



INVESTIGATION OF MYCOFLORA FROM MEDICINAL PLANT *OCIMUM SANCTUM* L.

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Abstract:

The present paper deals with the study of mycoflora from medicinal plant *Ocimum sanctum*. A total number of four genera were isolated, among them *Aspergillus*, *Mucor* and *Rhizopus* were isolated from the phylloplane. *Aspergillus* and *Fusarium* were isolated from phyllosphere. Again *Aspergillus*, *Mucor* and *Rhizopus* were isolated from rhizoplane part. And only *Mucor* was isolated from rhizosphere of *Ocimum sanctum*. In the last it may be concluded that the *Aspergillus* fungus is dominated in medicinal plant *Ocimum sanctum*.

Key Words: Mycoflora, *Aspergillus*, Phylloplane, Rhizosphere and Medicinal plants.

Introduction:

Herbal plants are of immense medicinal value for drugs and pharmaceutical industries. The growth of the herbal plants also depends on the population of soil microorganism present in their rhizosphere and rhizoplane area of plants as these microorganisms constitutes one of the important biotic & ecological factors responsible for plant growth. Hiltner (1904) introduced the term rhizosphere for the soil zone just adjacent to plant roots and Clark (1949) introduced the term rhizoplane to denote the external plant root surface and the closely adhering soil particles and debris. Fungal population in the rhizosphere and rhizoplane areas show a qualitative change with age of plants and also along with changing environment.

Phyllosphere denote the leaf surface of plant. Phylloplane is natural habitat of a large number of various microorganisms on the surface of the leaf. These microorganisms includes a variety of epiphytic and endophytic that colonizes the surface and internal tissues of the plants, respectively (Inacio et al. 2002; Lindow&Brandl, 2003; Yadav et al. 2005; Stapleton and Simmons, 2006). However, quality and quantity of the microorganisms on the leaf surface differ with age of the plant, leaf area, morphology, and atmospheric factors such as temperature and humidity. Medicinal plants have been of age long remedies for human diseases because they contain components of therapeutic value (Nostro et al. 2000). *O. sanctum* is the important medicinal plants that are traditionally used for treatment of several ailments (Shyamala and Vasantha, 2010). The medicinal plants have complex chemical composition. Some commonly recognized biologically active phytochemical constituents like eugenol, urosolic acid, alkaloids, flavonoids; tannins and

carbohydrates have been reported in *O. sanctum*. (Kumar et al. 2013)

Materials and Methods:

For the study of fungal diversity in *Ocimum sanctum*, the fresh leaves and root of the plant collected from the surrounding area of Bhandara city. The plant root & leaves were removed. The root & leaves were washed thoroughly 2-3 time with distilled water, then air dried on sterile blotter under shade. Then after dried the leaves & root are cut into the small peaces for investigation. The leaves and root of plant is washed with water and collected for the investigation of rhizosphere and phyllosphere. The potato dextrose agar (PDA) media was selected to grow fungi.

Results:

The slide of the fungus on root and leaf sample of *O. sanctum* plant were prepared and observed under the microscope and the fungi were identified. Sketches were drawn and photography was done.

Following fungi were observed:-

In phylloplane:-*Aspergillus*, *Mucor*, *Rhizopus*

In phyllosphere:-*Aspergillus*, *Fusarium*

In rhizoplane:-*Aspergillus*, *Mucor*, *Rhizopus*

In rhizosphere:-*Mucor*

Discussion:

Prabhakaran et al. (2011) were found that the *Aspergillus flavus*, *Penicillium expansum*, *Fusarium semitectum* and *Fusarium oxysporum* were isolated from the phylloplane of *Ocimum sanctum*. But in my present study. *Aspergillus*, *Mucor* and *Rhizopus* were traced. Sharma and Kavita (2012) had worked on the leaf surface mycoflora of *Ocimum sanctum* and they isolated species of *Aspergillus* during of their investigation. Yadav and Bhagat (2014) had worked on the Rhizoplane of *Ocimum sanctum* they isolated *Aspergillus fumigatus*, *Fusarium oxysporum* and *Trichoderma viride* and from the present study *Mucor* was isolated. Uzma

Bashir and Sobia Mushtaq (2012) isolated five fungal species belonging to three different genera namely *Alternaria*, *Aspergillus* and *Fusarium*. However, present study shows the presence of *Aspergillus*, *Mucor* and *Rhizopus* fungi. The currently reported species of fungi are regarded as commonly occurring primary saprobes on attached leaf surfaces of wide variety of plants through out the world (Pandey 1990; Andrews 1996; Osono 2006). These saprobic fungi can withstand adverse condition such as dissiccation, UV radiation & microbial lysis by producing thick walled pigmented multicellular spore & microsacrota (Sadaka & Ponge 2003). These fungi are normally encountered as epiphytes but some can also occur as endophyte (Petrini 1991). The maximum occurrence of *Aspergillus* were in well agreement with those found by Srivastava & Chandra (1985). According to them, these are the most frequent members of the mycobiota of some medicinal plant.

SUMMARY AND CONCLUSION

The aim of this study is the enumeration of fungal biodiversity in rhizosphere, rhizoplane, phyllosphere and phylloplane from medicinal plant *Ocimum sanctum*. A total number of four genera were isolated from medicinal plant *Ocimum sanctum* (L). Among them, *Aspergillus*, *Mucor* and *Rhizopus* were isolated from the phylloplane. *Aspergillus* and *Fusarium* were isolated from phyllosphere. Again *Aspergillus*, *Mucor* and *Rhizopus* were isolated from rhizoplane part. And only *Mucor* was isolated from rhizosphere of *Ocimum sanctum*. In the last it may be concluded that the *Aspergillus* fungus is dominated in medicinal plant *Ocimum sanctum*. The roughness in the leaf surface of *Ocimum sanctum* likely to allow more fungi to prevail. The abundance of *Aspergillus* on leaves of *Ocimum sanctum* might due to the compatibility of plant & fungus.

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PLATE



Fig.1 Fungal Colonies On PDA

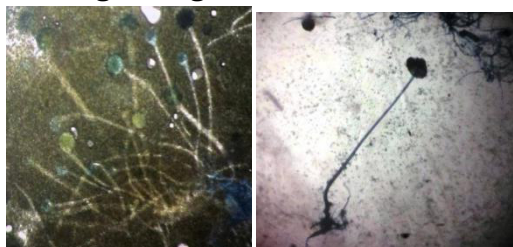


Fig. 2Mucor

Fig. 3Rhizopus

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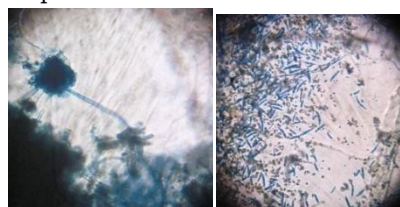


Fig. 4Aspergillus Fig. 5 Fusarium

