



EFFECT OF PATHOGENIC FUNGI ON LUNGS OF EARTH (FOREST) FROM BALRAMPUR U.P. INDIA

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ABSTRACT

Balrampur is a city and a municipal board in Balrampur district in the state of Uttar Pradesh, India. The Pathogenic fungi were collected from different regions Balrampur during December, 2023 to November, 2024. The authors collected twelve fungal genera with twenty six species have been found on thirty different angiospermic host species which belong to twenty eight genera of nineteen families.

KEYWORDS: Pathogenic fungi, Balrampur, U.P.

The plant provides a very suitable habitat for the growth & development of fungal pathogen by providing ample surface area and nutrient supply. Such plant infecting fungi are known as Pathogenic 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. Balrampur is situated on the bank of river Rapti and is the district headquarters of Balrampur district. The creation of Balrampur is situated in the east-west and south sides respectively and Nepal State are situated in its northern side. One of the most popular Hindu worship place is situated in Tulsipur about 27 kilometers from the district headquarters. It is known as Devi Patan. The temple has the distinction of having included in 51 "Shaktipeethas" of Goddess Durga according to Hindu mythology. Balrampur city is in close vicinity of Shravasti where Lord Gautam Buddha is considered to have displayed his supernatural powers in the spiritual transformation of Angulimala, a famous dacoit who wore a necklace (mala) of fingers (anguli). The area of the district is 336917 Hec. In which the agriculture irrigated area is 221432 Hec. In the north of the district is situated the Shivalics ranges of the Himalayas which is called Tarai Region. Keeping it in view, the authors surveyed the locality of Balrampur during December, 2023 to November, 2024.

MATERIALS AND METHODS

The climatic condition favors the growth of various types of phanerogamic vegetation along with seasonal and annual crops and other plants. With a view to study the Pathogenic fungi in their natural habitat, frequent collection trips will be arranged. The following articles

would be required for collecting Pathogenic fungi- collection containers, hand lens, pruning scissor or secateurs, light plant pressures, blotting paper, paper envelop, field note book etc.

Laboratory processing and preliminary examination.

Preparations

- (a) Photograph of both host and pathogen will be taken.
- (b) Scrap mount: - If the organisms are superficially attached with the host tissue scrap mounts are made by a sharp razor or scalpel.
- (c) Collodion Preparation: - A drop of collodion solution is applied to a colony on the leaf. The fungus gets embedded entirely and the dried film is peeled off readily from the host surface. Removal of collodion by acetone on a glass slide gives undisturbed preparation.
- (d) Squash preparation: - The fruiting body is mounted, cleared and examined. Then the preparation is tapped vigorously and reheated. In this way the fruiting body is broken and content is released.
- (e) Hand cut Section preparation: A hand cut section of infected tissue is made with sharp razor to study immersed or semi-immersed fungi. Section cutting for host parasite interaction / relation.

Staining and Mounting

For routine microscopic study in the lab temporary slides are made in different type of stains and mountants according to nature of fungal forms involved.

- (a) **Lacto- phenol cotton blue:** - The lacto-phenol mounting fluid is used for mounting-colored fungi. For locating cytoplasm, septa, guttules other

structures and hyaline forms 0.05-0.01% cotton blue is added.

(b) **Poly- vinyl Alcohol:** - Benson, 1969 is used in routine staining and mounting.

(c) **Lacto-fuchsin:** - By this cell walls are stained more clearly, rapidly and with more suitable color specially for photography [Carmichael., 1955]. Slides prepared in mountants are sealed with wax or commercial good quality nail polish and are stored for further study.

Camera Lucida: - Drawings will be made of the distinctly different taxa of generic or species rank so as to show the morpho taxonomic features of vital importance.

Morpho taxonomic treatment. - Hitherto undescribed forms of foliar fungi will be executed with the help of present literature and expertise available at hand.

- New taxon will be described in English or Latin or both as and when required.
- Material (holotypes) will be deposited in recognized Herbaria for accession no.
- The Mycobank number of each new Taxa will be procured.

RESULTS AND DISCUSSION

The authors surveyed during December, 2023 to November, 2024 in diversified habitats of Balrampur 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 A.M.H., Pune is in process. Twelve fungal genera with twenty six species have been found on thirty different angiospermic host species which belong to twenty eight genera of nineteen families. The fungal species and their respective hosts are enumerated below.

S.N.	Name of the fungus	Name of the Host & family
1.	<i>Acrodictys</i> sp.	<i>Tinospora malaverica</i> Miers Fl. Br.* (Menispermaceae)
2.	<i>Alternaria alternata</i> (Fr) Keissler	<i>Calotropis procera</i> R.Br. Madar, Aak (Asclepiadaceae) <i>Codiaeum variegatum</i> (L) A Juss. <i>Croton</i> (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</i> sp. Nees.	<i>Dracaena draco</i> (L.) L. (Asparagaceae)
6.	<i>Aspergillus</i> sp. 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</i> sp. Fres.	<i>Sida acuta</i> Burm. F. (Malvaceae)
14.	<i>Cladosporium colocasiae</i> Sawada	<i>Colocasia esculenta</i> L. (Schott) Arvi (Araceae)
15.	<i>Corynespora carissae</i> sp. nov.	<i>Carissa carondas</i> Linn. (Apocynaceae)
16.	<i>Corynespora celastriicola</i> Singh and Mall	<i>Celastrus paniculatus</i> Willd. (Celastraceae)
17.	<i>Curvularia fallax</i> B. Oedijn	<i>Livistona chinensis</i> R.Br. (Arecaceae)
18.	<i>Helminthosporium</i> sp.	<i>Saccharum munja</i> (Poaceae)
19.	<i>Leptoxylum buteae</i>	<i>Butea frondosa</i> Koen.ex. Roxb. (Fabaceae)
20.	<i>Leptoxylum graminum</i> Pat.	<i>Citrus</i> sp. Linn. (Rutaceae)
21.	<i>Meliola mangiferae</i> Earle	<i>Mangifera indica</i> L. Aam (Anacardiaceae)
22.	<i>Meliola</i> sp. Fr.	<i>Jasminum sambac</i> (L) Ait. Bella (Oleaceae)
23.	<i>Mycovellosiella adinae</i> Firdousi et al.	<i>Adina cardifolia</i> Hook. f. (Rubiaceae)
24.	<i>Mycovellosiella fici</i> Rai & Kamal	<i>Ficus hispida</i> Linn. (Moraceae)
25.	<i>Periconia venezuelang</i> Ellis	<i>Dracaena reflexa</i> Lam. (Asparagaceae)
26.	<i>Pseudocercospora carissae</i> Singh & Mall.	<i>Carissa carandas</i> L. Karonda (Apocyanaceae)

The literature Bilgrami *et al.*, 1979, 1981, 1991; Ellis 1971, 1976; Jamaluddin *et al.*, 2004; Sarbhoy *et al.*, 1986, 1996; Singh and Mall, 2007 reveals that the fungal taxa mentioned above are hitherto unexplored from Balrampur. Hence are the new records for Indian microflora from Balrampur. Majority of the fungus has parasitized on one or two host species. The description shows that *A. alternata* is found only on four hosts.

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REFERENCES

1. Bilgrami, K.S., Jamaluddin and Rizvi, M.A. 1979. The fungi of India Part I. List and References Today and Tomorrows Printers and Publishers, New Delhi, pp 467.
2. Bilgrami, K.S., Jamaluddin and Rizvi, M.A. 1981. The fungi of India Part II. Host Index and Addenda Today and Tomorrow Printers and Publishers, New Delhi, pp 268.
3. Bilgrami, K.S., Jamaluddin and Rizvi, M.A. 1991. The fungi of India 2nd ed. List and reference Today and Tomorrow Printers and Publishers, New Delhi, pp 798.
4. Carmichael J.W. (1955). Lacto- fuscin, A new medium for mounting fungi. Mycologia, 47: 611.
5. Ellis, M.B. 1971. Dematiaceous Hyphomycetes CMI Kew England.
6. Ellis, M.B. 1976. More Dematiaceous Hyphomycetes CMI Kew England.
7. Jamaluddin, Goswami, M.G. and Ojha, B.M. 2004. Fungi of India (1989-2001), M/S Scientific Publ., India, pp 326.
8. Sarbhoy, A.K., Agarwal, D.K. and Varshney, J.I. 1986. Fungi of India (1977-81) CBS Publishers and Distributors, New Delhi, pp. 274.
9. Sarbhoy, A.K., Vershney, J.I., and Agrawal, D.K. 1996. Fungi of India (1982-92), Associated Publ. Co. New Delhi, pp.350.
10. Singh, D.P. and Mall, T.P. 2007. Follicolous Fungi of medicinal Plant in North Western Tarai Region of Uttar Pradesh. *Environmental Conservation J.*, **8**: 13-16.