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MYCOFLORAL STUDY OF SOME MEDICINAL PLANTS

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ABSTRACT

Since the beginning of human civilization, medicinal plants have played a significant part in rural Indian life and are regarded as one of the most significant sources of medicine. The existence of secondary metabolites, which varies from plant to plant, is typically associated with the medicinal capabilities of plants. Medicinal herbs are linked to a wide range of microbes, primarily bacteria and fungi. Samples from numerous medicinally important plants have been collected, and fungi have been isolated in the lab. On the basis of their morphological characteristics, fungi have been identified.

Keywords*: medicinal plants, fungal pathogens, endophytes*

INTRODUCTION

Medicinal plants traditionally occupied an important position in rural and tribal lives of India and are considered as one of the most important sources of medicines since the dawn of human civilization. Medicinal plants constitute the basis of primary health care for the majority of the population in India and are a critical source of income for rural population. Approximately 90% of the plants still collected from the forests. In the present study fungal diseases and pathogens associated with the selected medicinal plants like Datura, Tulsi, Mustard, Sadabahar, makoi and egg plant were collected and studies of the Jalore district were identified.

Medicinal plants are widely used for treatment of diseases all over the world. According to world health organization report about 80% of the world population is taking interest in indigenous medicinal plants remedies. Herbal medicines have usually been used in the form of fruit and vegetables, oils, drugs or their extract for the treatment of the diseases and for maintenance health. (Sahito et al., 2003). Skin disease diarrhea, diabetes, malaria, respiratory infection, fungal and bacterial infection are the common health problem in rural areas. In under developing countries numerous medicinal plants are used traditionally which are remedial against these disease (Pinn, 2000).

Bioactive chemicals can be produced by fungi that coexist with or reside inside plant tissue. It seems sense to speculate that the chemicals made by one or more fungi inside the plant help the healing processes of the plant. The extensive range of free radical-scavenging chemicals found in medicinal plants includes phenolic compounds, including phenolic acids, flavonoids, quinines, coumarins, lignans, and amines, vitamins, and other endogenous metabolites. For the discovery of natural products, medicinal plants and their endophytes are crucial sources of information. Some endophytes have been discovered to produce metabolites with potent antioxidant properties. The world of fungi offers a tremendous supply of biological diversity that is practically infinite and interesting, making it ripe for exploitation.Only a small number of articles have, to date, described the isolation of endophytes relevant for ethnopharmaceutical purposes.

Traditional medicines are the primary and alternative treatments for a wide range of human and animal illnesses. Fungal endosymbionts can have a significant impact on the ecology, fitness, and evolution of plants. This organism's diverse groups are capable of producing a variety of bioactive substances.

According to numerous studies (Roy et al. 1988; Aziz et al. 1998; Kumar et al. 2009; Moorthy et al. 2010; Rashidi and Deokule 2013), certain filamentous fungal groups can contaminate medicinal plants. Due to their well-documented capacity to release hazardous metabolites like aflatoxins, *Aspergillus* species continue to pose the greatest threat among them. *Aflatoxins* are very toxic secondary metabolites mostly produced by some strains of *Aspergillus flavus* and *A. parasiticus*, with very little production by *A. nomius*.

MATERIALS AND METHODS

For the purpose of gathering medicinal plant samples, various regions of South Western Rajasthan were taken into account. Leaves, stems, bark, flowers, and fruits of ethnomedicinal plant components were collected and delivered to the lab for mycoflora screening. First, surface sterilisation was performed on the gathered plant material used for the isolation. The plant material was first cleaned by being washed under running water numerous times, and then it was sliced into small pieces.

The samples of these medicinal herbs were isolated using the Standard Blotter Technique and the Agar Plate Method, both of which were suggested by ISTA (1966). Each seed sample had a thorough physical examination to check for the presence or absence of mycelia mats, damage, cracks, discoloration, galls, sclerotia, and the seed sample's overall state of health.

Plant material was randomly selected from each sample and put on moist blotting papers as well as in Petri dishes with PDA media. 10 g of plant material with unusual appearances were placed in a conical flask with 100 ml of sterilised distilled water. The flask was then agitated in an electric shaker for 15 minutes. After some time, each flask's water was decanted and subjected to a 15-minute centrifugation process. The deposited silt was split into two portions, one of which was inspected for the presence of spores and mycelia fragments under a microscope using a drop

of distilled water. To the other portion of the sediment, 1 cc of sterilised distilled water was added, and the mixture was then placed on PDA medium to determine the viability of the mycelia fragments and spores.

RESULTS AND DISCUSSIONS

Each ecosystem depends on its biodiversity. Fascinating and stunning fungus have a significant impact on our health and our economy and are essential parts of almost all ecosystems. Aside from being used in industry, agriculture, medicine, the food industry, textile, bioremediation, and many other areas, fungi play a key role in our daily life. Fungal biodiversity has also become a crucial component of human wellbeing in many other ways.

In the current investigation, many fungus species were isolated from various medicinal plants. The majority of therapeutic plants contain *Aspergillus, Curvularia*, *Penicillium*, *Alternaria* and *Fusarium*, among other widespread and common fungi. The actual variety could be influenced by the techniques employed to collect and handle plant components.

The study of the fungal flora of eight indigenous medicinal plants was conducted, and the findings show that the variation in fungal flora distribution was not limited to a single species, genera, or family. The same endophytes were isolated from various hosts, and none of these medicinal plants displayed any species specificity.

The fact that *Aspergillus niger* and *A. flavus* are so common suggests that these fungi make use of a variety of the plants' active ingredients. Aziz et al. (1998), Halt (1998), Bugno et al. (2006), and Donia (2008) have all indicated that *A. flavus* is a frequent contaminant in a variety of medicinal plants. It was also found to be one of the dominating species in all dried medicinal plant samples.

The amount of moisture present affects and is strongly correlated with the degradation of medicinal plant samples (Singh et al. 2008; Kumar et al. 2009; Meena et al. 2010). In our investigation, a relationship between moisture content and the number of fungal species retrieved was shown to be favourable. Table 1 lists the fungal flora that was isolated from these therapeutic plants.

Table.1 List of isolated fungi

S. No.	Host	Family	Vernacular Name	Fungi
1	*Brassica juncea*	*Brassicaceae*	Rai	*Aspergillus niger* *A. flavus* *Fusarium sp.* *Curvularia lunata* *Fusarium moniliformae* *Alternaria alternata*

2	*Brassica* compestris	*Brassicaceae*	Sarson	*Aspergillus niger* *A. flavus* *Fusarium sp.* *Curvularia lunata* *Alternaria alternata*
3	*Eruca sativa*	*Brassicaceae*	Taramira	*Aspergillus niger* *A. flavus* *Fusarium sp.* *Curvularia lunata* *Pennicillium notatum* *Rhizopus rotifer*
4	*Catharanthus roseus(L.)G.DON*	Apocynaceae	Sadabahar	*Aspergillus flavus* *Chaetomium sp* *Pestolotia sp.* *Rhizopus solonifer*
5	*Datura stramoniumL.*	Solanaceae	Datura	*Aspergillus niger* *A. flavus* *Fusarium sp.* *Curvularia lunata* *Curvularia cragrotidis* *Pennicillium citrinum*
6	*Solanum nigrum L.*	Solanaceae	makoi	*Aspergillus niger* *Aspergillus flavus* *Aspergillus terreus* *Alternaria tennussima* *Fusarium moniliformae*
7	*Solanum melongena L.*	Solanaceae	Egg Plant	*A.flavus* *Alternaria alternata* *Aspergillus niger* *Cercospora sp.* *Curvularia lunata* *Curvularia sp.* *Fusariumsp.* *Pennicillium notatum* *Rhizopus rotifer*
8	*Occimum bascilicum L.*	Lamiaceae	Tulsi	*Aspergillus niger* *Chaetomium sp.* *Dreshlera sp.* *Rhizopus*

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