

## Studies of aerophyllo mycoflora on *Ocimum sanctum* plant

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(Received: February 15, 2010; Accepted: March 30, 2010)

### ABSTRACT

Aeromycoflora over *Ocimum sanctum* plant was studied during July 1997 to June 1998. 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. It was also 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.

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

### INTRODUCTION

Air consist 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. Aerobiological investigation have been carried out with special reference to diseases on crops, vegetable and fruits etc. 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.

### MATERIAL AND METHODS

*Ocimum sanctum* plant grown in hindu families in our country. For the study of the air spora, Rotorod sampler was used. 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.

**Table 1: Showing percentage frequency of Aeromycoflora *Ocimum sanctum* plant**

S. No	Name of Fungi	% Frequency
1.	Physarun	33.33
2.	Circinetia	25.00
3.	Cuaningnameiia	50.00
4.	Rhizopus	25.00
5.	Amphisphaerella	16.56
6.	Ascotricha	8.33
7.	Aspergillus	58.33
8.	Dioyosphaeria	41.66
9.	Hyposyion	25.00
10.	Lepfosphaeria	16.66
11.	Melanospora	33.33
12.	Plesspore	8.33
13.	Spofomia	33.33
14.	Trenatosphaeria	100.00
15.	Rust spores	58.33
16.	Smut spores	66.65
17.	Alternaria	8.33
18.	Beltranjella	8.33
19.	Bispora	16.66
20.	Botyodipodia	25.00
21.	Chaetomium	91.66
22.	Cladosporum	8.33
23.	Corvnespora	66.66
24.	Curvutaria	25.00
25.	Diplodia	16.66
26.	Drechsiera	50.00
27.	Exosporium	25.00
28.	Baplosporella	8.33
29.	Parknessia	16.66
30.	Helminthosporium	16.66
31.	Heterosporium	33.33
32.	Memnoriella	100.00
33.	Nigrospora	16.66
34.	Periconia	8.33
35.	Pestatotia	75.00
36.	Phaetoichoconis	16.66
37.	Pilthomyces	8.33
38.	Spegazzinja	8.33
39.	Spiciaria	25.00
40.	Sporothrix	58.33
41.	Tetrapica	8.33
42.	Torula	50.00

**RESULTS AND DISCUSSION**

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. 28 fungal types were recorded during rainy season and maximum

**Table 2: Showing percentage frequency of Aeromycoflora *Ocimum sanctum* plant**

S. No	Name of Fungi	% Frequency
1.	Mucor species	66.66
2.	Aspergillus flavus	66.66
3.	Aspergillus fumigatus	100.00
4.	Aspergillus fuchersis	50.00
5.	Aspergillus niduians	66.66
6.	Aspergillus niger	100.00
7.	Aspergillus suphereus	33.33
8.	Aspergillus sydowii	33.33
9.	Aspergillus terreus	33.33
10.	Drechslera spicifera	25.00
11.	Pencillium funiculosum	33.33
12.	Penicillium species	25.00
13.	Allernaria alterneta	91.66
14.	Alterneria species	16.66
15.	Bartiania robillardicides	16.66
16.	Bispora species	8.33
17.	Botyodiphodes rheobroma	33.33
18.	Claciosporium cladosparaides	100.00
19.	Cladosproium oxysoprum	8.33
20.	Curvularia gericulata	16.66
21.	Curvularia lunela	41.66
22.	Curvularia oryzae	25.00
23.	Fusarium oxysporium	50.00
24.	Fusarium soiani	16.66
25.	Myrcethecium rcridium	16.65
26.	Nigrospora sphaerica	50.00
27.	Paecilomyces varipfii	8.33
28.	Phoma Exigua	8.33
29.	Phoma insidosa	8.33
30.	Trichotheciam roseum	16.66
31.	Trichoderma viriga	8.33
32.	Mycellia sterilla (Black)	33.33
33.	Mycellia sterilla (White)	16.66

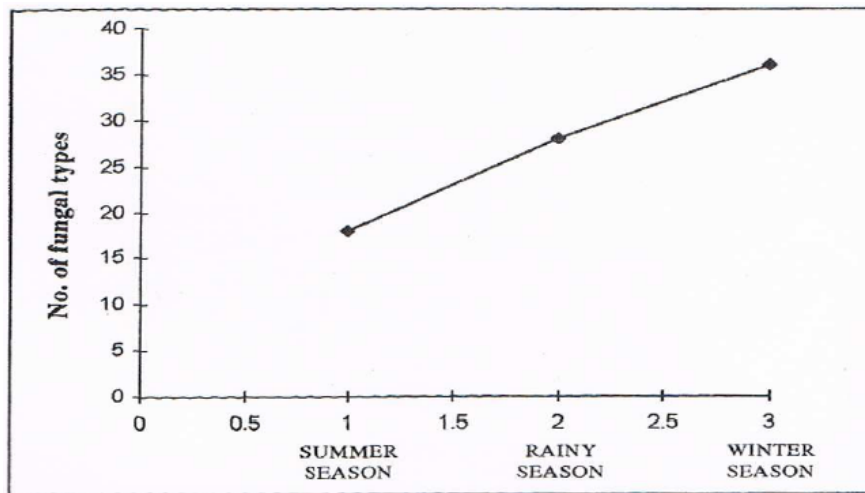


Fig. 1: Seasonal variation in Aeromycoflora

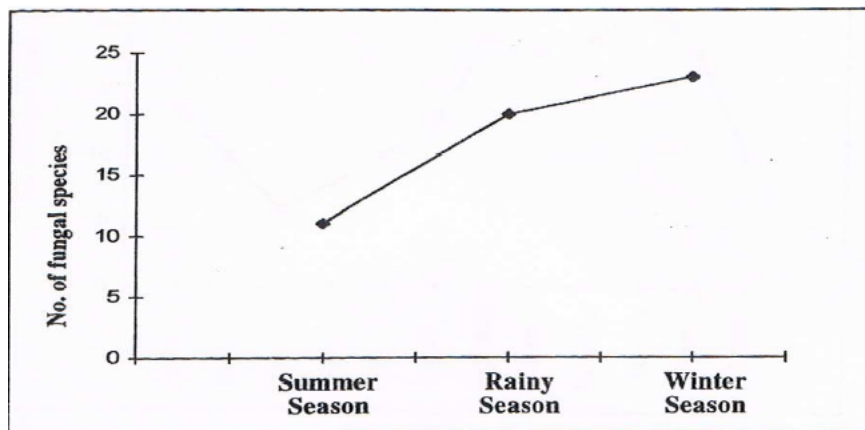


Fig. 2: Seasonal variation Leaf Surface Mycoflora

33 fungal types were recorded during winter season. 33 fungal species belonging to 18 genera of fungi were isolated from the leaf surface mycoflora of *Ocimum sanctum* plant. 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 homogenous throughout the year and shows seasonal variation.

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

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.

Sahu (1995), Jadhav (1996), Tiwari (1999) 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 observations were also obtained by Pandey and Tiwari (1991) and Jadhav and Tiwari (1994).

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