



FOLIAR FUNGI FROM NORTH TARAI FORESTS OF UTTAR PRADESH INDIA

Botany

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ABSTRACT

The foliar fungi were collected from north tarai region (forest) during July 2018- January 2021. The authors collected eleven fungal genera with twenty-one species has been found on twenty-three different flowering plant species which belong to twenty-two genera of seventeen families.

KEYWORDS

Foliar fungi, north tarai forest, U.P.

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 foliar fungi and the invaded area of the leaf appears as leaf spot or leaf lesion. The weed and forest plants serve as reservoir of leaf spot pathogen which on getting opportunity may spread to agriculture & horticulture plants. World constitute twenty mega diversity countries in which warm tropical region between the tropic of cancer and tropic of Capricorn on either side of the equator (between 23½°N and 23½° S around the globe) have since long provided the most suitable habitat for living organisms with a rich and diverse plant, animal and microbial life forms constituting twelve mega diversity countries. The twelve mega diversity countries constitute about 65% of the total biodiversity.

India is one of the twelve mega diversity countries of the world has two of the worlds eighteen biodiversity hot spots located in the Western Ghat 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 strips, a seasonally marshy zone of sand & clay soils. The Tarai has higher rainfall than the plains and the downward-rushing rivers of the Himalayas show down and spread out in the flatter. Tarai zone depositing fertile silt and reproductive means during the monsoon 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 & development of foliar fungi. This North-Tarai region of U.P. is next only to Eastern and Western Ghat 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 North Central Tarai forests of U.P. which include East & West Sohewa, Shrawasti, Bahraich forest division, range of Katarniaghat Wildlife Sanctuary and Balrampur forest division. Keeping this in view, the authors surveyed the locality of north tarai region during July 2018- January 2021.

MATERIALS AND METHODS

During collection, infected leaf samples were taken in separate polythene bags. Suitable mounts of surface scraping 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. All the fungal taxa were identified using microscopic preparation.

RESULTS AND DISCUSSION

The authors surveyed during JULY 2018- January 2021 in very diversified habitats of north tarai region for the collection, study and documentation of the leaf spot micro fungi infecting variety of the angiosperms has resulted in abundant gathering of the fungal specimens. The holotype of collections for allotment of accession number from HCIO is in process. Eleven fungal genera with twenty-one species have been found on twenty-three different angiospermic

plant species which belong to twenty-two genera of seventeen families. The fungal species and their respective hosts are given below-

S.N.	Name of the fungus	Name of the Host & family
1-	<i>Acroconidiellina chlorodis</i> Ellis	<i>Lagerstroemia indica</i> Linn. Sawni (Lythraceae)
2-	<i>Alternaria alternata</i> (Fr) Keissler	<i>Calotropis procera</i> R.Br. Madar, Aak (Asclepiadaceae) <i>Codiaeum variegatum</i> (L) A Juss. Croton (Euphorbiaceae) <i>Litchi chinensis</i> Sonn. Litchi (Sapindaceae)
3-	<i>Alternaria dianthi</i> Stev & Hall	<i>Hibiscus mutabilis</i> Linn. Gurhal (Malvaceae)
4-	<i>Alternaria dianthicola</i> Neergaard	<i>Caladium bicolor</i> (Aiton)Vent. (Araceae) <i>Calotropis procera</i> R.Br. Madar, Aak (Asclepiadaceae)
5-	<i>Alterenaria sp.</i> Nees.	<i>Dracaena draco</i> L. (Asparagaceae)
6-	<i>Aspergillus sp.</i> Mich.ex Fr.	<i>Crinum latifolium</i> Linn. Sudarshan (Amaryllidaceae)
7-	<i>Cercospora abelmoschi</i> Ell. & Ev.	<i>Abelmoschus esculentus</i> (L.) Moench Ladyfinger, Bhindi (Malvaceae)
8-	<i>Cercospora alstoniae</i> Mall and Kumar.	<i>Alstonia scholaris</i> R.Br. Black board tree, Saptaparni, Milk Wood Pine (Apocynaceae)
9-	<i>Cercospora cirtullina</i> (Cooke)	<i>Cucurbita maxima</i> Duchesne Kaddu, Pumpkin (Cucurbitaceae)
10-	<i>Cercospora chevallieri</i> Sacc.	<i>Amorphophallus companulatus</i> Decne Sooran, Jimikand (Araceae)
11-	<i>Cercospora fici-religiosae</i> Chiddarwar	<i>Ficus religiosa</i> L. Peepal (Moraceae)
12-	<i>Cercospora scipicola</i> (Fuckel) Van Zinderen Bakker.	<i>Cymbopogon jwarancusa</i> (Jones Schutt) Jwarancus (Poaceae)
13-	<i>Cercospora sp.</i> Fres.	<i>Sida acuta</i> Burm. F. (Malvaceae)
14-	<i>Cladosporium colocasiae</i> Sawada	<i>Colocasia esculenta</i> L. (Schott) Arvi (Araceae)
15-	<i>Curvularia fallax</i> B. Oedijn	<i>Livistona chinensis</i> R.Br. (Arecaceae)
16-	<i>Meliola mangiferae</i> Earle	<i>Mangifera indica</i> L. Aam (Anacardiaceae)
17-	<i>Meliola sp.</i> Fr.	<i>Jasminum sambac</i> (L) Aiton. Bella (Oleaceae)
18-	<i>Periconia venezuelang</i> Ellis	<i>Dracaena reflexa</i> Lam. (Asparagaceae)
19-	<i>Pseudocercospora carissae</i> Singh & Mall.	<i>Carissa carandas</i> L. Karonda (Apocyanaceae)
20-	<i>Stigmina caffra</i> (Wakefield) Ellis	<i>Aloe vera</i> (L.) Burn.f. Ghritkumari (Xanthorrhoeaceae)
21-	<i>Synchytrium lepidagathis</i> Mundkar & Mhatre	<i>Andrographis peniculata</i> (Burm.f.) Wall ex Nees. Kalpnath. (Acanthaceae)

The literature Ellis, 1971, 1976; Deighton, 1976, 1979; Braun, 1987, 1988 a, b, 1991; Braun *et al.*, 1992; Bagyanarayan and Braun, 1999; Bagyanarayan *et al.*, 1995; Vasudeva, 1963; Chupp, 1954; Bilgrami *et al.*, 1979, 1981, 1991; Jamaluddin *et al.*, 2004; Singh *et al.*, 2009; Mall, 2011a, b, Parmar *et al.*, 2012; Kumar and Mall, 2012, 2013, 2015; Mall, 2015 a, b, Rani *et al.*, 2015; Singh and Mall, 2015; Mall and Tripathi, 2016; Tripathi *et al.*, 2016; Singh *et al.*, 2020 reveals that the fungal taxa mentioned above are hitherto unexplored from Balrampur. Hence are the new records for Indian micoflora from Balrampur. Majority of the fungus has parasitized on one or two host species.

ACKNOWLEDGEMENTS

The authors are thankful to Dr. R. K. Singh, Principal and Dr. D.D. Tewari Head Department of Botany M.L.K. P.G. College, Balrampur for providing facilities.

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