

SHORT COMMUNICATIONS

SURVEY OF AEROPHYLLO MYCOFLORA OF *Ocimum sanctum* PLANT IN RELATION TO ENVIRONMENTAL FACTORS

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ABSTRACT

Aeromycoflora over *Ocimum sanctum* plant was studied for one year. It was observed that fungal population was vary from season to season and month to month. Environmental factor play an important role for the distribution of the fungal spores. Total 17762 fungal spores were observed. 17315 air spores of 43 fungal types were observed over the field. Out of 43 fungal types 1 from Myxomycotina, 3 from zygomycotina, 10 from Ascomycotina, 2 from Basidiomycotina and 27 from Deuteromycotina were observed. Total 447 colonies of 33 fungal species belonging to 18 genera of fungi were isolated from the leaf surface mycoflora during the present investigation period. Out of 33 fungal species 01 from zygomycotina, 11 from ascomycotina, 19 from deuteromycotina and 02 from mycelia sterila.

Key words: Aeromycoflora, *Ocimum sanctum*, leaf surface mycoflora.

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1. INTRODUCTION

Aerobiological investigation have been carried out with special reference to diseases on crops, vegetable and fruits etc. Air consists of a mixture of permanent gases and water in different proportions, solid particles, pollen- grains and fungal spores. Aerobiology is a scientific discipline which deals with the studies of organisms or part of the organisms present in the air. Leaf surface is the platform of the numerous fungal spores present in the air. during suitable microhabitat these spores are settled down on this having platform and try to colonised. After settle down fungal spores, a traingular relationship appear among the micro-organisms, leaf surface and the environment. Tilak (1985) discuss the aerobiology and cereal crop. Tilak and Babu (1981) discuss the aerobiological approaches to leaf spot disease of bajra. Study of the leaf surface mycoflora in different crops and vegetables, done by the many scientists. Leben - (1961) studied micro-organism on Cucumber seedling. Navneet and Mehrotra (1987) studied phylloplane mycoflora of potato leaves in relation to climatic factors. Sahu and Tiwari (1994) studied arispora and leaf surface microflora of cauliflower.

2. MATERIALS AND METHODS

Ocimum sanctum plant grown in hindu families in our country. For the study of the air spora, Rotorod sampler was used (Perkins 1957). A rotorod sampler in which instead of moving the spores in the impacting surface in a current of air, the surfaces rotated so that it strikes the spores the volume of air swept can be calculated from the frontal area of the rod, the diameter through which it is turned and the number of revolutions for which it is run. For the leaf surface mycoflora, leaves were collected when the plants in seedling stage. Leaves of above plants were sampled at one month intervals. The collected leaves were placed in 250 ml of conical flask containing 75 ml of sterilized distilled water. The flask was hand shaken for 30 minutes to was used for the leaf surface mycoflora. One ml. of this suspension poured in to the petri plates containing Modified Martin's Medium. 5 petri plates were used at a time in each experiment. Then the plates were incubated at $25^{\circ} \pm 1^{\circ}$ in the incubation chamber for 6-7 days.

3. RESULT AND DISCUSSION

During the present investigation period it was observed that maximum fungal population was observed in winter season, due to favorable

isolated from the leaf surface mycoflora of *Ocimum sanctum* plant (Table 2). Out of 33 fungal species 1 from Zygomycotina, 11 from Ascomycotina, 19 from Deuteromycotina and 2 from Mycelia sterilia were isolated. The Fungal population is not

Table I : Showing Number of Aeromycoflora over *Ocimum sanctum* plant.

SN	Name of Fungi	Summer Season					Rainy Season					Winter Season					Total No. of Fungal Spores
		Mar.	Apr.	May	June	Total	July	Aug.	Sep.	Oct.	Total	Nov.	Dec.	Jan.	Feb.	Total	
1	Class:Myxomycotina Physarum	-	-	-	5	5	15	10	15	-	40	-	-	-	-	-	45
2	Class:Zygomycotina Circinella	-	-	-	-	-	-	-	30	30	100	-	20	-	120	150	
3	Cunninghamella	20	75	-	-	95	70	220	40	390	-	-	-	-	-	485	
4	Rhizopus	-	-	-	-	-	2285	345	55	2685	-	-	-	-	-	2685	
5	Class:Ascomycotina Amphisphaerella	-	10	-	-	10	-	-	-	-	-	20	-	-	20	30	
6	Ascotricha	-	-	-	-	-	-	30	-	30	-	-	-	-	-	30	
7	Aspergillus	285	300	-	-	585	-	1215	210	315	1740	340	90	-	430	2755	
8	Didymosphaeria	20	-	25	-	45	-	-	55	65	120	-	10	-	10	175	
9	Hypoxylon	-	-	-	-	-	-	-	-	-	-	10	25	25	60	95	
10	Leptosphaeria	-	25	-	-	25	30	-	30	-	60	-	-	10	10	95	
11	Melanospora	10	-	-	-	10	-	-	25	-	25	-	-	-	-	35	
12	Pleospora	-	-	-	-	-	-	-	25	10	35	-	10	-	10	45	
13	Sporormia	-	-	-	-	-	-	-	-	-	-	25	-	-	25	25	
14	Trematosphaeria	-	-	20	15	35	25	55	-	80	-	-	-	-	-	115	
15	Class:Basidiomycotina Rust spores	25	15	40	10	90	10	35	55	10	110	105	65	50	40	460	
16	Smut spores	45	-	10	15	70	25	-	-	25	50	25	-	10	-	155	
17	Class:Deuteromycotina Alternaria	10	25	-	-	35	10	-	20	10	40	05	10	25	40	115	
18	Beltraniella	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	
19	Bispora	-	-	-	-	-	-	-	-	-	-	-	20	-	20	20	
20	Botryodiplodia	-	-	-	-	-	-	-	-	-	-	-	10	15	25	25	
21	Chaetomium	-	-	-	-	-	-	-	-	-	-	-	5	-	5	40	
22	Cladosporium	510	225	-	315	1050	850	950	610	1055	3465	625	810	310	725	6985	

temperature and relative humidity, moderate in rainy season and minimum number of fungal population was recorded in summer season, possibly due to unfavorable temperature and relative humidity for mycoflora. The periodicity and occurrence of various Fungi in relation to environmental conditions are in confirmation with similar studies conducted by Verma and Khare(1987).

homogenous throughout the year and shows seasonal variation (Fig. 1 & Fig. 2).

Verma and Khare (1987) observed that maximum fungal population was observed in winter season. *Aspergillus niger*, *Aspergillus fumigatus*, *Cladosporium oxysporum*, *Alternaria alternata* were most frequent fungi on the leaf surface mycoflora of *Ocimum sanctum*. Similarly *Mucor* species *Aspergillus nidulence*, *Fusarium oxysporum*, *Nigrospora sphaerica* were frequent fungi.

Monthwise Distribution of Percentage Contribution of Total Aeromycoflora

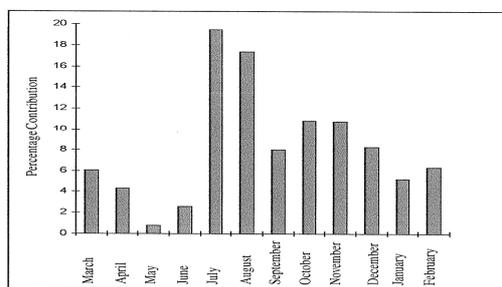


FIG - 1

17,315 fungal spores belonging to 43 fungal types were isolated from the rotorod sampler. Out of 43 fungal types, 18 fungal types were recorded during summer season (Table 1). 28 fungal types were recorded during rainy season and maximum 33 fungal types were recorded during winter season. 33 fungal species belonging to 18 genera of fungi were

Sahu (1995), Jadhav (1996), Tiwari (1999), Tiwari & Sharma(2008) have also reported that maximum fungal types were recorded during winter season, moderate during rainy season and minimum number of fungal types in summer season on Spinach, Rice, Wheat and airspora of Raipur respectively. Further it was also observed that rust spores, *Cladosporium*, *Nigrospora*, *Alternaria*, *Curvularia* and *Phaeotrichoconis* spores were observed as most frequent fungal types. Similar observation were also obtained by Pandey and Tiwari (1991) and Jadhav and Tiwari (1994).

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