Journal of Phytology 2010, 2(8): 01–05
An Open Access Journal
ISSN: 2075-6240
Available Online: www.journal-phytology.com

REGULAR ARTICLE

SEASONAL VARIATION OF AEROMYCOFLORA OVER *OCIMUM SANCTUM* PLANT WITH SPECIAL REFERENCE TO WINTER SEASON

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SUMMARY

Aeromycoflora over *Ocimum sanctum* was studied with the help of Rotorod sampler. Total 17315 fungal spores represented 43 fungal types were observed during the present investigation period. Environmental factor play an important role for the distribution of the fungal spores. Out of 43 fungal types, Maximum numbers of fungi (33) were isolated during winter, moderate (28) during rainy and minimum (18) during summer season. In winter season 5300 fungal spores were recorded. Highest 1870 fungal spores were recorded in the month of November,1430 fungal spores were recorded in the month of December, 905 fungal spores during the January and 1095 fungal spores were recorded during the February month. The maximum number of spores of *Cladosporium* was recorded. On the contrary minimum number of *Belterniella* spores was observed.

Key words: *Alternaria*, *Ocimum sanctum*, Rotorod, fungal spores

K. Sharma. Seasonal Variation of Aeromycoflora over Ocimum sanctum Plant with Special Reference to Winter Season. J Phytol 2/8 (2010) 01-05.
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1. Introduction

Aerobiology is a scientific discipline which deals with the studies of organisms or part of the organisms present in the air. Aerobiological investigations have been carried out with special reference to diseases on crops, vegetable and fruits etc. Tilak (1984) discuss the aerobiology and cereal crop. Fungal organisms cause diseases in plants, animals, and human beings. They are responsible for deterioration of organic objects. Scientists have found that it is not the occurrence but quantum of inoculum or number of spores per unit area which has a direct effect on development of diseases in fields. The present paper deals with the aerobiological survey over *Ocimum sanctum* plant with environmental factors.

2. Materials and Methods

Ocimum sanctum plant grown in Hindu families in our country. Aeromycoflora over *Ocimum sanctum* plant was studied during July 1997 to June 1998. For the study of the air spora, Rotorod sampler was used (Perkins1957). 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 terned and the number of revolutions for which it is run.

3. Result and Discussion

17,315 fungal spores belonging to 43 fungal types were isolated from the rotorod sampler. The fungal population was not homogenous throughout the year and show seasonal variations. Seasonal variations in the concentration of fungal species take place due to change in the meteorological conditions. Out of 43 fungal types, 18 fungal types were recorded during summer season. 28 fungal types were recorded during rainy season and maximum 33 fungal types were recorded during winter season. In winter season 5300 fungal spores belonging to 33 fungal types were recorded. 1870 fungal spores belonging to 33 fungal types were recorded in the month of November1430

fungal spores belonging to 22 fungal types were recorded in the month of December.905 fungal spores belonging to18 fungal types were recorded during the January. On the contrary 1095 fungal spores belonging to18 fungal types were recorded during the February month (Table 1.).Month wise distribution of percentage contribution of aeromycoorganisms was also observed, maximum (19.46) in July and minimum (0.75) in the month of May. (Fig. 1). 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 *Oscimum sanctum.* Similarly *Mucor* species *Aspergillus nidulence, Fusarium oxysporum, Nigrospora sphaerica* were frequent fungi. Jadhav (1996) reported maximum fungal types during winter over rice field. Tiwari (1999) also observed maximum fungal types during winter from Raipur. Singh (2006) over Spinach, Tiwari and Sharma (2008) for leaf surface of *Ocimum sanctum*,Tiwari and Saluja (2009) in *Catharanthus roseus* have also reported higest fungal incidence during winter season, moderate during rainy season and minimum number of fungal types in summer season. Further it was also observed that *Cladosporum,Nigrospora,Alternaria,Curvularia* and *Phaeotrichoconis* spores where observed as most frequent fungal types. Similar observation was also obtained by Tiwari *et.al*. (2006). Uddin (2004) reported that *Penicillium* and *Aspergillus* were most dominant saprophytes.

Fig. 1: Monthwise distribution of percentage contribution of total aeromycoflora

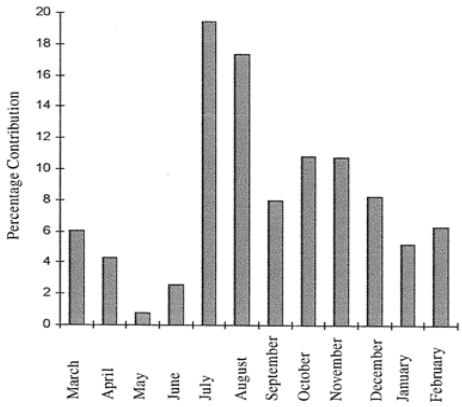

Table 1: Showing number of aeromycoflora over *Ocimum sanctum* plant

ame 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	
lass:Myxomycotina																
hysarum	-	-	-	5	5	15	10	15	-	40	-	-	-	-	-	45
lass:Zygomycotina																
ircinella	-	-	-	-	-	-	-	-	30	30	100	-	20	-	120	150
unninghamella	20	75	-	-	95	70	220	40	60	390	-	-	-	-	-	485
hizopus	-	-	-	-	-	2285	345	55	-	2685	-	-	-	-	-	2685
lass:Ascomycotina																
mphisphaerella	-	10	-	-	10	-	-	-	-	-	-	20	-	-	20	30
scotricha	-	-	-	-	-	-	-	30	-	30	-	-	-	-	-	30
spergillus	285	300	-	-	585	-	1215	210	315	1740	340	90	-	-	430	2755
idymosphaeria	20	-	25	-	45	-	-	55	65	120	-	10	-	-	10	175
ypoxylon	-	-	-	-	-	-	-	-	-	-	10	25	25	-	60	60
eptosphaeria	-	25	-	-	25	30	-	30	-	60	-	-	10	-	10	95
elanospora	10	-	-	-	10	-	-	25	-	25	-	-	-	-	-	35
eospora	-	-	-	-	-	-	-	25	10	35	-	10	-	-	10	45
porormia	-	-	-	-	-	-	-	-	-	-	25	-	-	-	25	25
rematosphaeria	-	-	20	15	35	25	55	-	-	80	-	-	-	-	-	115
lass:Basidimycotina																
ust spores	25	15	40	10	90	10	35	55	10	110	105	65	50	40	260	460
mut spores	45	-	10	15	70	25	-	-	25	50	25	-	10	-	35	155
lass:Deuteromycotina																
lternaria	10	25	-	-	35	10	-	20	10	40	05	10	25	-	40	115
eltraniella	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5
ispora	-	-	-	-	-	-	-	-	-	-	-	20	-	-	20	20
otryodiploidia	-	-	-	-	-	-	-	-	-	-	-	10	15	-	25	25
haetomium	-	-	-	-	-	-	10	-	5	15	20	5	-	-	25	40
ladosporium	510	225	-	315	1050	850	950	610	1055	3465	625	810	310	725	2470	6985

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	
23	Corynespora	-	-	-	-	-	-	-	-	-	-	20	-	-	-	20	20
24	Curvularia	25	-	10	25	60	-	-	40	65	105	75	70	-	15	160	325
25	Diplodia	-	-	-	-	-	-	10	20	-	30	-	10	-	-	10	40
26	Drechslera	-	-	-	-	-	-	-	-	-	-	-	-	30	10	40	40
27	Exosporium	20	20	-	-	40	-	-	-	30	30	75	-	25	25	125	195
28	Haplosporella	-	-	-	-	-	-	-	20	-	20	20	-	20	-	40	60
29	Harknessia	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
30	Helminthosporium	-	-	-	-	-	-	-	15	20	35	-	-	-	-	-	35
31	Heterosporium	-	-	-	-	-	10	15	-	-	25	-	-	-	-	-	25
32	Memnoniella	10	-	-	-	10	-	20	-	-	20	30	35	-	-	65	95
33	Nigrospora	30	45	25	25	125	40	55	65	45	205	175	25	280	125	605	935
34	Periconia	-	-	-	-	-	-	-	-	-	-	-	50	15	-	65	65
35	Pestalotia	-	-	-	-	-	-	-	-	-	-	-	10	-	-	10	10
36	Phaeotrichoconis	10	10	-	25	45	-	50	15	20	85	25	65	-	65	155	285
37	Pithomyces	-	-	-	-	-	-	-	15	30	45	-	-	-	-	-	45
38	Pyricularia	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5	5
39	Spegazzinia	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5
40	Spicaria	-	-	-	-	-	-	-	-	-	-	100	55	-	50	205	205
41	Sporothrix	25	-	-	10	35	-	-	-	65	65	75	25	35	25	160	260
42	Tetraploa	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5
43	Torula	-	-	-	-	-	-	20	30	15	65	20	-	20	45	55	120

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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	
	Class:Myxomycotina																
1	Physarum	-	-	-	5	5	15	10	15	-	40	-	-	-	-	-	45
	Class:Zygomycotina																
2	Circinella	-	-	-	-	-	-	-	-	30	30	100	-	20	-	120	150
3	Cunninghamella	20	75	-	-	95	70	220	40	60	390	-	-	-	-	-	485
4	Rhizopus	-	-	-	-	-	2285	345	55	-	2685	-	-	-	-	-	2685
	Class:Ascomycotina																
5	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	60
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
	Class:Basidimycotina																
15	Rust spores	25	15	40	10	90	10	35	55	10	110	105	65	50	40	260	460
16	Smut spores	45	-	10	15	70	25	-	-	25	50	25	-	10	-	35	155
	Class:Deuteromycotina																
17	Alternaria	10	25	-	-	35	10	-	20	10	40	05	10	25	-	40	115
18	Beltraniella	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5
19	Bispora	-	-	-	-	-	-	-	-	-	-	-	20	-	-	20	20
20	Botryodiploidia	-	-	-	-	-	-	-	-	-	-	-	10	15	-	25	25
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24	Curvularia	25	-	10	25	60	-	-	40	65	105	75	70	-	15	160	325
25	Diplodia	-	-	-	-	-	-	10	20	-	30	-	10	-	-	10	40
26	Drechslera	-	-	-	-	-	-	-	-	-	-	-	-	30	10	40	40
27	Exosporium	20	20	-	-	40	-	-	-	30	30	75	-	25	25	125	195
28	Haplosporella	-	-	-	-	-	-	-	20	-	20	20	-	20	-	40	60
29	Harknessia	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
30	Helminthosporium	-	-	-	-	-	-	-	15	20	35	-	-	-	-	-	35
31	Heterosporium	-	-	-	-	-	10	15	-	-	25	-	-	-	-	-	25
32	Memnoniella	10	-	-	-	10	-	20	-	-	20	30	35	-	-	65	95
33	Nigrospora	30	45	25	25	125	40	55	65	45	205	175	25	280	125	605	935
34	Periconia	-	-	-	-	-	-	-	-	-	-	-	50	15	-	65	65
35	Pestalotia	-	-	-	-	-	-	-	-	-	-	-	10	-	-	10	10
36	Phaeotrichoconis	10	10	-	25	45	-	50	15	20	85	25	65	-	65	155	285
37	Pithomyces	-	-	-	-	-	-	-	15	30	45	-	-	-	-	-	45
38	Pyricularia	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5	5
39	Spegazzinia	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5
40	Spicaria	-	-	-	-	-	-	-	-	-	-	100	55	-	50	205	205
41	Sporothrix	25	-	-	10	35	-	-	-	65	65	75	25	35	25	160	260
42	Tetraploa	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	5
43	Torula	-	-	-	-	-	-	20	30	15	65	20	-	20	45	55	120