FUNGAL DISEASES OF ETHNOMEDICINAL PLANTS FROM AMRAVATI DISTRICT OF MAHARASHTRA, INDIA.

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ABSTRACT

In the present investigation a survey of fungal diseases of 54 ethnomedicinal plants from Amravati district of Maharashtra (India), were carried out during the years 2010 and 2011. Ethnomedicinal plants were collected from different areas including forest of Melghat. Etiological study was carried out and then fungi were isolated. Fungi were identified on morphotaxonomic bases. Twenty four species belonging to fourteen genera were isolated from ethnomedicinal plants. Out of twenty four species twenty two were belongs to Deuteromycetes and two belongs to Ascomycetes.

Key Words: *Ethnomedicinal plants, Fungal diseases, Amravati district.*

Introduction

Medicinal and Ethnomedicinal knowledge of plants is very ancient to India might well be among the earliest in the world. The widespread use of herbal remedies and health care preparation from traditionally used plants, are of great importance in the development of different type of medicines for public health. According to World Health Organization (WHO), as many as 80% of the World's people depend on traditional medicine for their primary healthcare needs (Singh et al., 2010, Dubey et al., 2004). The traditional systems of medicine are still very effective particularly in rural areas of India for the treatment of various ailments (Singh and Singh, 2009). Ethnobotanical plants used for different medicinal purpose should be free from microbial infection. The microbial attack particularly fungi directly affect photosynthesis by reducing the productivity and also formation of secondary metabolites (Singh and Dubey, 2012). In addition, the fungal infection also sometimes degrades the quality of medicinally important active principle (D' Aulerio et al.,1995; Chutia et al., 2006).

Amravati district is western part of Vidarbha region in Maharashtra State of India. The district include thick forest of Melghat where one of the Tiger project of India is located. The area exhibit a great diversity with large number of medicinal plants. The Melghat area comprises different ethnic races and tribes like Korku, Gond and Gavali who use these plants for cure of different diseases. So far the district is not properly survey for the documentation of ethnomedicinal plants with reference to foliar fungi infecting them. Hence, the present investigation was undertaken to document the foliar fungi causing diseases to ethnomedicinal plants.

Materials and Methods

In order to access the fungal diseases of ethnomedicinal plants survey were conducted during 2010 and 2011. Leaf, stem and fruit samples showing clear symptoms were collected in separate polythene bags from various sites. The infected different samples with distinct symptoms were brought to the laboratory for microscopic examination and for the

cultural studies. The discovered specimens of medicinal plants were first examined carefully with naked eyes to have clear picture of symptomatology. Thereafter the scrap mounts of infected tissue were prepared in lactophenol cotton blue. Some of fungi were isolated on PDA slants and then identified by using available literature.

Result and Discussion

In the present study, extensive survey 54 ethnomedicinal plants were made by authers. All these 54 ethnomedicinal plants were used by tribes for different medicinal purposes. Twenty four fungal species were isolated from 12 genera of Deuteromycetes and 2 of Ascomycetes. Though the members of all 3 orders of deuteromycetes were isolated, there seems to be dominance of Moniliales as members followed by Sphaeropsidales and Melanconiales. The tribal people of the area mostly use the leaves of ethnomedicinal plants as source of medicine. Moreover, leaves are the main centre of the metabolic activities of plants. Hence such infections may also affect the secondary metabolism of raw material of other parts of ethnomedicinal plants. There are some reports on such decline of active components of different medicinal plants used by pharmaceutical firms (D' Aulerio et al., 1995. Chutia, et. al. 2006; Pati et al, 2008; Shivanna and Mallikarjunaswamy, 2009). In view of these fact there is urgent need to investigate disease cycle of the infected ethnomedicinal plants of the area.

Table 1:- Foliar fungi causing infections to ethnomedicinal plants.

S/N	Ethnomedicinal plants	Fungal species
1.	*Aegle marmelos (L.)* Correa	*Fusarium moniliforme*
2.	*Azadirachta indica* Juss.	*Alternaria alternata Cladosporium sphaerospermum*
3.	*Achyranthes aspera* L.	*Curvularia senegalensis*
4.	Amaranthus spinosus	Colletotrichum capsici
5.	*Adhatoda zeylanica* medik	*Alternaria alternata*
6.	*Acalypha indica* L.	*Curvularia lunata Phoma nebulosa*
7.	*Annona squamosa* L.	*Bipolaris papendorf Curvularia clavata*
8.	*Boerhavia diffusa* L.	*Botryodiplodia theobramae*
9.	*Butea monosperma* (Lamk.) Taub	*Botryodiplodia theobramae ,Fusarium equiseti Pestalotia sp. Cladosporium sphaerosperum*
10.	*Piper betle L.*	*Fusarium equiseti Gloesporium sp.*
11.	*Ficus benghalensis L.*	*Botryodiplodia theobramae ,Pestalotia sp.*
12.	*Spinacia oleracea L.*	*Fusarium moniliforme*
13.	*Mirabilis jalapa L.*	*Fusarium equiseti*
14.	*Basella alba L.*	*Colletotrichum capsici Botryodiplodia theobramae*
15.	*Polyalthia longifolia* Thw.	*Bipolaris hawainensis Fusarium*

		moniliforme
16.	*Argemone mexicana L.*	*Aspergillus nidulans*
17.	*Moringa oleifera* Lam.	*Fusarium moniliforme*
18.	*Vinca rosea L.*	*Fusarium oxysporum*
19.	*Embelica officianalis* Gaerth	*Botrydiplodia theobrmae*
20.	*Hygrophilla auriculata (*Schum). Heine	*Fusarium oxysporum*
21.	*Lawsonia inermis L.*	*Cladosporium sphaerospermum Fusarium equiseti*
22.	*Menth arvensis L.*	*Curvularia lunata*
23.	*Ocimum sanctum L.*	*Fusarium moniliforme*
24.	*Pergularidaemia* (Forsk). Chiov.	*Botrydiplodia theobramae*
25.	*Psoralea corylifolia L.*	*Alternaria alternata*
26.	*Rauvolfia serpentina L.* Bentham ex Kurz	*Macrophomina phaeseolina*
27.	*Sida cordifolia L.*	*Alternaria alternata*
28.	*Withania somnifera* Dunal.	*Alternaria alternata*
29.	*Merremia gangetica* (Linn) Cuf.	*Penicillium oxalicum Botrydiplodia theobramae*
30.	*Eclipta prostrata Linn.*	*Fusarium equiseti*
31.	*Oxalis corniculata* Linn.	*Fusarium equiseti*
32.	*Datura metal L.*	*Penicillium oxalicum*
33.	*Hibiscus rosa-sinensis* Linn.	*Colletotrichum capsici*
34.	*Bauhinia purpurea* Linn.	*Gleosporium sp. Drechslera hawaiiensis, Phoma nebulosa*
35.	*Mormordica charantia* Linn.	*Drechslera papendorfi*
36.	*Gossypium herbareum* Linn.	*Phoma exigua*
37.	*Mimosa pudica* Linn.	*Fusarium oxysporum*
38.	*Tabernemontana divericata* Roem and schult	*Curvularia seneqalensis*
39.	*Tephrosia purpurea (Linn).* Pers	*Alternaria alternata*
40.	*Piper nigrum L.*	*Fusarium moniliforme*
41.	*Portulaca oleracea L.*	*Fusarium miniliforme*
42.	*Raphanus sativus L.*	*Alternaria alternata*
43.	*Capparis zeylanica L.*	*Borty odiplodia theobramae*
44.	*Cleome gynandra L.*	*Fusarium oxysporum*
45.	*Aristolachia indica L.*	*Botryodiplodia theobrame Phoma exigua*
46.	*Cassia fistula L.*	*Curvularia seneqalensis*
47.	*Zingiber officinale* Rose	*Curvularia seneqalensis*
48.	*Vitex negundo*	*Curvularia lunata*
49.	*Mangifera indica* Linn.	*Curvularia lunata Drechslera rostrata Phoma nebulosa Phoma sorqhina*
50.	*Curcuma longa* Linn.	*Colletotrichum capsici*
51.	*Nerium indicum* mill	*Phoma exigua*
52.	*Carica papaya* Linn.	*Curvularia lunata*
53.	*Dalbergia sissoo* Roxb-hort	*Coleophoma empeteri*
54	*Bougainvillea spectabilis* Willd	*Curvularia clavata*

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