

Susceptible Hosts of Foliicolous Fungi from North Western Tarai Forests of (Uttar Pradesh) India

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Abstract

The present report elucidates a rich and unique profile of mycobial as well as phytodiversity of research area surveyed with two hundred seven angiospermic host plant species representing one hundred fifty five genera of sixty three different families being parasitized by two hundred forty three fungi representing sixty three genera. The survey and documentation has resulted more than twenty four new host records and twenty nine new fungal species to Indian mycoflora.

Keywords: Foliicolous Fungi; Susceptible Hosts Status; 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 Foliicolous 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 agricultural and horticultural 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 $23\frac{1}{2}^{\circ}\text{N}$ and $23\frac{1}{2}^{\circ}\text{S}$ 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 megadiverse countries of the world has two of the world's eighteen biodiversity hot spots located in the Western Ghats and in the

Eastern Himalayas. In the north Tarai Forests the Himalayas rise as a virtual wall beyond the snow line. Above the alluvial plain, lie the Tarai strips, 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 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 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 (T.P. Mall, 2012). The Foliicolous Fungi causes huge losses every year in different parts of world. The fungal pathogens producing leaf spots infect a large variety of hosts including most of the crops, forests and other plants. The destruction caused by these enemies of leaves is a serious problem before us. The focus of this research is identification and documentation of foliicolous fungi

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which will assist in the discovery of new fungicides and ideas to overcome from the severity of these enemies of nature as well as in the protection of floral diversity from the infection of these pathogens and also in the conservation of valuable flora of the area. Keeping this in view the authors surveyed the North Western Tarai forests of U.P. which include East and West Sohelwa, Shrawasti, Bahraich forest division, Katarniaghata Wildlife Sanctuary, Dudhwa tiger Reserve, Kishanpur Wildlife Sanctuary and Pilibhit Forest Division during July, 2006 to September, 2015.

Materials 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 prepared in cotton blue lactophenol mixture were examined and camera lucida drawing were made which seems to be new as described by Verma *et al.*, 2008 and Mall, 2011. Morphotaxonomic determinations of taxa were

done with the help of current literature and resident expertise available. All the fungal taxon were identified after making microscopic preparations and later confirmed by Prof. Kamal, Emeritus Scientist (DST), DDU Gorakhpur University, Gorakhpur. The fungal Holotype specimen has been deposited in HCIO, IARI, New Delhi. References given in the text has also been provided with their wave links which are available.

Result and Discussion

The authors surveyed periodically the much diversified habitat of North Western Tarai Region of Uttar Pradesh during July, 2006 to September, 2015 so as to collect and document foliicolous fungi. The author collected two hundred seven angiospermic host plant species representing one hundred fifty five genera belonging to sixty three different families being parasitized by two hundred forty three fungal species representing sixty three fungal genera. The host plants and their parasites are enumerated below:

Table 1: List of Hosts with their respective Foliicolous Fungi

S.No.	Name of the family& Host	Name of the fungus	**
1.	Acanthaceae <i>Justicia</i> sp. Linn.	<i>Cercospora justicicola</i> Tai.	31
2.	Alismaceae <i>Sagittaria sagittifolia</i> Linn.	<i>Alternaria bahaichensis</i> sp. nov.	20
3.	Amaranthaceae <i>Achyranthes aspera</i> Linn.	<i>Alternaria</i> sp. Nees. <i>Cercospora achiyranthina</i> Thrim. & Chupp. <i>Cercospora achiyranthina</i> Thrim. & Chupp. <i>Stenella</i> sp. Syd. <i>Pseudocercospora alternantherae</i> Yen. Kar. & Das <i>Stenella</i> sp. Syd.	01 20 21 36 11
4.	Alternentha sp. Forsk. <i>Aerva</i> sp. Linn. Anacardiaceae <i>Mangifera indica</i> Linn.	<i>Ascochyta mangiferae</i> Batista <i>Meliolarhois</i> P. Henn. <i>Meliolarhois</i> P. Henn. <i>Periconia</i> sp. Tode <i>Sooty mold</i>	17 20 17 01 17
5.	Annonaceae <i>Annona squamosa</i> Linn. <i>Miliusa tomentosa</i> H. & F.	<i>Asteromella</i> sp. Coelo. <i>Cercospora</i> sp. Fres. <i>Pseudocercospora miliusae</i> Mehrotra & Verma	19 27 11
6.	Apocynaceae <i>Ichnocarpus frutescens</i> (Linn.) R.Br.	<i>Alternaria ichnacarpicola</i> sp. nov. <i>Alternaria ichnacarpicola</i> Singh & Mall <i>Alternaria</i> sp. Nees. <i>Alternaria</i> sp. Nees. <i>Cercospora</i> sp. Fres. <i>Corynespora ichnacarpiae</i> sp. nov. <i>Corynespora ichnacarpiae</i> Singh & Mall <i>Meliola frutiscentis</i> Hosagoudar et al. <i>Pseudocercospora apocynacearum</i> Gupta & Kamal <i>Corynespora carissae</i> sp. nov.	11 12 19 11 19 20 11 19 19 21

	Carissa carandus Linn.	Corynespora carissae Singh & Mall	20
		Pseudocercospora carissae Singh & Mall	19
		Sirosporium sp. Bubak & Scrab.	11
		Sirosporium sp. Bubak & Scrab.	21
		Sirosporium sp. Bubak & Scrab.	11
		Sirosporium sp. Bubak & Scrab.	27
		Discosia hiptages Tilak.	20
	Carissa congesta Weight.	Glomerella cingulata (Stonem) Spauld & Shrenk	19
	Holarrhena antidyseentrica Wall.	Periconia byssoides Pers. ex. Mandel	02
		Stenella sp. Syd.	
	Alstonia scholaris R. Br.		01
7.	Araceae		26
	Colocasia esculenta Linn.	Colleotrichum dematum (Pers. ex. Fr.) Grove	17
8.	Asclepiadaceae	Drechslera colocaceae Tandan & Bhargava	19
	Calotropis procera R. Br.		
		Alternaria aternata (Fr.) Keissler.	20
	Calotropis gigentia R. Br.	Alternaria aternata (Fr.) Keissler.	21
9.	Asparagaceae	Passalora sp. Fr. et. Mont.	22
	Dracaena marginiata Linn.	Passalora sp. Fr. et. Mont.	21
		Alternaria aternata (Fr.) Keissler.	17
10.	Asteraceae		
	Canthemus tinctorius Linn.	Alternaria carthami Chawdhury et al.	19
	Eupatorium cannabinum Linn.	Alternaria tejensis sp. nov.	20
		Alternaria sp. Nees.	01
		Corynespora sp. Gissow.	11
		Leptoxypodium sp. Speg.	01
	Parthenium hysterophorus Linn.	Passalora sp. Fr. et. Mont.	22
	Ageratum conyzoides Linn.	Passalora sp. Fr. et. Mont.	01
	Sphaeranthus indicus Linn.	Alternaria zinniae Ellis Pape.	01
		Alternaria sp. Nees.	20
		Alternaria sp. Nees.	09
	Xanthium strumarium Linn.	Cercospora sphaeranthi Patil	21
		Cercospora neo-sphaeranthia Bhartiya Kumari & Singh	20
		Cercospora xanthicola Heald. & Worf.	
	Elephantopus scaber Linn.	Pseudocercosporas sp. Speg.	17
	Spilanthes echmella Hook f.	Corynespora elephantopii sp. nov.	19
	Chrysanthamum roseum Linn.	Oidium spilanthesidis Link. ex. Fr.	23
	Echinopus sp. Linn.	Pseudocercospora sp. Speg.	36
	Tridex sp. Linn.	Puccinia pulvinata Rabenn.	11
11.	Basellaceae	Stenella sp. Syd.	01
	Basella alba Linn.		36
12.	Beringtonaceae		
	Barringtonia acutangula Gaertn.	Macrophomina phaseolina (Tass) Goia	02
13.	Bignoniaceae	Selerotium relfsii Sacc.	01
	Haplophragma adenophyllum (Wall) P. Dop.		
		Phomopsis barringtoniae Kamal & Singh	11
		Phomopsis barringtoniae Kamal & Singh	19
		Leptoxypodium sp. Speg.	11
		Mycovellosiella haplophragmatis Kamal & Singh	21
		Oidium sp. Link. ex. Fr.	
		Passalora sp. Fr. et. Mont.	17
		Passalora sp. Fr. et. Mont.	23
		Passalora sp. Fr. et. Mont.	32
		Phoma sp. Desm.	18
		Pseudocercospora sp. Speg.	27
14.	Heterophragma sp. Linn.		01
	Boraginaceae		
	Cordea mixa H.S.K.	Alternaria tenuis Nees.	10

	Heleotropium indicum Linn.	Leptoxiphium sp. Speg.	11
	Cordia dichotoma Forst.	Meliola eugeniae jamboloidis Hansf.	09
	Cordia crenata Delile Fl.	Oidium sp. Link. ex. Fr.	11
15.	Brassicaceae	Phaeoramulariacordiae Kumar & Kamal	10
	Raphanus sativus Linn.	Stenella myxa J. E. Gray	36
	Lunaria annua Linn.		
	Brassica campestris Linn.		
	Brassica oleracea var. capitata Linn.		
	Brassica oleracea Linn.		
16.	Burseraceae	Alternaria raphani Groves. & Skolko	23
	Commiphora macrophylla Jacq.	Alternaria sp. Nees.	17
		Curvularia lunata (Walker) Bold.	24
		Rhizoctonia solani Kiihn.	19
		Sclerotinia sclerotiarum (Linn.) Bac.	22
17.	Caesalpiniaceae	Asterina sp. Lev.	20
	Cassia tora Linn.	Phoma sp. Desm.	27
	Cassia fistula Linn.	Pseudocercospora sp. Speg.	32
18.	Capparidaceae	Pseudocercospora sp. Speg.	01
	Capparis horrida Linn.		
19.	Cannabinaceae		
	Cannabis sativa Linn.		
20.	Caricaceae	Pseudocercospora cassiae Singh & Bhalla	11
	Carica papaya Linn.	Stenella cassicola Kamal et. al.	11
21.	Celastraceae	Asterina sp. Lev.	02
	Celastrus peniculatus Willd.		
	Hippocratea sp. Linn.	Phomopsis cannabina Curzi	17
22.	Chenopodiaceae	Pseudocercospora cannabina (Wakef.)	36
	Spinacia oleracea Linn.		
	Chenopodium album Linn.	Corynespora sp. Gissow.	23
23.	Combretaceae		
	Terminalia arjuna W. & A.	Corynespora celostricola sp. nov.	20
	Terminalia tomentosa W & A.	Stenella celastrae Rai & Kamal	11
24.	Convolvulaceae	Stenella hippocratiae Srivastava et. al.	33
	Ipomoea fistulosa Linn.	Alternaria aternata (Fr.) Keissler.	21
		Rhizoctonia solani Kiihn.	19
		Pernosporaparasitica (Pers.)	22
25.	Cornaceae	Cercospora sp. Fres.	31
	Alangium salvifolium (Linn.f.) Wang.	Corynesporatomenticola sp. nov	20
26.	Cucurbitaceae		
	Luffa acutangula (L.) Roxb.	Cercospora ipomoeae Wint.	20
	Cucurbita maxima Linn.	Cladosporium sp. Link.	22
	Momordica charantia Roxb.	Periconia sp. Tode	22
	Lagenaria siceraria (Mol.) Standl.	Stenella sp. Syd.	11
	Lagenaria vulgaris Ser.	Phyllosticta alangii Hasija.	24
	Coccinia indica W. & A.	Alternaria aternata (Fr.) Keissler.	01
	Trichoxanthes dioica Roxb.	Cercospora citrullina Cook.	21
27.	Cycadaceae	Leveillula taurica (Lev.) Arnaud	21
	Cycas circinalis Linn.	Cercosporamomordica Mc. Rai.	11
		Cladosporium cucumerinum Ellis & Arth	21
		Curvularia verruculosa Ellis.	24
		Glomerella cingulata (Stonem) Spauld & Shrenk.	19
		Oidium sp. Link. ex. Fr.	
		Oidium sp. Link. ex. Fr.	01
		Pseudocercospora lagerstroemiiyenna Gon. & Hsien.	22
			33
28.	Cyperaceae	Alternaria sp. Nees.	17
		Drechslera monoceros Subram . Jain.	17
		Sphaeropsis cycadis Mundkar & Ahmad	17
		Stenella sp. Syd.	17

29.	Typha sp. Linn. Dipterocarpaceae Shorea robusta Gorten. f.	Meliola sp. Fr.	22
		Ceratophorum helicosporum Sacc.	31
		Ceratophorum helicosporum Sacc.	10
		Mycovellosiella sp. Rangel.	31
		Pseudocercospora shoreae (Thirum&Kot suki) Deighton	10
		Pseudocercospora shoreae (Thirum&Kot suki) Deighton	17
30.	Ebenaceae Diospyros tomentosa Roxb.	Aecidium rhismoideum Berk. & Br.	11
	Diospyros abrms Yurk.	Cercospora kaki Ell. & Ev.	11
	Diospyros melanoxyton Roxb.	Diatrypella quercina (Ces. & De Not.) Sac.	02
		Trichotheciumroseum Link.	02
		Leptoxyphium sp. Speg.	11
		Pseudocercospora kelleri (Earle) Deight	09
		Sarcinella gorakhpurensis Kamal & Singh	10
31.	Euphorbiaceae Codiaeum variegatum Bl. & Hort. Spiral leaf Croton. Codiaeum variegatum Bl. & Hort. Small leaf Croton. Codiaeum variegatum Bl. & Hort. Narrow leaf Croton.	Alternaria aternata (Fr.) Keissler.	18
	Mallotus philippensis Muell. Arg.	Alternaria aternata (Fr.) Keissler.	17
		Alternaria aternata (Fr.) Keissler.	21
		Alternaria kamalella sp. nov.	24
		Alternaria kamalella Singh and Mall	25
		Corynespora sp. Gissow.	19
		Glomerella cingulata (Stonem) Spauld & Shrenk.	20
		Mycovellosiella malloti Bhalla et. al.	
		Mycovellosiella malloti Bhalla et. al.	09
		Pestalotiopsis palmarum (Cke.) Stry.	12
		Phoma malloti Desm.	10
		Phoma malloti Desm.	24
		Zygosporium sp. Mont.	25
		Zygosporium sp. Mont.	11
		Alternaria tenuissima (Kunz ex. Pers.) Wittshire	26
		Phyllactinia sub-spiralis Lev.	11
		Cercospora putranjivae Khan.	
		Cladosporium sp. Link.	02
		Corynespora bahrainiana sp. nov.	20
		Corynespora bahrainiana Singh & Mall	20
		Phoma sp. Desm.	01
		Pseudocercospora sp. Speg.	17
		Stenella brideliicola Srivastava et. al.	26
			17
			31
32.	Fabaceae Bauhinia vahlii W. & A. Prod.	Alternaria bauhinia sp.nov.	19
		Alternaria bauhinia Singh and Mall	20
		Corynespora sp. Gissow.	212
		Corynespora sp. Gissow.	2
		Corynespora sp. Gissow.	30
		Alternaria delbergicola Nees.	36
		Phoma nivea (Syd.) Majumdar et al.	36
		Phyllactinea sp. Lev.	36
		Alternaria tenuis Nees.	17
		Cercospora dolchi Ellis & Ev.	11
		Cercospora dolchi Ellis & Ev.	17
		Phoma herbarum West.	17
		Phoma herbarum West.	24
		Pseudocercospora dolichi Ell & Ev.	20
		Pseudocercospora dolichi Ell & Ev.	23
		Cercospora sp. Fres.	11
		Cercospora sp. Fres.	20

	Albizia lebbek Benth.	Caryospora albizicola Sharma et al.	20
	Pongamia pinnata Vent.	Corynespora pongamcola sp. nov.	19
	Acacia bipar Linn.	Fusicladium pongamiae Syd.	02
	Inga edulis (Roxb.) Kurtz.	Corynespora sp. Gissow.	02
	Butea frondosa Koen. ex. Roxb.	Diatrype disciformis Kar & Maity	02
	Bauhinia varigata Linn.	Haplosporella baumontina Ahmad.	02
	Desmodium pulchellum Benth ex.	Leptoxypodium buteae Speg.	01
	Desmodium trifolium DC.	Leptoxypodium buteae Speg.	17
	Bauhinia racemosa Lamk.	Stenella buteae Mishra et al.	21
	Bauhinia purpurea Linn.	Macrophomina phaseolina (Tass) Goia	21
	Acacia concinna Wall.	Mycovellosiella sp. Rangel.	22
	Cassia occidentalis Linn.	Oidium sp. Link. ex. Fr.	17
	Millettia sp. W. & A. Fl. Brit.	Pestalotia lambertiae Petr.	02
	Millettia ovalia W. & A. Fl.	Phoma sp. Desm.	19
33.	Flacourtiaceae	Phoma sp. Desm.	27
	Flacourtia indica Merrill	Phomopsis bauhiniae Bansal Alealdi	28
34.	Lamiaceae	Phomopsis bauhiniae Bansal Alealdi	20
	Ocimum sanctum Linn.	Pseudocercospora acacia Kamal & Singh	01
	Nepta hindostana (Roth.) Hains.	Pseudocercospora nigricans Cooke.	17
	Ocimum basilicum Benth.	Pseudocercospora nigricans Cooke.	01
35.	Lauraceae	Septori sp. Sacc.	17
	Litsea chinensis Lamk.	Pseudocercospora sp. Speg.	20
	Litsea sp. Lour.	Stenella melletiae Chaudhary et. al.	26
	Litsea polyanthus Juss.	Meliola flacourticola sp. nov.	37
	Litsea glutinosa (Lour.) C.R. Robinson	Alternaria sp. Nees.	19
	Litsea alaternaria Lour.	Cercospora ocimicola Petrak & Ciaferri	17
36.	Lecythidaceae	Cercospora ocimicola Petrak & Ciaferri	11
	Barringtonia acutangula Gaertn.	Cercospora neptae Trehan	19
	Careya arborea Roxb.	Meliola sp. Fr.	02
37.	Lytheraceae	Alternaria longipes (Ellis. & Ev.) Mason	11
	Lagerstroemia parviflora Roxb.	Alternaria longipes (Ellis. & Ev.) Mason	20
38.	Malvaceae	Asteromella sp. Coelo.	02
	Hibiscus mutabilis Linn.	Asteromella sp. Coelo.	10
	Hibiscus rosa-sinensis Linn.	Fuligomycetes indica Khan & Kamal	11
	Abutilon indicum Sweet. Hort.	Fuligomycetes indica Khan & Kamal	31
	Sida rhombifolia Linn.	Mycovellosiella litseae Munjal & Kulshreshtha	21
		Phomopsis litseae Kamal & Singh	17
		Phomopsis litseae Kamal & Singh	10
		Corynespora sp. Gissow.	27
		Phoma sp. Desm.	33
		Diatrype citricola Ellis & Ev.	10
		Mycovellosiella litseae Munjal & Kulshreshtha	21
		Pseudocercospora litseae Singh & Kamal	22
		Stenella litseae sp. nov.	33
		Phoma sp. Desm.	27
		Acrodictys sp. Ellis.	11
		Pestalotiopsis sp. Steyaert.	26
		Zygosporium echnosporum Mont.	02
		Alternaria alternata (Fr.) Keissler.	33
		Cercospora lythracearum Heald & Wolf.	11
		Alternaria dianthi Stev. & Hall.	01
		Alternaria longipes (Ellis. & Ev.) Mason	01
		Microxiphium fagi (Pers.) Hughs.	20
		Cercospora sp. Fres.	33
		Phomopsis abutilonis M C. Rai.	11
		Phomopsis abutilonis M C. Rai.	17
		Oidium sp. Link. ex. Fr.	11

39.	Meliaceae		
	<i>Toona ciliata</i> Roem.	<i>Acremonium</i> sp. Link.	11
		<i>Alternaria aternata</i> (Fr.) Keissler.	23
		<i>Stenella</i> sp. Syd.	27
	<i>Azadirachta indica</i> A Juss.	<i>Oidium azadirachtae</i> Narayan & Ramakr.	17
		<i>Septori</i> sp. Sacc.	17
40.	Menispermaceae		
	<i>Tinospora malaverica</i> Miers.	<i>Acrodictys</i> sp. Ellis.	01
		<i>Acrodictys</i> sp. Ellis.	19
	<i>Tiliocora acuminate</i> (Lam) Miers.	<i>Acremonium moniformae</i> Fr.	11
		<i>Phoma</i> sp. Desm.	10
		<i>Phoma</i> sp. Desm.	33
		<i>Phoma</i> sp. Desm.	35
		<i>Stenella</i> sp. Syd.	11
	<i>Teliocarpa</i> sp. (Hook f.)	<i>Acremonium zonatum</i> Gams.	11
	<i>Tinospora cordifolia</i> Willd.	<i>Colleotrichum capsici</i> Butter & Bisby	21
	<i>Tinospora</i> sp. Linn.	<i>Pseudocercospora cocculi</i> (Syd.) Deighton	19
	<i>Menispermum canadense</i> Linn.	<i>Sirosporium</i> sp. Bubak & Scrab.	11
41.	Mimosaceae		
	<i>Albizia procera</i> Linn. Benth.	<i>Cercospora albizicola</i> Fres.	37
	<i>Indopiptadenia oudenensis</i> (Brandis) Brem	<i>Cercospora oudenensis</i> Mall	11
	<i>Albizia lebbeck</i> Linn. Benth.	<i>Phomopsis mendex</i> (Sacc.) Trab.	17
	<i>Albizia</i> sp. Linn. Benth.	<i>Ramularia</i> sp. Sacc.	20
42.	Moraceae		
	<i>Ficus carica</i> Linn.	<i>Pseudocercospora</i> sp. Speg.	37
	<i>Ficus glomerata</i> Linn.		
	<i>Artocarpus heterophyllus</i> Lamk.	<i>Alternaria aternata</i> (Fr.) Keissler.	01
		<i>Cladosporium fici-carica</i> sp. nov.	31
		<i>Alternaria aternata</i> (Fr.) Keissler.	20
		<i>Uredo fici</i> Cast.	22
		<i>Alternaria tenuissima</i> (Kunz ex Pers.) Wittshire	20
		<i>Cladosporium artocarpi</i> Kuthare & Singh	19
		<i>Pseudocercospora artocarpi</i> (HP. Seed) Deighton	02
		<i>Rhizoctonia solani</i> Kiihn.	
		<i>Alternaria aternata</i> (Fr.) Keissler.	01
		<i>Cladosporium fici-carica</i> sp. nov.	31
		<i>Alternaria aternata</i> (Fr.) Keissler.	20
		<i>Uredo fici</i> Cast.	22
		<i>Alternaria tenuissima</i> (Kunz ex Pers.) Wittshire	20
		<i>Cladosporium artocarpi</i> Kuthare & Singh	19
		<i>Pseudocercospora artocarpi</i> (HP. Seed) Deighton	02
		<i>Rhizoctonia solani</i> Kiihn.	
		<i>Alternaria</i> sp. Nees.	17
		<i>Botrydiploidia theobromae</i> Pat.	11
		<i>Colleotrichum dematium</i> (Pers. ex. Fr.) Grove	19
		<i>Oidium</i> sp. Link. ex. Fr.	21
		<i>Phomopsis</i> sp. Sacc.	17
		<i>Phyllochora ficuum</i> Niessa Blume	10
		<i>Sooty mold</i>	10
		<i>Alternaria</i> sp. Nees.	23
		<i>Asterina</i> sp. Lev.	11
		<i>Asterina</i> sp. Lev.	26
		<i>Asterina</i> sp. Lev.	19
		<i>Meliola</i> sp. Fr.	10
		<i>Meliola</i> sp. Fr.	01
		<i>Pseudocercospora streblii</i> Singh.	02
		<i>Cercospora fici</i> Heald & Worf.	02
		<i>Cercospora fici-religiosa</i> Heald & Worf.	02
		<i>Fuligomycetes</i> sp. Morgan Jones & Kamal	03
		<i>Mycovellosiella fici</i> Rai. & Kamal	02
		<i>Pseudocercospora mori</i> (Hard) Deighton	20
		<i>Stenella rajendrella</i> sp. nov.	36
			20
43.	Musaceae		
	<i>Musa paradisiaca</i> Linn.	<i>Alternaria</i> sp. Nees.	17
44.	Myrtaceae		
	<i>Syzygium</i> sp. Linn.	<i>Alternaria pemphidioides</i> Cooke	37
		<i>Alternaria</i> sp. Nees.	02
		<i>Meliola syzygium</i> sp. nov.	37
		<i>Oidium</i> sp. Link. ex. Fr.	01
		<i>Oidium</i> sp. Link. ex. Fr.	20
		<i>Asterina eugeniae</i> Yates.	09
		<i>Asterina eugeniae</i> Yates.	21

Syzygium heynianum Wallex. Duthie.	Asterina sp. Lev.	37
Psidium gujjava Linn.	Cladosporium tenuissima Cke.	19
	Mycovellosiella myrtacearum Rai & Kamal	36
	Mycovellosiella myrtacearum Rai & Kamal	20
	Rhizoctonia solani Kiihn.	17
Eugenia jambolina Linn.	Meliola eugeniae jamboloidis Hansf.	11
Syzygium cumini Linn. Skeel.	Penicillium expansum Link. ex. SF Gray.	11
Eugenia myrtifolia Linn.	Meliola eugeniae jamboloidis Hansf.	20
Eucalyptus lanceolatus Hill. Malpea.	Penicillium expansum Link. ex. SF Gray.	01
45. Nyctanthaceae	Meliola sp. Fr.	01
Nyctanthes arbor-tristis Linn.	Stenella sp. Syd.	22
	Stenella sp. Syd.	24
46. Nyctaginaceae	Stenella sp. Syd.	01
Boerhavia diffusa Linn.	Stenella sp. Syd.	23
47. Papilionaceae	Stenella sp. Syd.	17
Pisum sativum Linn.	Pseudocercospora sp. Speg.	11
Cajanus cajan (Linn.) Millsp.	Helminthosporium sp. Link.	21
48. Phyllanthaceae	Phoma cajani Rangel Khune and Kapoor	17
Bridelia retusa Spreng.	Colletotrichum gleosporioides Penz.	02
	Periconia byssoides Pers. ex. Mandel	01
49. Poaceae	Cladosporium sp. Link	20
Arunda donax Linn.	Helminthosporium sp. Link	32
Saccharum munja Linn.	Pestalotiopsis sp. Steyaert.	20
Calanus tenuis Linn.	Ramularia sp. Sacc.	11
Saccharum spontaneum Linn.	Ramularia sp. Sacc.	19
Pennisetum typhoides (Linn) R.Br.	Alternaria penniseti Mall, Tripathi and Kumar sp. nov.	17
Sorghum vulgare Pers.	Drechslera rajendrella Mall, Tripathi and Kumar sp. nov.	17
Zea mays Linn.	Cercospora bahaichensis Tripathi, Kumar and Mall sp. nov.	17
50. Polygonaceae	Alternaria zeamaydis Kumar, Mall and Tripathi sp. nov.	17
Polygonum chinensis Willd.	Drechslera indica Kumar, Mall and Tripathi sp. nov.	17
Polygonum sp. Willd.	Curvularia zeae Kumar, Mall and Tripathi sp. nov.	17
51. Rhamnaceae	Asterina sp. Lev.	37
Ziziphus sp. Willd.	Cercospora polygonii Narayan et al.	37
	Pseudocercospora polygoni Speg.	37
	Meliola ziziphi Hosagounder et. al.	23
	Meliola ziziphi Hosagounder et. al.	19
	Pseudocercospora zizyphicola (Yen)	32
	Pseudocercospora zizyphi sp. nov.	23
	Stenella sp. Syd.	31
	Tandonella sp. Prasad & Verma	23
52. Rosaceae	Acremonium sp. Link.	01
Rosa indica Linn.	Coelomycetes sp.	22
Prunus persica Stocks.	Stenella sp. Syd.	33
Eriobotrya japonica Linn.		
53. Rubiaceae	Cercospora adiniae Srivastava et. al.	01
Adina cardifolia Hook. f.	Cercospora adiniae Srivastava et. al.	37
	Cercospora adinicola (Kar & Mondal)	21
	Corynespora sp. Gissow.	20
	Mycovellosiella adiniae Firdousi et.al.	20
	Pseudocercosporaadinae Singh & Kamal	11
	Pseudocercosporaadinae Singh & Kamal	20
	Pseudocercosporaadinae Singh & Kamal	21
	Pseudocercospora sp. Speg.	20
	Cercospora mitragynae Bhargava & Nath	20
	Corynespora mitragynae sp. nov.	22
	Mycovellosiella mitragynae Kumar & Kamal	21
	Stenella sp. Syd.	20
	Stenella sp. Syd.	37
Mitragyna parvifolia Korth.		
Gardenia gummifera Linn.		

54.	Rutaceae		
	Citrus <i>lemon</i> Linn.	Alternaria aternata (Fr.) Keissler.	01
	Citrus <i>maxima</i> Linn.	Alternariacitri Ellis & Pierce	23
	Citrus <i>medica</i> Linn.	Curvularia tuberculosa Ellis.	24
	Citrus sp. Linn.	Geotrichum canadidum Link. ex. Pers.	19
	Glycosmis pentaphylla Correa. Willd.	Meliola sp. Fr.	19
		Alternaria citri Ellis & Pierce	21
		Coniella citri Agarwal & Sharma	19
		Leptoxiphium graminum Pat.	21
		Alternaria sp. Nees.	11
		Cercospora glycosmidis Abbasi et al.	02
		Cercospora glycosmidis Abbasi et al.	11
		Corynespora glycosmidis Abbasi et al.	20
		Corynespora sp. Gissow.	11
		Corynespora sp. Gissow.	23
		Phoma sp. Desm.	24
		Phomopsis sp. Sacc.	20
		Phomopsis sp. Sacc.	21
		Stenella sp. Syd.	19
	Murraya exotica Linn.	Botryodiplodia theobromae Pat.	11
		Colleotrichum exoticum Pavgi & Singh	02
		Leptoxiphium sp. Speg	11
		Phoma herbarum West.	11
		Pestalotiopsis sp. Steyaert.	19
		Stenella peniculata Tripathi et al.	19
		Coelomycetes sp. Kellin.	27
		Pseudocercospora murroicola Cooke	27
		Pseudocercospora murroicola Cooke	21
		Colleotrichum capsici Butter & Bisby	20
		Phoma glomerata (Cda.) Wr.	02
		Stenella sp. Syd.	31
55.	Samaydaceae		
	Casearia tomentosa Linn.	Pseudocercospora caseariae sp. nov.	21
56.	Scrophularaceae		
	Scoparia dulcis Linn.	Pseudocercospora scopariicola Yen. Deighton	17
57.	Smilaceae		
	Smilax Macrophylla Roxb.	Stenella smilacis Kumar et al.	20
58.	Solanaceae		
	Solanum tuberosum Linn.	Alternaria aternata (Fr.) Keissler.	20
	Solanum melongena Linn.	Cladosporium sphaerospermum Penz.	21
	Lycopersicon esculentum Linn.	Alternaria solani Nees.	19
	Datura stramonium Linn.	Cladosporium oxysporum Berk & Curt	21
	Capsicum annuum Linn.	Cladosporium tenuissimum Cke.	19
	Solanum nigrum Linn.	Colleotrichum capsici Butter & Bisby	21
59.	Sterculiaceae		
	Sterculia sp. Linn.	Phomopsis capsici Magn.	24
60.	Tiliaceae		
	Corchorus olitorius Linn.	Pseudocercospora atromarginalis (Atk.) Deighton	24
	Grewia asiatica Linn.	Meliola sp. Fr.	27
	Grewia sp. Linn.	Cercospora macutensis Syd.	02
	Grewia elastica Linn.	Phomopsis sp. Sacc.	28
61.	Ulmaceae		
	Holoptelia integrifolia Planch.	Pseudocercospora grewiicola Bagyanarayan et al.	20
	Trema sp. Blume	Stenella grewiae Syd.	01
62.	Verbenaceae		
	Clerodendron inerme Linn. Gaertn.	Stenella grewiae Syd.	02
	Clerodendrum indicum Linn.	Colleotrichum dematium (Pers. ex. Fr.) Grove	20
		Phoma exigua Desm.	02
		Zygosporium sp. Mont.	33
		Amerosporium polynematoides Speg.	20
		Cercospora clerodendri Miyake.	20

	Fusarium concolor Reink.	19
	Corynespora clerodendri viscosae Giisow	20
	Pseudocercospora clerodendri Speg.	19
	Pseudocercospora clerodendri Speg.	28
	Stenella clerodendri Syd.	17
	Stenella clerodendri Syd.	24
	Corynespora clerodendri Myake.	01
	Corynespora clerodendroni viscosi Pal et al.	31
	Corynespora clerodendri viscosae Giisow	11
	Corynespora lanthanum Sharma et al.	17
	Sirosporium lantana Bubak & Scrab.	01
	Sirosporium lantana Bubak & Scrab.	02
	Corynesporanana Meenu & Kamal	02
	Corynesporanana Meenu & Kamal	01
	Pseudocercospora sp. Speg.	20
	Cercospora premnae sp. nov.	02
	Cercospora phlomidicola Mall.	01
	Phomopsis variosporum Sacc.	23
	Phomopsis variosporum Sacc.	17
	Stenella tectonic syd.	01
	Stenella tectonic syd.	23
	Uredo sp. Pers.	11
	Veronaea tectoni Cif. & Montem.	23
	Pseudocercospora cinereae (Pavgi & Singh) Deighton	19
63.	Zingiberaceae	
	Curcuma domestica Linn.	
	Cercospora cucuminina Srivastava et. al.	19

****Places of Collection**

A. Sohelwa Wildlife Sanctuary

1. Sohelwa Forest Range East
2. Sohelwa Forest Range West
3. Barahwa Forest Range
4. Bankatwa Forest Range
5. Tulsipur Forest Range
6. Tulsipur unit (Village)
7. Rampur Forest Range
8. Bhabhar Forest Range

B. Shravasti Forest Division

9. Hardutt Nagar Girant Forest Range
10. Kakardari Forest Range
11. Bhinga Forest Range
12. Payagpur Forest Range

C. Bahraich Forest Division

13. Chakia Forest Range
14. Rupaidiha Forest Range
15. Abdulaganj Forest Range
16. Nanpara Forest Range
17. Bahraich Forest Range
18. Kaisarganj Forest Range

D. Katarniaghata Wildlife Sanctuary

19. Katarniaghata Forest Range

20. Nishangara Forest Range

21. Murtiha Forest Range

22. Dharmpur Forest Range

23. Motipur Forest Range

24. Kakarha Forest Range

E. Dudhwa Tiger Reserve

25. Belraya Forest Range
26. Sonarpur Forest Range North
27. Sonarpur Forest Range South
28. Gaurifanta Forest Range

29. Bankati Forest Range

30. Sathiana Forest Range

31. Dudhwa Forest Range

32. Dudhwa Paryatan

F. Kishanpur Forest Division

33. Kishanpur Forest Range

34. Mailani Forest Range

G. Pilibhit Forest Division

35. Pilibhit Forest Range

36. Botanical Survey of India Allahabad

37. Mahabaleshwar Forest Range Satara Maharashtra

The perusal of the table reveals that there are two hundred seven angiospermic host plant species representing one hundred fifty five genera belonging to sixty three families are being parasitized by two hundred forty three species of foliicolous fungi representing sixty three fungal genera in the whole surveyed area. The sixty three families can be categorized in to four categories. The category first has family Fabaceae with twenty host plants where as category second is being represented by Asteraceae and Moraceae being parasitized by eleven hosts each; category third is represented by Cucurbitaceae and Poaceae, Euphorbiaceae, Menispermaceae, Myrtaceae, Rutaceae, Solanaceae, and Verbenaceae with seven, ten, six, nine, ten, six and ten host plants parasitized respectively. Rest of the fifty three families is being represented by one to five parasitized hosts. No family has been found infected with more than twenty hosts.

Mallotus philippensis, *Ficus rumphi*, *Glycosmis pentaphylla* are found to be most susceptible host being parasitized by seven fungus each where as *Eupatorium cannabinum*, *Haplophragma adenophyllum*, *Litsea chinensis* and *Adina cardifolia* are found to be infected with six fungus each; *Shorea robusta* with five fungus; *Mangifera indica*, *Cycas circinalis*, *Diospyros tomentosa*, *Artocarpus heterophyllus*, *Syzygium* sp., *Mitragyna parvifolia* and *Tectona grandis* has been found to be infected with four fungus each. Rest of the hosts is being found to be infected with two to three fungus and majority are being parasitized by a single foliicolous fungus. There are a number of the hosts which had been collected infected with the same fungus either in different season or in different locality or simultaneously both having different ecological condition shows the adaptability of the fungus in different ecological or climatological conditions.

Twenty four hosts are the new hosts record viz., *Tinospora malaverica*, *Teliacora* sp., *Eugenia* sp., *Albizia procera*, *Lagerstroemia parviflora*, *Shorea robusta*, *Clerodendrum* sp., *Glycosmis pentaphylla*, *Litsea chinensis*, *Clerodendrum viscosum*, *Trichonthes dioica*, *Murraya* sp., *Polygonum* sp., *Albizia lebbeck*, *Saccharum spontaneum*, *Carissa carandas*, *Grewia elastica*, *Tectona grandis*, *Eribotrya japonica*, *Zizyphus xylophyrus*, *Tectona grandis*, *Pennisetum typhoides*, *Sorghum vulgare* and *Zea mays* whereas twenty nine fungal taxon are new species to their respective genera viz., *Alternaria bauhinia*, *Alternaria bahraichensis*, *Alternaria ichnocarpicola*, *Alternaria kamalella*, *Alternaria tejensis*, *Cercospora oudhensis*, *Cercospora phlomidicola*, *Cercospora premnae*, *Cladosporium fici-caricae*, *Corynespora bahraichiana*, *Corynespora*

carissae, *Corynespora celastricola*, *Corynespora elephantopii*, *Corynespora ichnocarpiae*, *Corynespora mitragyna*, *Corynespora pongamicola*, *Corynespora tomenticola*, *Meliola flacourticola*, *Meliola syzyginea*, *Pseudocercospora caseariae*, *Pseudocercospora zizyphii*, *Stenella litseae*, *Stenella rajendrella*, *Alternaria penniseti*, *Drechslera rajendrella*, *Cercospora bahraichensis*, *Alternaria zeamaydis*, *Drechslera indica*, *Curvularia zeae*.

The review of literature Bilgrami et al., 1979, 1981, 1991; Ellis 1971, 1976; Ellis and Ellis, 1997; Jamaluddin et al., 2004; Mukerji et al., 1974; Sarbhoy et al., 1986, 1996; Verma et al., 2008 reveals that all the fungus which has been reported to be a new record to Indian mycoflora.

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References

1. Bilgrami, K.S., Jamaluddin and Rizwi , M.A. Fungi of India, Part- I. List and Reference.Today and Tomorrow's Printers and Publishers. New Delhi, 1979; pp. 467. <http://www.threatenedtaxa.org/ZooPrintJournal/2011/June/0262226vi111872-1874.pdf>
2. Bilgrami, K.S., Jamaluddin and Rizwi, M. A. Fungi

- of India, Part-II. Host Index and Addenda. Today and Tomorrow's Printers and Publishers, New Delhi, 1981; pp 268. <http://www.iisc.ernet.in/currsci/Jul102005/58.pdf>
3. Bilgrami, K. S., Jamaluddin and Rizwi, M. A. Fungi of India, Part III. List and Reference. Today and Tomorrow's Printers and Publishers, New Delhi, 1991; pp. 798. <http://www.Jurnal.Pasca.uns.ac.id/index.php/nubios/article/download/61/61>
 4. Ellis, M. B., Dematiaceous Hyphomycetes. CMI, Kew, U. K. 1971; pp. 608. http://www.landmuseum.at/pdf_frei_remote/Sydo-wia_34_0115-0117.pdf
 5. Ellis, M. B. More Dematiaceous Hyphomycetes. CMI, U. K. 1976; pp.507. <http://www.crenetbase.com/doi/abs/10.1201/EB-K/1439804193-b1>
 6. Ellis and Ellis. Microfungi on Land Plant: An Identification Hand Book Richmond Publishing Co. Hand Book 2nd Edition, Dec. 1997; 868 pp.213 plates 66500 ISBN. 0855462469. http://www.nhbs.com/microfungi_on_land_plants_tefno_22999html
 7. Jamaluddin, Goswami, M. G. and Ojha, B. M. 2004. Fungi of India,(1989-2001). Scientific Publishers India, Jodhpur. 326 <http://scialert.net/fulltext?doi=ppj.2012.68.72&0rg=11>
 8. Mall TP. Diversity of Foliicolous fungi from North Central Tarai Forests of U.P., India Vegetos 2011; 24: 35-39. <https://www.google.co.in/search?sugexp=chrome,mod=19&sourceid=chrome&ie=UTF-8&q=URL6.+Mall+TP.+Diversity+of+Foliicolous+fungi+from+N orth+Central+Tarai+Forests+of+U.P.%2C+India+Veget>
 9. Mall, T.P. Foliicolous Fungi : Earths Living Treasure in North Central Tarai Forests of Uttar Pradesh India. Ind. Jour. Pl. Health. 2011; 3: 8-20. <https://www.google.co.in/search?sugexp=chrome,mod=19&sourceid=chrome&ie=UTF-8&q=Mall%2C+T.P.+2011.+Foliicolous+Fungi+%3A+E arths+Living+ Treasure+in+North+Central+Tarai+Forests+of+Uttar+Pradesh+India.+Ind.+Jour.+Pl.+Health.+3%3A8-20>
 10. Mall, T.P. 2011-2012. Foliicolous Fungi of North Central Tarai Forests of Utter Pradesh (India). Nature and Environment 4&5: 13-22 [https://www.google.co.in/search?sugexp=chrome,mod=19&sourceid=chrome&ie=UTF-8&q=9.+Mall%2C+T.P.+20112012.+Foliicolous+Fungi+of+North+Central+Tarai+Forests+of+Utter+Pradesh+\(India\).+Nature+and+Environment+4%265%3A+13-22](https://www.google.co.in/search?sugexp=chrome,mod=19&sourceid=chrome&ie=UTF-8&q=9.+Mall%2C+T.P.+20112012.+Foliicolous+Fungi+of+North+Central+Tarai+Forests+of+Utter+Pradesh+(India).+Nature+and+Environment+4%265%3A+13-22).
 11. Mall, T.P. Status of Susceptible hosts of Foliar Fungi from North Central Tarai Forests of Uttar Pradesh (India). Res. Environ. Life Sci. 2012; 5: 11-16. [https://www.google.co.in/search?sugexp=chrome,mod=19&sourceid=chrome&ie=UTF-8&q=11.+Mall%2C+T.P.2012.+Status+of+Susceptible+hosts+of+Foliar+Fungi+from+North+Central+Tarai+Forests+of+Uttar+Pradesh+\(India\).+Res.+Environ.+Life+Sci.+5%3A11-16](https://www.google.co.in/search?sugexp=chrome,mod=19&sourceid=chrome&ie=UTF-8&q=11.+Mall%2C+T.P.2012.+Status+of+Susceptible+hosts+of+Foliar+Fungi+from+North+Central+Tarai+Forests+of+Uttar+Pradesh+(India).+Res.+Environ.+Life+Sci.+5%3A11-16).
 12. Mukerji, K. G. and Juneja, R. C. 1974. Fungi of India,(1962-72). Emkay Publ. Delhi. pp. 224. http://www.mycosphere.org/pdfs/MC2_4_No.8.pdf
 13. Sarbhoy, A. K., Agarwal, D. K. and Varshney, J. L. 1986. Fungi of India (1977-81). Associated publ. Co. New Delhi. pp.350.<http://www.sciencedirect.com/science/article/pii/S0953756209808101>.
 14. Sarbhoy, A. K., Varshney, J. L. and Agarwal, D. K. 1996. Fungi of India (1982-92). CBS Publishers and Distributors New Delhi. pp.274. <http://Journal-phytology.com/index.php/phyto/article/viewfile/6071/3110>
 15. Verma, R. K., Sharma, Nidhi, Soni, K. K. and Jamaluddin. Forest Fungi of Central India. International Distributing Co. Lucknow . 2008; 418 pp. <http://www.riddhionline.com/collections/forestry-books/products/forest-fungi-of-central-india>