

A new species of *Stenella* Sydow from West Bengal

ASHOK KUMAR DAS

Senior Research Scholar, Department of Botany, Presidency College
Calcutta-700 073

A new species of *Stenella*, namely *Stenella naucleæ* has been collected from the district of Jalpaiguri, West Bengal during the year 1983-86. The specimen has been worked out in details in the laboratory, Department of Botany, Presidency College, Calcutta and description and illustration are presented here.

Key words : New species, *Stenella*, West Bengal

The genus *Stenella* was first erected by Sydow in the year 1930 and cited *Stenella araguata* as the type species. After a long period this genus was first redescribed with figured by Ellis in 1971. In 1953 Thirumalachar and Mishra described a *Cercospora* like fungi and named it a new genus *Biharia* with the type species *Biharia vangueriae* but Deighton in 1979 transferred *Biharia vangueriae* to *Stenella vangueriae*.

The fungus treated here was studied in the natural habitat. Field study of the behaviour of this fungus was made and specimens of infected host tissue were collected in different seasons during the years 1983-86. The infected host tissue of living leaves were examined closely both with the help of magnifying glass and with unaided eye. The infected leaves were detached intact from the host plants and were spread out in between two blotting papers. The dried specimen then pre-served in a packet adding a few amount of para dichloro benzene (PDB) to protect it from the attack of mites and insects.

For working out details of the fungus microscopic studies were made from the slides prepared from both fresh and pre-served specimens stained with lactophenol and cotton blue solution. Colour of different parts of fungus and all measurements were recorded.

Camera lucida drawings were made with the aid of standard camera lucida attachments.

Stenella naucleae sp. nov.

(Fig. 1)

Incidence in monsoon, spots formed in lamina, amphigenous, distinct, numerous, vein-limited, older leaves more affected, circular to subcircular, spots pale to reddish brown in the centre surrounded by deep brown to almost black margin, colour uniform on corresponding ventral surface, occasionally aggregate to coalescent, 1-8 mm wide; caespituli amphigenous, chiefly hypophyllous, unevenly distributed over the spots, dark brown to black; primary mycelium internal, hyphae subhyaline to pale olivaceous, septate, 2.5-3.0 μm wide; stroma present and well developed, globose to subglobose, deep brown, 33.00 μm wide and upto 23.00 μm high; primary conidiophores amphigenous, fasciculate, 7-55 spreading stalks in a fascicle, emerging through the stomata, pale to mid brown, straight to flexuous, thick walled, smooth, usually simple, rarely branched, pluriseptate upto 10, septa very distinct, sometimes geniculate (upto 2), apex sinuous, old

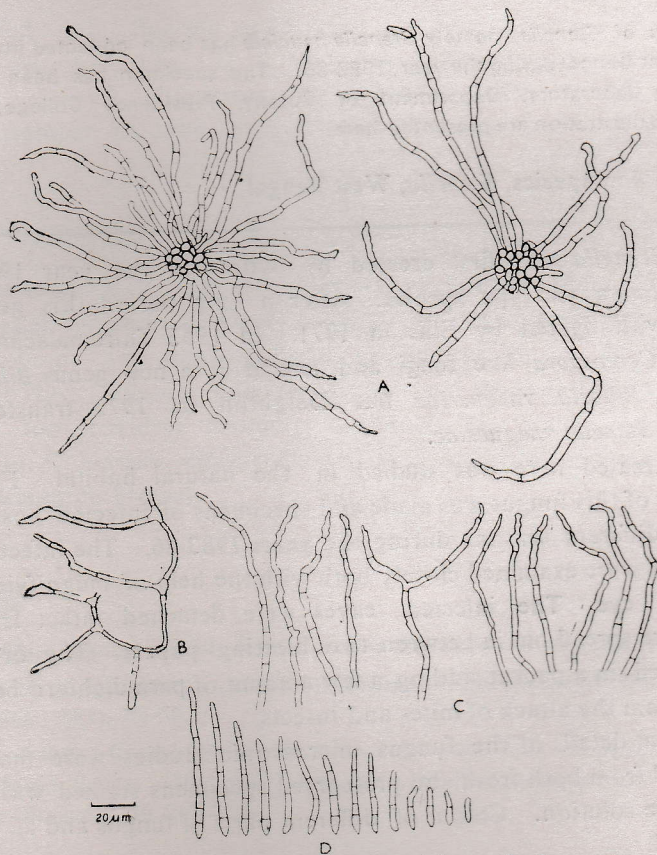


Fig. 1 : *Stenella naucleae* : A, Conidiophore fascicles ; B, Secondary Conidiophore ; C, Primary Conidiophores ; D, Conidia.

conidial scar (1.5-2.0 μm in diam.) present and conspicuous, situated at the subacute tip or lying flat against the side wall of the conidiophores, 3.50-5.00 x 33.00-115.50 μm ; secondary mycelium superficial, chiefly hypophyllous, originating from the base of the stroma or directly through the stomatal aperture, hyphae pale olivaceous, branched, septate, 2.5-3.5 μm wide, developing secondary conidiophores as lateral appendages, secondary conidiophores slightly shorter than the primary ones, 3.50-5.00 x 6.50-76.00 μm ; conidia obclavate to obclavate-cylindric, subhyaline to pale olivaceous, straight to mildly curved, thin walled, verruculose, multiseptate, septa distinct to indistinct, tip subobtuse to subacute, base basically truncate to hilum, 3.00-4.00 x 16.50-89.00 μm .

Specimen studied : on *Nauclea excelsa* B1. (Fam Rubiaceae), Birpara, Jalpaiguri, West Bengal, India, PCC 3816, leg. A. K. Das, 7 September 1984.

Etymology : From the name of the host genus.

Holotype : Deposited at the Presidency College herbarium, Calcutta, West Bengal.

Latin diagnosis : Maculae amphigeniae, distinctae, numerosae, venas-limitatae, circulares vel subcirculares, pallide vel rubido-brunneae centro, margine atro-brunneae vel fere atri cinctae, 1-8 mm latae; caespituli amphigeni, praecipue hypophyllae, inaequaliter disseminati, atro-brunneae vel atri; mycelium primum immersum, hyphae sub-hyalina vel pallide-olivacea, septata, 2.5-3.0 μm latae; stroma globosa vel subglobosa, atro-brunneae, 33.00 μm latum et usque 23.00 μm altum; conidiophora primum amphigeni, fasciculata, 7-55 in fasciculo divergenti per stoma emergentia, pallide vel modice brunneae, recta vel flexuosa, laevia, plerumque simplicia, raro ramosa, pluriseptata usque 10, interdum geniculata (usque 2), apice sinuosa, cicatrices conidiales, 1.5-2.0 μm latae, 3.5-5.0 x 33.0-115.5 μm ; mycelium secundarium superficiale, praecipue, hypophyllae, hyphae ex cellulis basalibus stroma vel per stoma emergentia, pallide olivacea, ramosa, septata, 2.5-3.5 μm latae, conidiophora secundaria lateraliter gerentes, 3.0-5.0 x 6.5-76.0 μm ; conidia obclavata vel obclavata-cylindrica, subhyalina vel pallide olivacea, recta vel leniter curvata, verruculosa, multiseptata, apice subobtusata vel subacuta, basi in hilum conico-truncata, 3-4 x 16.5-89.0 μm .

Habitat in filiis vivis *Nauclea excelsa* B1. (Rubiaceae), Birpara, Jalpaiguri, Bengal occidentales, PCC 3816, leg. A. K. Das, 7. ix. 1984.

Since the establishment of the genus *Stenella* none of its species has yet been reported on the present host *Nauclea excelsa* B1. under the family Rubiaceae.

Mulder (1975) held that the genus *Stenella* bears some relationship with the genera *Cercospora*, *Cercosporium*, *Cladosporium* and *Helminthosporium*. But the main distinguishing characters of *Stenella* from the above genera are the

narrow rod like conidia which are in most cases catenate and verruculose, the conidial scars are thickened.

Deighton (1976-87) transferred some species of *Cercospora* (described by Yen and Gilles in 1975a and 1975b) to the genus *Stenella*. But not only *Cercospora*, none of the hyphomycetous fungi has yet been reported on the present host *Nauclea excelsa* Bl.

Review of literatures (Deighton 1976, 1983, 1987; Ellis 1971, 1976; Fungi of India by Bilgrami *et al* 1979, Sarbhoy *et al* 1981) shows that no record of any fungus on this present host.

So considering all these, the present fungus is described and illustrated here has been given the status of new species.

ACKNOWLEDGEMENTS

The author is grateful to Dr. A. K. Kar, Retd. Professor and Head, Dept. of Botany, Presidency College, Calcutta for valuable contribution and suggestion and to Dr. B. K. Chattopadhyaya, Reader in Botany, of the same College for his encouragement.

REFERENCES

- Bilgrami, K.S., Jamaluddin and M.A. Rizwi (1979) *Fungi of India*. Part I, Today & Tomorrow's Printers & Publishers, New Delhi-110 005, 467 pp.
- Bilgrami, K.S., Jamaluddin and M.A. Rizwi (1981). *Fungi of India*, Part II, Today & Tomorrow's Printers & Publishers New Delhi-110 005, 270 pp.
- Chupp, C. (1953). A monograph of the Fungus Genus *Cercospora*, Cornell University, Ithaca, New York.
- Deighton, F.C. (1976). Studies on *Cercospora* and allied genera. VI. Mycological Papers No. 140: CAB, International Mycological Institute, Kew, Surrey, England.
- (1983). Studies on *Cercospora* and allied genera. VIII. Mycological Papers No. 151: 1-13, CAB, International Mycological Institute, Kew, Surrey, England.
- (1987). New species of *Pseudocercospora* and *Mycovellosiella* and new combinations into *Pseudocercospora* and *Phaeoramularia*; *Trans Br Mycol Soc.* 88 (3) 365-391
- Ellis, M.B. (1971). Dematiaceous Hyphomycetes, C.M.I., Kew, Surrey, England.
- (1976). More Dematiaceous Hyphomycetes, C.M.I., Surrey, England.
- Janardhanan, K.K. & D. Ganguly (1963). Fungal flora of some important medicinal plants, *Ind. Phytopath.* 16, 379-389.
- Sarbhoy A.K., D. K. Agarwal and J. L. Varshney. (1979-1981). *Fungi of India*, Associated Publishing Company, New Delhi, 274 pp.

Subramanian, C.V., (1971). *Hyphomycetes*, Indian Agricultural Research Institute, New Delhi, 930 pp.

Yen, Jo-Min (1975a). The *Cercospora* of Ivory-Coast-I. *Bull trimest. Soc. mycol. Fr.* 90 (4) (1974): 307-324.

—(1975b). The *Cercospora* of Ivory-Coast-II. *Bull trimest. Soc. mycol Fr.* 91 (1), 89-103.

(Accepted for publication 16th July 1990)