Cercospora alstoniae sp. nov. on Alstonia scholaris from Bahraich (U.P.) India

Ajay Kumar and T.P. Mall

Postgraduate Department of Botany, Kisan P.G. College, Bahraich-271801 (U.P.)

drtpmall@rediffmail.com; ajay.botany1988@gmail.com;

Abstract:

During a survey for the foliicolous fungi from diversified habitats of Bahraich authors came across an important road side plant of the locality, Alstonia scholaris (Linn) R. Br., Blackboard tree, Indian devil tree, milk wood pine, Saptaparni (Apocyanaceae). On critical study the living leaves were found to be infected with Cercospora, Since it has also been customary for plant pathologists and mycologists to describe as new any Cercospora found an a host for the first time (Ellis, 1971), this undescribed taxa has been described and illustrated as Cercospora alstoniae Mall and Kumar sp. nov.. The review of literatures reveals that there has been no record of this fungus on this host so for. Therefore, this host of the new species is a new record to Indian mycoflora from Bahraich (U.P.).

Keywords: Foliicolous fungi, Cercospora, Bahraich, Morphotaxomomic Treatment, Camera Lucida.

1. Introduction

The leaves provide a very suitable habitat for the growth & development of fungal pathogen by providing ample surface area and nutrient supply. Such leaf inhabiting fungi are known as foliicolous and the invaded area of the leaf appears as leaf spot or leaf lesion. Taxonomic studies of such fungal froms have been generally considered as only of academic interest but the taxonomic treatment of a fungal organism is the first requirment for any studies concerning its biology. Correct identification of a fungus abaolotely free from ambiguities is vital for its employment in applied disciplines. In fact without being equipped for ascertaining the correct identity of a fungal pathogen all studies concerning its phytopathological aspects would be misleading. The weed and forest plants serve as reservoirs of leaf spot pathogens which on getting opportunity may spread to agriculture and horticulture plants.

India is the one of the twelve mega biodiversity countries of the world, has two of the worlds eighteen biodiversity hot spot located in the Western ghats and in the Eastern Himalayas. In north of North Tarai Forests, the Himalayas rise as a virtual wall beyond the snow line. Above the alluvial plain lies the Tarai strip, a seasonally marshy zone of sand and clay soils. The Tarai has higher rainfall than the plains, and the downward- rushing rivers of the Himalayas slow down and spread out in the flatter Tarai zone depositing fertile silt and reproductive means during the mansoon season and receding in the dry season. The Tarai, as a result has high water level and is characterized by moist sub tropical conditions and a luxuriant turn over of green vegetation all the year around. The climatological and topographical conditions favour the luxuriant growth and development of foliar fungi. This North Tarai region of U.P. is next only to Eastern and Western ghats, as one of the hottest spots for Biodiversity in general and the diversity of fungal organism inhabiting plant leaves in particular offers an ideal opportunity for the morphotaxonomic exploration of fungal organism in general and foliicolous fungi in particular. Keeping this in view the authors surveyed the locality of Bahraich during April to December 2012.

2. Material and Methods

During collection, infected leaf samples were taken in separate polythene bags. Suitable mounts of surface scrapping and hand cut sections were prepared from infected portions of the leaf samples. Slides were prepared in cotton-blue lactophenol mixture & were examined. Camera lucida drawing were made and the morpho-taxonomic determination of taxa was done using available literature and with the help of resident's expertise available. The fungal taxa was identified using microscopic preparation. Literature cited in the text has been provided with their wave links.

3. Results and Discussion

The authors surveyed during April to December, 2012 in diversified habitats of Bahraich for the collection, study and documentation of the leaf spot microfungi infecting variety of the angiosperms has resulted in abundant gathering of the fungal specimens. During servey the authors came across a beautiful road side plant Alstonia scholaris (Linn) R. Br., Blackboard tree, Indian devil tree,

milk wood pine, Saptaparni (Apocyanaceae) infected with beautiful symptom. On critical study the living leaves were found to be infected with Dematiaceous Hyphomocetous fungi belonging to the genus Cercospora Fres. On critical examination and comparision with other known species, it was found to be a new species. It has also been customary for any Cercospora found on a host for the first time (Ellis, 1971). Hence the same is decribed as Cercospora alstoniae Mall and Kumar sp. nov. The holotype specimens has been submitted in HCIO, IARI New Delhi for allotment of accession number (Figure 1).

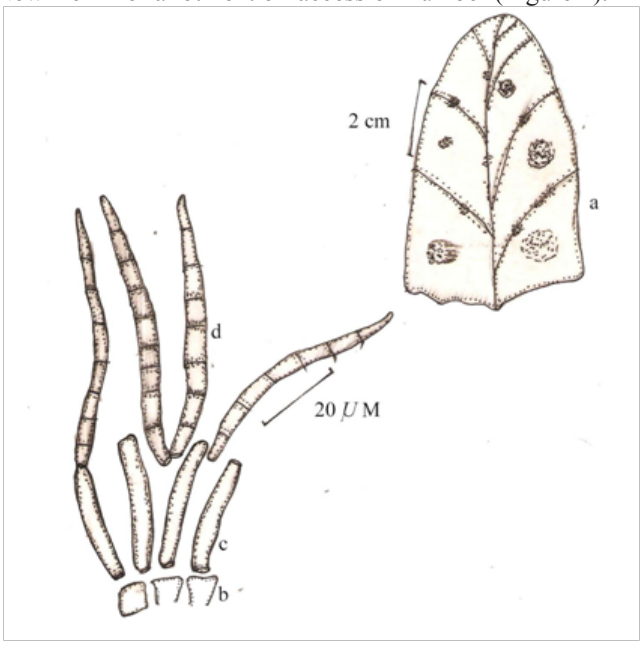

Figure 1: *Cercospora alstoniae Mall and Kumar sp. nov. a-Part of infected leaf, b-Stroma, c-Conidiophore, d-Conidia*

Maculae hypogenae, circulares, usque 5-10 mm in diam, inceptio in fragmenti posterius effusae. Coloniae effusae, brunnae vel atrobrunnae. Mycelium immersum. Stromata presentia, fascicles 20-40 um in diam. Condiophora macronematosa, synnematosa, non-ramosa, plerumque, flexuosa, cylindrica, adpressae as basim, infletl ad apicem, olivaceo brunnea vel pallide brunnea, laevia 60-65x5 um in diam. Cellulae conidigenae in conidiophoris integrate, terminales, plerumque monoblasticae et percurrentae, polyblasticae, posterius, sympodialae et denticulatae, latae denticulate, non cicatrices vel cicatrices non incerassata. Conidia solitaraia, simplicia, acrogena ad conidiogena, laevia vel rugulosa, recta vel ceuvata, apicem obtusa, basim abconico cylindrica cum numerosa 7-9 transverse septata, 45-75x4 um in diam, hila non-incrassata.

In foliis vivis Alstonia scholaris (Linn) R. Br. (Apocynaceae), Kisan P. G. College Campus Bahraich (U.P.) India, 02.10.2012, Leg;; Ajay Kumar, BRH-3502, AK-0102 (Isotype), HCIO (Holotype).

Infection spots hypogenous, circular, upto 5-10 mm in diam in descrete patches in beginning becoming effuse later on. Colonies effuse, tufed mid to dark brown. Mycelium immersed. Stromata present, fascicles 25-40 um in diam. Conidiophores macronematous, synnematous, individual threads umbranched, generally flexous, often narrow cylindrical adpresses near the base, apes, olivaceous brown to light brown, smooth, 60-65x5 mm in diam, Conidiogenous cells integrated, terminal, often monoblastic and percurrent becoming polyblastic later on; sympodial and denticulate broad conidial denticles and no scars or thin scars. Conidia solitary, simple acrogenous on young conidiophores becoming acropleugenous later on, mostly cylindrical smooth or rugous, straight to curved, apex obtuse, base obconico-cylindrical with numerous 7-9 transverse septa, 45-75x4 um in diam, hilum unthickened.

On living leaves of Alstonia scholaris (Linn) R. Br. (Apocyanaceae),), Kisan P. G. College Campus Bahraich (U.P.) India, 02.10.2012, Leg; ; Ajay Kumar, BRH-3502, AK-0102 (Isotype), HCIO (Holotype)

Survey of Literature Bilgrami et al., 1979, 1981, 1991; Ellis, 1971, 1976; Ellis and Ellis, 1995; Jamaluddin et al., 2004; Mukerji and Juneja, 1974; Sarbhoy et al., 1986, 1996 and Verma et al., 2008 reveals that there is no record of Cercospora alstoniae species of this type on the host family. Therefore, it is described and illustrated as a new species to accommodate it.

4. Acknowledgements

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