IJREB

ISSN **2321-743X**

International Journal of Research in

Engineering and Bioscience

Volume **2** Issue **6** (Pages 223- 226)

Journal home page: www.ijreb.org

DIVERSITY OF FOLIICOLOUS FUNGI ON PLANTS OF FAMILY – LAMIACEAE IN NORTH-EASTERN UTTAR PRADESH, INDIA

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ABSTRACT

The North-Eastern part of Uttar Pradesh bordering the Terai belt of Nepal has humid, sub-tropical climate with rich vegetation. It is suitable for the growth of foliicolous fungi. Earlier surveys made in this area have revealed predominance of these foliicolous fungi. During a recent survey, two species of these foliicolous fungi were collected and described, named *Mycovellosiella colebrookiae* and *Cercospora hyptisiicola* on plants of Family – Lamiaceae, named *Colebrookia oppositifolia* Smith and *Hyptis suaveolens* (L.) Poir, respectively.

KEYWORDS: Fungal diversity, Foliicolous fungi, North-Eastern Uttar Pradesh, Lamiaceae.

INTRODUCTION

Due to its humid, sub-tropical climate, the North-Eastern part of Uttar Pradesh bordering the Terai belt of Nepal is adorned with lush green vegetation represented by a rich biodiversity of plants including angiosperms and ferns. Due to ideal climatic conditions prevailing in this region, leaf spot causing fungi are predominantly found, which are called ***"Foliicolous Fungi."*** These fungi mostly belong to Deuteromycotina. The earlier surveys of this region by us have resulted in the description and illustration of several such foliicolous fungi, which were new to science (Srivastava *et al.* 1990; Chandra *et al.* 1991; Srivastava *et al.* 1994; Srivastava *et al.* 1994; Srivastava *et al.* 1995; Srivastava & Kamal, 1995; Srivastava & Morgan-Jones, 1996; Bhalla *et al.* 1996; Misra *et al.* 1997; Srivastava *et al.* 2013).

In a recent survey of forests of this region, several samples of foliicolous fungi were collected. Amongst these collections, two leaf spot fungi belonging to Class – Hyphomycetes of Deuteromycotina were reported causing leaf spot diseases to two plants of Family – Lamiaceae, named *Colebrookia oppositifolia* Smith and *Hyptis suaveolens* (L.) Poir, respectively, which are described and illustrated in this communication.

MATERIALS AND METHODS

The infected specimens were viewed with unaided eyes so as to have an idea about the nature of symptoms produced, and shape and size of lesions formed on the leaf surface. Scrap mounts of infected portions of the leaves were prepared in Lactophenol-Cotton Blue for preliminary examination and detailed observations and drawing purposes as well. The preparations were examined with the help of compound microscope using different eye pieces (15x) and objective (10x, 40x, 45x and 100x) combinations. Figures showing all the morphological details of reproductive propagules were drawn carefully with the help of Camera Lucida. The measurements of different relevant structures were also taken side by side.

RESULTS AND DISCUSSION

Two different foliicolous hyphomycetes have been described and illustrated which are pathogenic to the plants of Family – Lamiaceae (Figure 1-4).

The infection spots on the leaves are amphigenous, circular to irregular, discrete, 1 to 6 mm. wide, sometimes coalescing and spreading and brown in colour. **Colonies** hypophyllous and brown. **Mycelium** mostly superficial; external hyphae septate, branched, sometimes forming rope-like structures, light oblivaceous, 2-3 µm wide. **Stromata** absent. **Conidiophores** arising singly from external hyphae as lateral or terminal branches, micronematous to

semimicronematous, mononematous, unbranched, thin and smooth-walled, erect, straight to flexuous, cylindrical, aseptate to 1-3 transversely septate, sometimes geniculate, light olivaceous, 6-91 µm long and 2-4 µm wide. **Conidiogenous cells** integrated, terminal, polyblastic, sympodial, cylindrical, cicatrized, scars thickened. **Conidia** solitary, dry, acropleurogenous, holoblastic, catanate in simple or branched chains, straight to slightly curved, unbranched to branched, 0-7 transversely septate, thin and smooth-walled, light olivaceous, mostly obclavocylindrical, tip acute to obtuse, base obconicotruncate, hilum distinct and slightly thickened, 13-56 µm long and 2-4 µm wide.

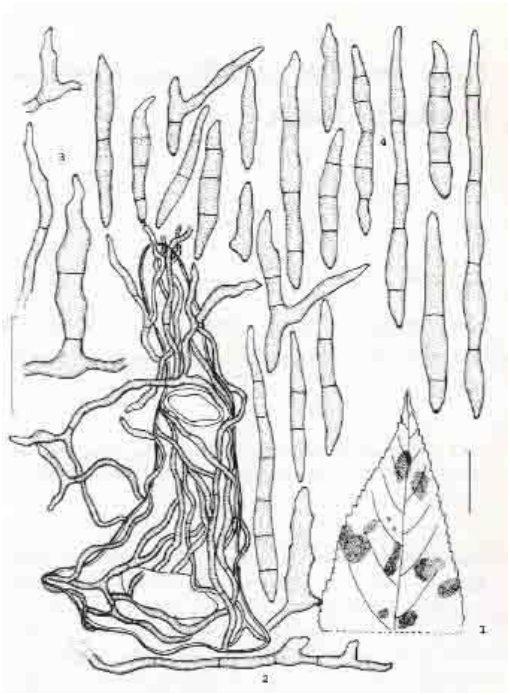

Fig. 1-4 : *Mycovellosiella colebrookiae.* (1) Infection spots on the leaf (Scale: 20 mm.). (2) External Hyphae (Scale: 20 µm). (3) Conidiophores (Scale: 20 µm). (4) Conidia (Scale: 20 µm).

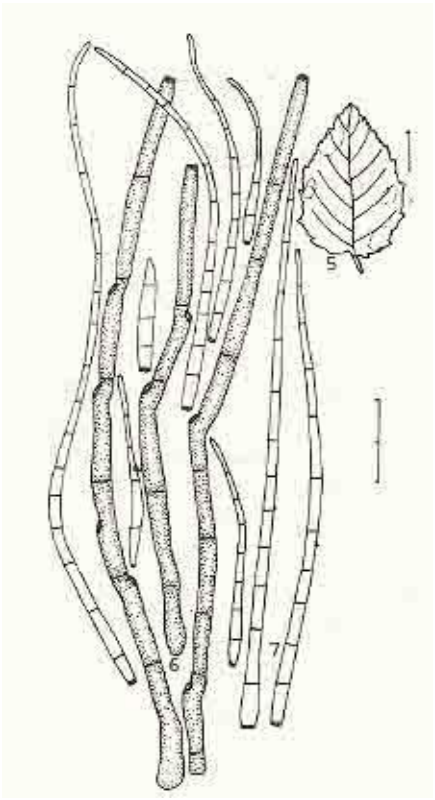

Fig. 5-7: *Cercospora hyptisiicola.* (5) Infection spots on the leaf (Scale: 10 mm.). (6) Conidiophores (Scale: 20 µm). (7) Conidia (Scale: 20 µm).

The infection spots on the leaves are amphigenous, distributed throughout the leaf surface, sub-circular, dark brown in colour, 3 to 8 mm. in diameter. **Colonies** mainly hypophyllous. **Mycelium** immersed. **Hyphae** septate, branched, subolivaceous. **Stromata** absent or poorly developed, pseudoparenchymatous, brown. **Conidiophores** mononematous, macronematous, straight to slightly curved, septate to thick-walled, unbranched, less geniculate, olivaceous to light brown, 122-179 x 4-6 µm. **Conidiogenous cells** integrated, terminal to intercalary, cicatrized with distinct spore scars. **Conidia** acicular to obclavocylindrical, varying in size and shape,

unbranched, straight to slightly curved, 4-17 transversely septate, truncate to obconicotruncate base and obtuse to subacute apex, with distinct hilum, 24-164 x 1.5-4 µm.

ACKNOWLEDGEMENT

The authors are thankful to the Principal, St. Andrew's College, Gorakhpur for providing facilities and to the Head, Department of Botany for suggestions.

REFERENCES

Srivastava Neeraj, Chandra Satish and Gupta Chaturbhuji. 1990. New species of foliicolous Hyphomycetes – Genus *Sarcinella. Vegetos,* 3(1): 74-82.

Chandra Satish, Srivastava Neeraj and Chaudhary Reeta. 1991. New species of *Sarcinella* from India. *Indian Phytopathology,* 44(3): 301-307.

Srivastava N., Srivastava A.K. and Kamal. 1994. New synnematous foliicolous hyphomycetes from India. *Mycological Research,* 98(5): 521-524.

Srivastava R.K., Srivastava N. and Srivastava A.K. 1994. Additions to genus *Cercospora* from North-Eastern Uttar Pradesh. *Proc. Nat. Acad. Sci., India.* 64(B) I: 105-114.

Srivastava, N., Srivastava, A.K. and Kamal. 1995. New hyphopodiate hyphomycetes fro North-Eastern Uttar Pradesh, India. *Mycological Research,* 99(4): 395-396.

Srivastava, N., Kamal and Morgan-Jones Gareth. 1995. Notes on Hyphomycetes. LXVI. Two new *Ramularia* species from India. *Mycotaxon,* LIV: 49-55.

Srivastava, Neeraj and Morgan-Jones Gareth. 1996. Notes on Hyphomycetes. LXX. A new species of *Melanographium* from India, with comments on the genus. *Mycotaxon,* LVII, 195-200.

Bhalla Kirti, Srivastava Neeraj and Kamal. 1996. New species of *Mycovellosiella* from North-Eastern Uttar Pradesh, India. *Mycological Research,* 100(11): 1333-1336.

Misra Seema, Srivastava Neeraj and Srivastava A.K. 1997. New species of *Stenella* from India. *Mycological Research,* 101(3): 278-280.

Srivastava Mamta, Srivastava Kavita, Srivastava Neeraj and Srivastava Shivani. 2013. Foliicolous fungi collected from North-Eastern Uttar Pradesh, India parasitizing *Calamus tenuis* Roxb., a medicinal plant. 1 (Special Issue 1): 118-122.