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Studies On Phyllosphere Mycoflora of Certain Medicinal Plants of Mungeli District.

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Abstract
Medicinal plants are attracting to each and every person seeking health, without side effects. The diseases of medicinal plants are becoming the important factor for commercialization of medicinal plants. Ethnomedicines are the upcoming formulas of alternative drugs resources to Allopathic medicines. As the awareness about medicinal plants are increasing day-by- day. The medicinal plants suffer from various kinds of plants pathogens including fungi. The phyllosphere mycoflora must be studied to save the quality of drugs and active principles of particular medicinal plants.
In the present study 5 types of medicinal plants from Mungeli district are selected to detect the phyllosphere mycoflora associated with respective plants. This study will be helpful to create awareness about the various types of the plants as habitat for fungal microorganisms.

Keywords : Medicinal plants, Phyllosphere, Mungeli district.

Introduction
Plants are not only providing food, Oxygen to all mankind but they are also working as a Habitat for microorganisms. The study of such microbial ecology is very important factors of all kinds of plants. Medicinal plants are valuable drug containing plants with various types of active ingredients. Such ingredients are contaminated due to presence of various types of microhabitat of microorganisms. Common diseases on the plants were leaf spots, leaf blight and leaf rust causes effect on medicinal value of the plants parts. (S. P. Chavan and S. L. Kporekar, 2011) There are two million kinds of living organisms of which fungi constitute a hundred thousand species from this we can conclude that fungus is omnipresent (Mehrotra R. S Aneja K.R, 2008). Fungal pathogens above ground portion of the plants show the Numerical dominance on leaves, but it also effect other parts of phyllosphear. Such as stem, flowers and fruit. This types of fungal colonies are depend upon the availability of carbon -Nitrogen containing Nutrients on leaves and other parts of phyllosphere. All pathogens which occurs on medicinal plants seriously damages the secretary tissues and stomata, causing a decrease in amount of essential oil contained in infected plants and modifying the composition of the plants volatile fraction. (D'aulerio, A. Z, Zambonellia, A, 1995).

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Many of the plant materials are used in traditional medicines are readily available in rural areas at relatively cheaper than modern medicine Indravadan modi (1926-2012) so far the purpose of study of phyllosphere mycoflora Mungeli district is selected as it represent one of the tribal districts in Chhattisgarh with rich source of Ethnomedcinal plants.

Methodology

Isolation of fungi from leaf spot disease -

Agar plate method was adopted for isolation of fungi from the phyllosphere of medicinal plant. In this method, the leaves were cut into 5 mm pieces. They were washed thoroughly in tap water and surface sterilized with 0.1% $HgCl_2$. The pieces were again washed 3-4 times by using sterilized DDW. Meanwhile the cooled molten PDA was poured into sterile petriplates. After the media was solidified, three pieces of leaves were transferred on to every petriplate and incubated for 7 days at 28°C, The media contained 125 mg^1 of streptopenicillin (Gupta and Banerjee, 1970 ; Wokchan and Okereke, 2005) in order to inhibit bacterial growth on the culture medium. Pure cultures were obtained by subculturing the isolates consecutively for three times.

Purification of culture - Growing hyphal tips were transferred into PDA slant and pure cultures were maintained at 50 °C in Refrigerator. Sub culturing of isolated pathogen done after 15 days successive time period. For the study of appeared fungal morphology in relation to its comparative study of identification of fungal species, characteristic features of the fungal hyphae, conidiophores and spores formation, slides from the selected fungal culture prepared and observed under the phase contrast microscope.

Pathogenecity test of each fungus - Preparation of spore suspension is important phase for confirmation of pathogenecity test followed by artificial inoculation of plants. PDA media pour petri plates were used for preparation of culture of inoculums. The plates were kept and incubated for 4 days in BOD incubator at 28_+°C. After preparation of the culture of the test fungi, spore suspension in sterile distilled water was formed and sprayed on healthy wild standing species leafs covered with polypropylene bags to develop favourable conditions for diseases. 20-25 days after artificial inoculation the disease symptoms were developed The infected leaves were collected and re-isolation of pathogen done and compared with previous pathogen with its characteristic features conforming its pathogenecity test.

Table –1 Phyllosphere mycoflora of medicinal plants

S.No.	Common name	Botanical name	Locality	Phyllosphere mycoflora
1	Neem	Azadirachta indica	Dindori	*Phomopsis sp.* *Fusarium sp.* *Ganoderma sp.*
2	Giloy	Tinospora cordifolia	Dindori	*Nigrospora spaerica* *Alternaria alternata* *Colletotrichum sydowii*

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3	Sadasuhagan	Catharanthus roseus	Dindori	*Alternaria longipes* *Myrothecium* *Leveilluia tourica*
4	Indian acalypha	Acalyphya indica	Dindori	*Alternaria tenuis* *Cercosporella acalypha* *C. acalyphae* *C.profusa*
5	Asthma weed	Euporbia hirta	Dindori	*A.longicema* *A.tenuissima* *C.petila* *Drechsleria euphorbi* *Leptosphirllina Australia* *Melampsora euphorbia*

Result and Discussion

Diverse mycoflora communities inhibit the phyllosphere i.e total above ground portions of medicinal plants and we can divide it into stems, leaves, flowers and fruits present study show that mycoflora found dominated on leaf portion of respected medicinal plants leaves as there is availability of Carbon-Nitrogen containing Nutrients on large scale of leaves. Phyllosphere fungi include endophytes and epiphytes that colonize the interior or surface of leaves present. Diverse mycoflora present on phyllosphere out of which some are fungi associated with particular plant but they does not show pathogenecity Some fungi causes leaf spot diseases, some are causing powder mildew, some are responsible for leaf ball and some are causing Rust i.e. there is diversity of fungi causing different types of diseases some beautiful patchwork of mycoflora is present on the phyllosphere.

Present study about mycoflora of phyllosphere help to know about diverse fungal communities present on it. So it is important for developing new ways and methods to control spread of fungi above ground portions of medicinal plants. We can also develop many strategies based upon studies to avoid contamination of fungi with medicinal active principles of particular plant showing medicinal value.

Conclusion

The present study on the phyllosphere mycoflora of certain medicinal plants of Mungeli District highlights the rich diversity and ecological importance of fungal communities inhabiting leaf surfaces. The investigation reveals that different medicinal plant species harbor distinct assemblages of fungi, largely influenced by leaf characteristics, environmental conditions, and local microclimate. The frequent occurrence of common phyllospheric genera such as *Aspergillus*, *Penicillium*, *Alternaria*, and *Cladosporium* indicates their wide adaptability and significant role in colonizing the phyllosphere. These fungi contribute to ecological processes such as nutrient recycling and may also affect plant health either positively

or negatively. Since the host plants possess medicinal value, the presence of diverse mycoflora is of particular importance, as fungal interactions can influence the quality, stability, and bioactive properties of medicinal compounds. The study demonstrates that the phyllosphere acts as an active ecological niche rather than a passive surface, supporting complex plant–fungus interactions. The findings provide baseline information on phyllosphere fungal diversity in the Mungeli District and emphasize the need for further research on seasonal variation, functional roles of these fungi, and their implications for conservation and sustainable use of medicinal plant resources.

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