolivaceave rubeo-brunnaia, catenata velsimplicia, septata, recta vel curvae at helicoidia, verruculosa, usque 92.7-150 x 3-8 μ m. In foliis vivis *Litsea glutinosa* Lamk. (Lauraceae), Dudhawa Forest Range, Lakhimpur (U.P.) India, 24th nov. 2006, leg; D.P. Singh, BRH-1,562, DPS-0,162 (Isotypus), HCIO - 48,504 (Holotypus). Infection spot hypogenous, flucose, showing colony growth either on whole of the leaf surface or localized in rounded colonies measuring 6-12 mm in diameter, pinkish brown to grey coloured, Mycelium of hyphae external, intermingled with verruculose, branched. Septata, pale olivaceous, non stromatic, 3-7 μ m wide. Swollen at the bases of conidiophores (upto 8-11), Conidiophores non-stomatic, straight or flexuous, reddish brown, semimicronematous, mononematous, verruculose, thick walled branched or simple, with terminal or intercalary scars, scar conspicuous, measuring 250 x 5.2 μ m in diam. base swollen, conidia pale olivaceous to pink brown, verruculose, catenate or simple base swollen, septate, straight, curved or helicoids, (92.7-150 x 3-8) μ m. Some



time indeterminate, tip obtuse, 3 μm wide, basal region swollen upto 10 μm . On living leaves of *Litsea glutinosa* Lamk. (Lauraceae), Dudhawa Forest Range, Lakhimpur, (U.P.) India, 24th nov., 2006, leg; D.P. Singh, BRH-1,562, DPS-0,162 (Isotype), HCIO -48,504 (Holotype). A number of *Stenella* species have been reported upto-date (Ellis, 1971, 1976, Mulder, 1982) on different hosts. However, the present collection is nearer to *Stenella constricta* (Mulder, 1982). A Comparative account of taxonomical characters of this species, with those of the present collection is given in the following table for justification of its distinct identity. The above table show some similarity of present collection with *Stenella constricta* in conidiophores. The present collection, however, differs considerably from *S. constricta* in having very distinct symptoms and conidia. The conidia of *S. constricta* are echinulate 0-6 septate 13.5-45 x 4.5-7 μm as against verruculose many septate straight, curved, or helicoid, measuring 92.7-150 x 3-8 μm conidia of this collection, Therefore, the present collection is described and illustrated as a new species to accommodate it.

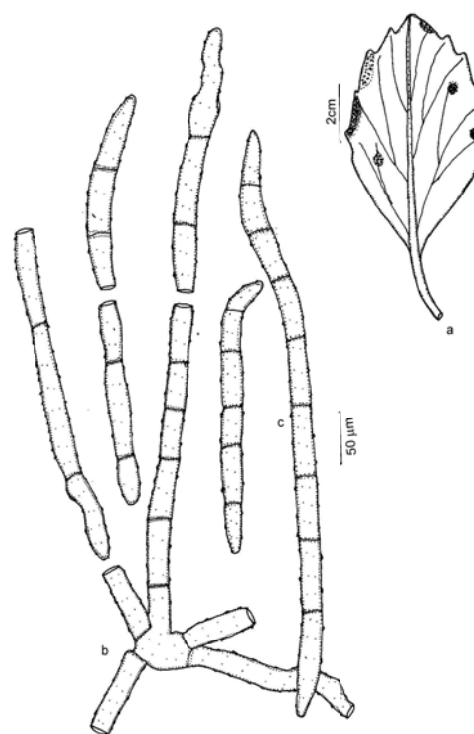


Fig. 01 : *Stenella litseeae* Singh and Mall sp. nov
a. Infected leaf b. Conidiophores c. Conidium

Table 1: Comparison of morphotaxonomic features of *Stenella constricta* with *Stenella litseeae* sp. nov.

<i>Stenella</i> Spp.	Conidiophores	Conidia
<i>Stenella constricta</i> Mulder.	Macronematous, non-fasciculate, born singly on mycelial network, long dark brown, unbranched, with upto 14 septa, smooth straight or slightly curved, sometimes percurrent, extending a short distance from the conidiogenous, region become fertile again, upto 350 μm long 4-7 μm wide.	Blastosporic, dry pale brown, concolorous with the mycelium, echinulate, straight, cylindrical to obclavate, occasionally curved at the apex, basal cell truncate, with thickened hilum, non-protuberent, 0-6 septate, 13.5-45 x 4.5-7.0 μm .
<i>Stenella litseeae</i> sp. nov.	Non-stromatic, straight or flexuous, reddish brown semi-micronematous, mononematous, verruculose, thick walled, branched or simple with terminal or intercalary, scars, conspicuous, measuring 250 x 5.2 μm in diam. with swollen base.	Pale olivaceous to pink brown castenate or simple base swollen septate, straight or curved sometimes helicoids, verruculose, (92.7-150 x 3-8) μm . Sometimes indeterminate basal region upto 10 μm with hila 2-3 μm thick.

***Stenellarajendrella* Singh and Mall sp. nov.**
(Fig. 02)

Maculae amphigenae, flucrose, rotundatae, usque 8-14 mm in diam; *rubeo-brunneisvelgriseae*. Myclium ex hyphissuperficiales, ramosae, septatae vernuculosapallideolivaceo, 4-9 μm lata. Stromatanullanotata. Conidiophora recta vel flexuosarubeobrunnea, semi-micronematosa, mononematosa, verruculosa, ramosavelsimplicia cum terminalesvelintercalarescicatribus, usque 210 x 6.5 μm . Conidia pallideolivaceavelrubeobrunnea, catenata velsimplicia, septata, recta vel curvata at helicoidia, verruculosa, usque 89.4-140 x 2-7 μm . Infoliis vivis *Ficus* sp. Linn. (Moraceae), Katarniaghat Wildlife Sanctuary, Bahraich (U.P.) India, 13th Jan. 2007, leg; D.P. Singh, BRH-1,569, DPS-0,169 (Isotypus), HClO-48,511 (Holotypus). Infection spots amphigenous, flucrose, showing colony growth either on whole of the leaf surface or localized in rounded colonies measuring 5-10 mm in diameter, pinkish brown to grey coloured.

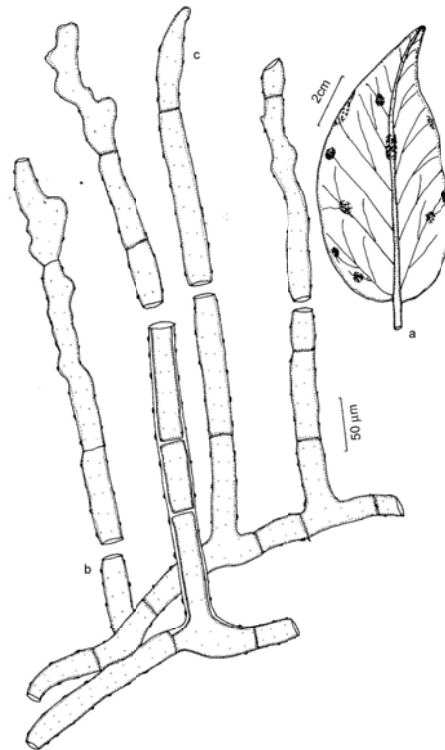


Fig. 02 : *Stenella rajendrella* Singh and Mall sp. nov.
a. Infected leaf b. Conidiophores c. Conidium

Table : 2 Comparison of morphotaxonomic features of *Stenella constricta* with *Stenellarajendrella* sp. nov.

<i>Stenella</i> spp.	Conidiophores	Conidia
<i>Stenella constricta</i> Mulder.	Macronematous, non-fasciculate, born singly on mycelial network, long dark brown, unbranched, with upto 14 septa, smooth straight or slightly curved, sometimes percurrent, extending a short distance from the conidiogenous, region become fertile again, upto 350 μm long 4-7 μm wide.	Blastosporic, dry pale brown, concolorous with the mycelium, echinulate, straight, cylindrical to obclavate, occasionally curved at the apex, basal cell truncate, with thickened hilum, non-protuberent 0-6 septate, 13.5-45 x 4.5-7.0 μm .
<i>Stenellarajendrella</i> sp. nov.	Straight or flexuous reddish brown, micronematous, mononematous, verruculose, thick walled branched or simple, with terminal or intercalary, scar, conspicuous, measuring 210 x 6.5 μm in diam with swollen base.	Olivaceous to pink brown, cotenate simple base swollen, septate, straight or curved sometimes helicoid, verruculose, 89.4 – 140 x 27- μm in diam.

Mycelium of hyphae external, intermingled with verruculose, branched, septate, pale olivaceous, non-stromatic, 4-9 µm wide. swollen at the bases of conidiophores (upto 6-9), conidiophores non-stromatic, straight or flexuous, reddish brown, semi-micronematous, mononematous, verruculose, thick walled, branched or simple, with terminal or intercalary scars, scar conspicuous, measuring 210 x 6.5 µm in diam. base swollen, conidia pale olivaceous to pink brown, verruculose, catenate or simple base swollen, septate, straight, curved or helicoid 89.4 x 140x 2-7 µm. Some time indeterminate, tip obtuse, 4 µm wide, basal region swollen upto 11 µm. On living leaves of *Ficus* sp. Linn. (Moraceae), Katarniaghat Wildlife Sanctuary, Bahraich, (U.P.) India, 13th Jan., 2007, leg; D.P. Singh, BRH-1,569, DPS-0,169 (Isotype), HCIO - 48,511 (Holotype). Perusal of literature shows that morphotaxonomic features of described species of *Stenella constricta* (Mulder, 1982) is comparable with the present collection.

Comparative account reveals that there is some similarity of present collection with *Stenella constricta* in conidiophores. But the present collection is significantly different from *Stenella constricta* in other many ways therefore, it is worthwhile to propose the present collection as a new taxon of species rank, to accommodate it. The review of literatures (Bilgrami *et al.*, 1979, 1981, 1991; Ellis, 1971, 1976; Jamaluddin *et al.*, 2004; Meenu *et al.*, 1997, Meenu and Kamal, 1998; Sarbhoy *et al.*, 1986, 1996; Singh and Mall, 2007a, 2007b, 2008) reveals that both new taxa have not been reported either from North Western Tarai Forests of U.P. or India.

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