



**DIVERSITY OF FOLIICOLOUS FUNGI FROM PAL REGION IN SATPUDA RANGE OF JALGAON
(MAHARASHTRA)**

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ABSTRACT

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During the exploration of foliicolous fungi from Pal forest region in Satpura Range of Jalgaon (Maharashtra), many forest trees were found to be infected with diverse type of fungal diseases. A variety of symptoms, viz, leaf spot, blight, leafy shot hole, Tar spot, powdery mildew, Black mildew, downy mildew, rust, smuts, galls were observed in Pal forest region (MS) during October to December 2021-2022. The fungal species were identified with the help of literature and confirmed by experts. The present paper deals with the Diversity of foliicolous fungi from Pal forest region of Maharashtra.

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INTRODUCTION

Pal is a sanctuary and a place of cool flow of air in the Satpuda Range in Jalgaon district. The forest of Jalgaon District is tropical, dry and deciduous type. The total of the reserved forest of Jalgaon district is about 789 sq.miles. Follicolous fungi mainly affects the foliar parts of the trees and produces thin, sub-dense to dense, velvety black colonies on leaves causing black leaf spot diseases. Fungi reproduce by specialized cells or group of cells called spores. These fungal spores are continuously deposited on the leaf surface by Air, rain or dust, resulting in to the development of variety of symptoms. The fungi play an important role in the development of many diseases of forest trees including Yearly leaf fall, mortality, Reduction in wood quality, Delayed regeneration, Deficiencies in stocking etc.

In India follicolous fungi were studied by Bhat and Kendrick (1993), Bhat and Raghukumar (2000), Hosagoudar (1996, 2008, 2012, 2013), Hosagoudar and Robbin (2011). In Maharashtra there is meagre and scattered information of follicolous fungi.

MATERIALS AND METHODS:

A field survey was undertaken in Pal region of Satpuda range of Jalgaon during post monsoon season and several foliicolous fungi have been collected. Of these forest trees are as : *Soymida febrifuga* (Roxb) A. Juss, *Anogeissus latifolia*, *Diospyros melanoxylon* Roxb., *Madhuca indica*, *Tectona grandis*, *Garuga pinnata*, *Butea monosperma*(Lamb.), *Cordia dichotoma* Forst. F, *Ficus racemosus* found infected with fungal pathogen.

Infected plant parts were noticed carefully in the field, field notes were made regarding their pathogenicity, nature of infection, locality altitude etc. In the field each infected sample were collected separately in polythene bags. These infected samples were pressed and dried in between blotting papers.

The slides were prepared in Lactophenol cotton blue for microscopic studies to observe the nature of different parts of fungal structure involved. Slides were sealed with Dpx. The slides were studied under high magnification of compound microscope (Labomed) followed by objective oil immersion combination if required by using different eye contributions.

Identification of collected fungi were done with the help of Subramanian (1981), Barnett and Hunter (1972), Ellis (1971, 1976) Ellis and Ellis (1985), Hasagoudar (1996, 2008).

RESULTS:

1. *Alternaria cinerariae* Hori and Enjoji

Host: Leaf of *Soymida febrifuga* (Roxb) A. Juss

Colonies effuse, mid to dark olivaceous brown. Conidiophores pale to mid olivaceous brown, smooth, up to 150 x 5-8 μ , body 50-140 x 15-40 μ , with 3-10 transverse and several longitudinal septa, constricted at the septa.

Figure: 1



Habit

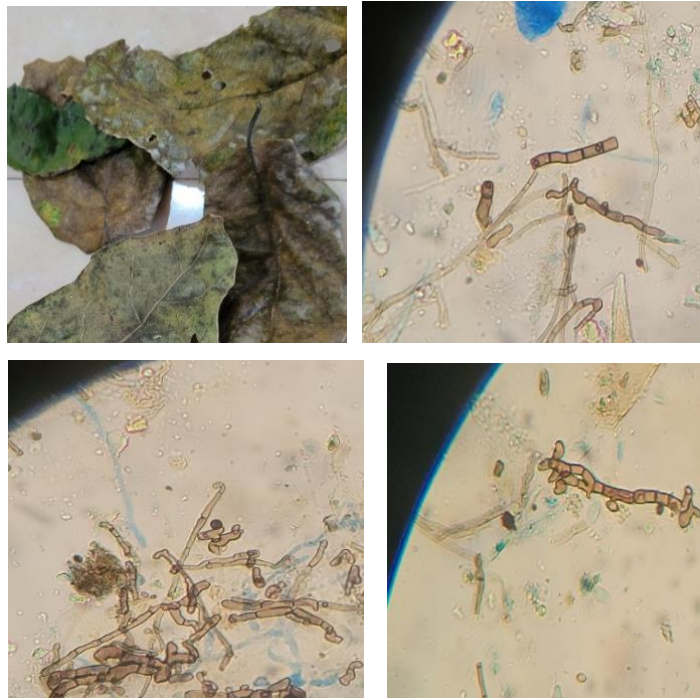
Conidia

2. *Bahusakala olivaceonigra* (Berk. and Br.) Subram.

Host: Leaf of *Anogeissus latifolia* (Roxb. ex DC) Wall. ex Guill. Perr. and A. Rich

Fungus forming lax tufts with a pseudoparenchymatous base. Colonies brownish black and effuse. Spores dark brown when mature, thick walled, subcylindrical and 1-5 septate, marked by constricted at Septa, and 8.4-28.8 x 4.2-5.6 μ

Figure:2



Habit

Conidiophore

Conidiophore with conidia

3. *Cladosporium cladosporoides* (Fresen.) de Vries

Host: Leaf of *Diospyros melanoxylon* Roxb.

Mycelium composed of narrow, hyphae 2-4 μ wide, and dark hyphae 4-12 μ wide. Conidiophores arising laterally or less often, terminally from the hyphae, growing in every direction, usually unbranched, 28-380 μ long, 2-5 to 5.5 μ wide, irregularly septate.

Figure: 3



Habit

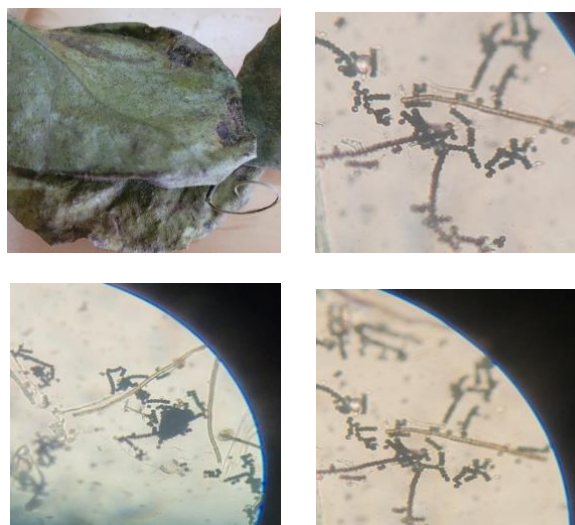
Conidiophore and Conidia

4. *Memnoniella echinata* (Riv.) Galloway

Host: Leaf of *Madhuca indica* J. F. Gmel.

Colonies small, thick, coal black, composed of simple conidiophores. Conidiophores 60-80 μ long, 3-3.5 μ wide, 2-3 septate, blackish erect, hyaline at the base; Conidiophore bearing at its tip a head about 14 μ wide and 10 μ high with one or two compact whorls of about ten phialides.

Figure:4



Habit

Conidial Chain

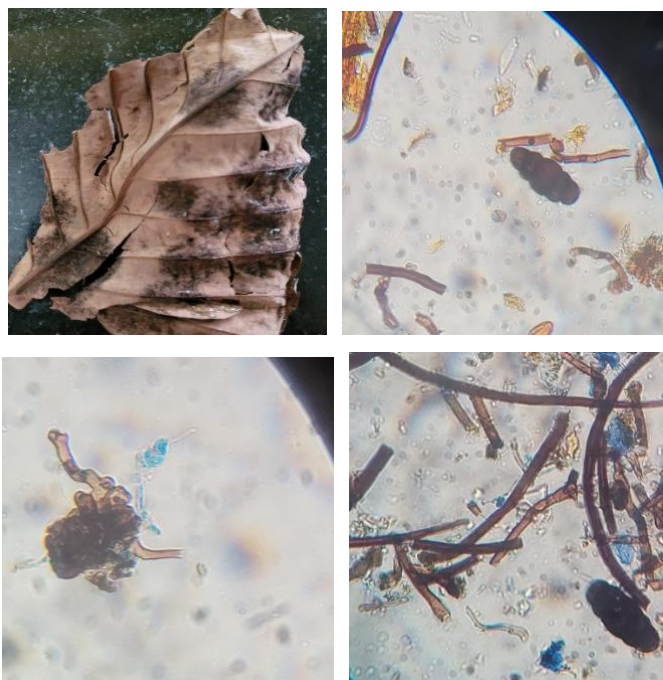
Conidiophore with Conidia

5. *Meliola garugae* Stev. and Rold.

Host: Leaf of *Garuga pinnata* Roxb.

Colonies amphigenous, hyphae straight to substraight, Mycelial setae numerous, scattered, straight, up to 370 μ m long. Ascospores oblong to cylindrical, 4-septate, constricted at the septa, 36-43 x 14-17 μ m. (Hosag. & Robin, J.Threatened Taxa 3 (3):1786,2011.

Figure:5



Habit

Ascospore

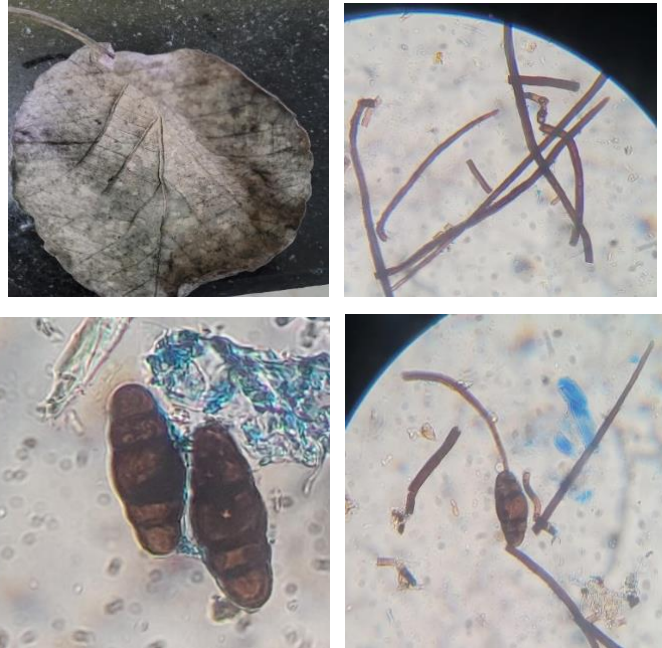
Hypopodia

Hypopodia with Ascospore

6. *Meliola butea* Hafiz, Azamtulla and Kafi

Host: Leaf of *Butea monosperma* (Lamk.) Taub.

Colonies amphigeneous, subdense to dense ;Stalk cells cylindrical to cuneate, 3-5 μ m long; head cells ovate, globose, oblong, entire, 11-13 x 7-10 μ m. Mycelial setae numerous, simple, straight to uncinuate, acute at the tip, up to 294 (μ m long. Ascospores cylindrical to obovoidal, 4 septate, constricted at the septa, 38-52 x 14-16 μ m

Figure:6

Habit

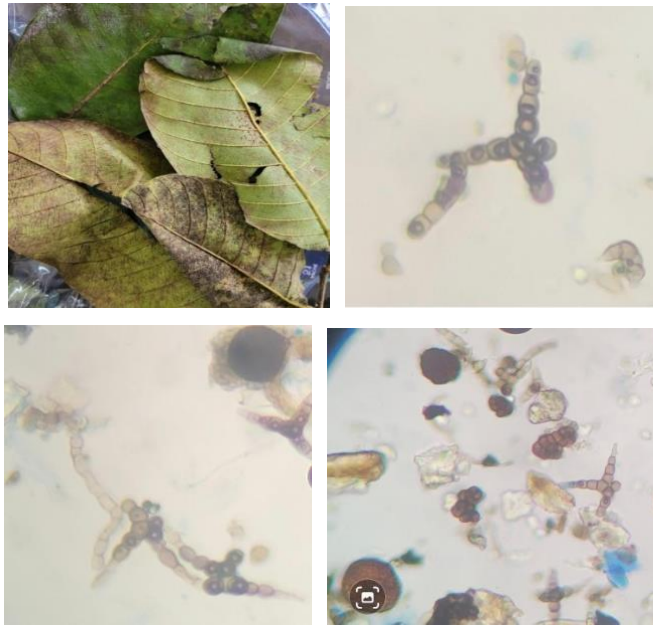
Hypopodia

Ascospores

7. *Triposporium elegans* Corda

Host: Leaf of *Cordia dichotoma* Forst. F.

The staurospores have 3 to 4 (usually three) conical arms joined by their wide rounded bases. The globose apical cell is divided into unequal cells by an oblique cross wall & at this time 3 bulges appear. Thus 3 arms are formed which elongate and become septate.

Figure:7

Habit

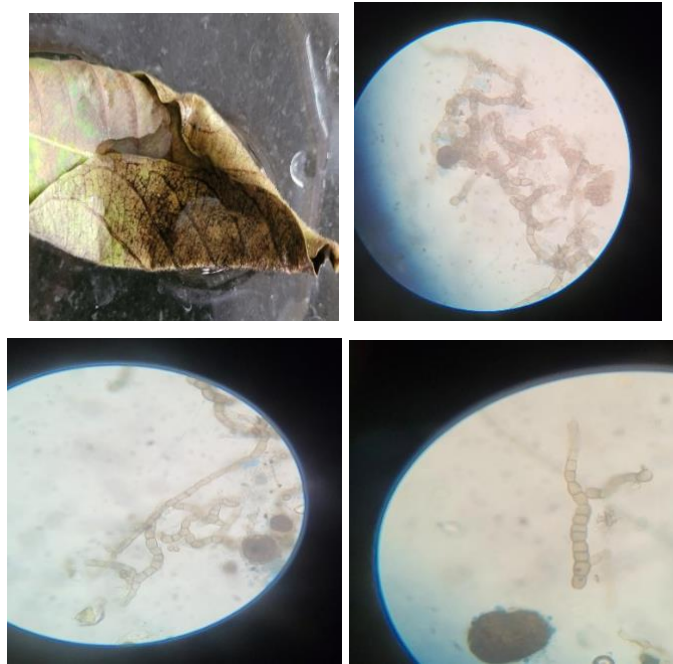
Conidium

Hypopodia

Conidia

8. *Tripospermum fici* Sharma, Rai and Vyas**Host: Leaf of *Ficus racemosus* L.**

Mycelium of hyphae superficial, much branched forming a dense network, multiseptate, constricted at septa, thin walled, smooth, dark olivaceous to brown, up to 3-5 μ m thick, stromata, setae and hypopodia absent.

Figure:8**Conclusion**

In the current study, various types of fungal diseases found in Pal forest region due to Follicolous fungi viz. *Alternaria cinerarie*, *Bahusakala olivaceonigra*, *Cladosporium cladosporoides*, *Memnoniella echinata*, *Meliola butea*, *Meliola garugae*, *Tripatorium elegans*, *Tripatorium fici*.

The current survey may help to understand about occurrence timing, specific infectious agent and Host forest tree of follicolous fungi. An awareness of interaction between follicolous fungi and Host forest tree enable greater insight in to the dynamics behind disease outbreak.

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