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RESEARCH ARTICLE
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SCREENING OF FREQUENCY AND PERCENTAGE CONTRIBUTION OF AEROMYCOFLORA OVER BARLERIA PRIONITIS L.

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ABSTRACT
During the present investigation 57 fungal species belong to 27 gernera of fungi were isolated from the aeromycoflora of Barleria *prionitis* plants. Out of 57 fungal species 3 belong from Zygomycotina , 3 belong from Ascomycotina , 51 belong from Anamorphic fungi. During ecological study, some fungi *Syncephalastrum racemosum,Aspergillus fumigates, A. awamori, Alternaria alternata, Curvularia lunata, Cladosporum oxysporum, Nigrospora oryzae,Fusarium oxysporum,* and Mycelia Sterile black were most frequent while other are least frequent. During the present investigation seasonal and month wise percentage contribution of the aeromycoflora were also observed maximum percentage contribution of the aeromycoflora was observed in Winter season (40.87%) and maximum percentage contribution in the month of November (12.80%). Minimum percentage contribution was observed (22.86) in summer season and minimum percentage contribution in the month of May (4.60) was observed.

Key Word: Aeromycoflora Zygomycotina, Ascomycotina, Anamorphic

Introduction:

Aerobiology is a branch of science which deals with the source of organisms or the other material and their release into the atmosphere, dispersion, deposition and their impact on various kinds of living beings like plants, animals and human beings[1,3] . Fungal spores are an ever-present component of the atmosphere and are present in almost all seasons of the year [2]. Atmosphere is never free from the fungal spore. The fungal flora of air is not constant and is highly variable. The fungal population varies from season to season and month to month and day to day[10].

Nevertheless, sporulation and the dispersion of spores are closely related to variations in meteorological conditions [3-5]. Knowledge of the relationships between spore production and different environmental growth conditions, such as meteorological factors, can be used to effect more efficient and application of pesticides, or to improve diagnosis and treatment of respiratory allergic diseases [8-9].

During the present investigation frequency, percentage contribution of aeromycoflora over *Barleria prionitis* were carried out[11].

Materials and Methods:
During present studies aeromycoflora of above plant was observed fortnightly with the help of gravity petriplate methods.

Selection of plant
Barleria Prionitis is Medicinal and Religious Plant. belong to Family Acanthaceae .Medicaly Plant use for boils and Glandular Swellings.Leaves and Stem used for Cleaning Wounds, Whooping Cough, Dropsy and Anacsarcs,Strength the gum in Toothache. Therefore it was selected for present investigation and were cultivated in Botanical Garden of Govt. Science college Raipur for research purpose.

Gravity Petriplate Method.
Five petriplate containing PDA (Potato ,Dextrose ,Agar with Streptomycin 50 mg^{-1}) media were used for survey of aeromycoflora over the experimental plants for five minute at regular intetrval for 15 days than these petriplate were brought into the laboratory and incubate at 26+_ $1^{0\ c}$ in incubatiion chamber for 6-7 days . After the incubation period the fungi were counted, identified, and after this the pure culture. The spore are identified based on their characteristics such as shap, size and other morphological feature of spore, and literature can also be used for authentic identification.

Result and Discussion :
During present studies 57 fungal species (778 colonies) were isolated from the aeromycoflora of *Barleria prionitis***[Table1].** Among 57 fungal species 3 species from Zygomycotina, 3 species from Ascomycotina and 51 species from Anamorphic fungi were recorded (**Fig1**).
57 out of fungal species maximum 42 fungal species were observed during winter season, Minimum 28 fungal species was observed from summer season while, moderate 37 fungal species were observed from the rainy season.

Ecological Studies of Aeromycoflora
During the present investigation most frequency fungi were Syncephalastrum racemosum, Aspergillus niger, Aspergillus flavus, A.versicolar, A.fumigates , A. awamori , Alternaria alternate, Curvularia lunata, Cladosprium oxysporum, Nigrospora oryzae, Fusarium oxysporum and Mycelia sterile black.
On the contrary Frequent fungi were Rhizopus rhizodiformis,Chaetomium globosum ,Aspergillus niveus, Aspergillus terrus, Aapergillus ochraceu Aspergillus nidulans, Aspergillus nidulans var acristatus, Penicillum rugulosum , P. notatum, Alternaria radicina, A. citri, A.chlamydospora, Curvularia borreriae, Drechslera hawaiiensis, Colletorichum Dematium, Cladosprium cladosporiods. C. sphaerosprum,Nigrospora sphaerica, Fusarium moniliform Epicoccum purpurasecns, Uloclodium alternariae ,Corynespora cassicola, Microphomina sp.Diplococcium sp.
Where a least frequent fungi while Cunninghamella blackesleeana, Thielavia boothi, Thielavia terricola, Aspergillus nidulens var, latus, penicillium purpurogenum, Alternaria brassicola, A.humicola, Curvularia eragrostidis, C. pallescens, C. sengealensis,C. ovoidea, C.sengealensis, C. lunata var , aeria, Drechslera australiensis, Paecilomyces varioti, Periconis sp.,Pestalotiopsis glandicola, Pithomyces graminicola ,Glioclodium viride, Trichoderma sp. and Monodicyts fluctuate.

Contribution of Aeromycoflora:
Maximum percentage contribution of fungal species was observed in winter season (40.87) while minimum percentage Contribution(22.86) in summer season. The percentage contribution was 36.76 during rainy season (**Fig 2**).
During the present investigation month wise percentage contribution was also observed (**Fig3**). Maximum percentage contribution (12.80) was observed in November month while the minimum

percentage contribution (4.60) was observed in May month. The result also indicates marked variation in the percentage contribution. During summer season, the percentage contribution of Zygomycotina was 3.40. Ascomycotina was 3.40 and Anamorphic fungi was 93.20 (Fig3).In Rainy season, the total percentage contribution 1.75, 98.25 of Zygomycotina and Anamorphic fungi while Ascomycotina were totally absent. Similarly the percentage contribution in winter season were 0.62,1.25 and 98.17 was reported.from zygomycotina, Ascomycotina and Anamorphic fungi. Month wise percentage contribution of each class in different month was also observed (**Table 3**).

The class wise percentage contribution in july 2.45 from Zygomycotina, 97.55 from Anamorphic Fungi[**Table4**].in August 100.00 from Anamorphic Fungi, in September ,5.50 from zygomycotina 94.50 from Anamorphic Fungi , in October month 100.00 frrom Anamorphic Fungi , in December 100.00 from Anamorphic Fungi in January 1.23 from Zygomycotina and 98.77 from Anamorphic Fungi, in February 8 from Ascomycotina and 92.00 from Anamorphic Fungi, in March month 6.25 from Zygomycotina, 6.25 from Ascomycotina, 87.5 from Anamorphic Fungi, in April 100.00 from Anamorphic Fungi in May 8.33 from Zygomycotina, 5.55 from Ascomycotina, 86.12from Anamorphic Fungi in june 2.25 from Ascomycotina, 97.75 from Anamorhic Fungi were recorded. It was also observed that the percentage contribution of class Zygomycotina was maximum 3.4 during summer season, while minimum percentage contribution 0.62 was observed during in winter season.

Similarly, the percentage contribution of Ascomycotina was maxiumum (3.4) in summer season and minimum percentage contribution (1.25) was maxium in rainy season (98.2) and the minimum percentage contribution(93.2) was in summer season. Month wise contribution of each class was also recorded (Table3). The percentage contribution of the Zygomycotin was 1.6 Ascomycotina 1.26 and Anamorphic fungi were 97.04. Month wise percentage contribution of each class of aeromycoflora was also observed .The percentage contribution of Zygomycotina was 15.35, 23.00, 7.69,7.69,23.07 in July, September, November, Januray, March and May. The maximum percentage contribution (23.14) was observed in March and May.Minimum percentage contribution (7.69) was recorded in the November and January month. In Ascomycotina ,the maximum percentage contribution (40.90) wasobserved during the March month, and the minimum percentage contribution (4.50) was recorded during june month. The percentage contribution of class Anamorphic Fungi was 10.55in July, 8.07 in August, 6.88 in September,11.63 in October, 13.15 in November, 11.55 in December, 10.59 in January , 6.09 in Februrary , 5.56 in March, 5.96 in April, 4.15 in May and 5.82 in the June month.

Conculsion

Present investigation revealed that the percentage contribution of the aeromycoflora over *Barleria Prionitis* , Novermber very pleasant weather with moderate temperature and high humidity is expected ideal for rapid proliferation and enhancement of the growth of diverse group of fungal organism. Impact of airborne fungal spores including their release, dissemination, deposition and effect is of great significant to identify the health hazards and physiological disorders in plants..

Table No1: Showing Number of Colonies of Aeromycoflora over *Barleria prionitis Plant*

S.NO	Name of FUNGI	RAINY	WINTER	SUMMER	GRAND TOTAL
	ZYGOMYCOTINA				
1	*Cunninghamella blakesleeana*	1			1
2	*Rhizopus rhizopodiformis*		1	1	2
3	*Syncephalastrum racemosum*	4	1	5	10
	ASCOMYCOTINA				
4	*Chaetomium globosum*		4	3	7
5	*Thielavia boothi*			1	1
6	*Thielavia terricola*			2	2
	ANAMORPHIC FUNGI				
7	*Alternaria alternate*	23	11	6	40

8	*A. brassicola*		7		7
9	*A. chlamydospora*	5			12
10	*A. citri*	16			19
11	*A. humicola*			1	1
12	*A. radicina*	7	3		10
13	*Aspergillus nidulans var. latus*			2	2
14	*A. nidulans var. acristatus*		1	4	5
15	*A. awamori*				13
16	*A.s flavus*	17	18	26	61
17	*A.fumigates*	6	12	34	52
18	*A. nidulans*		8	5	13
19	*A. niger*	25	12	14	51
20	*A. ochraceus*	6	7		13
21	*A. niveus*	3		6	9
22	*A. terreus*	10	7		17
23	*A. versicolor*	20	13	3	36
24	*Cladosporium cladosporioides*	6	22		28
25	*Cladosporium oxysporum*	10	16	15	41
26	*C. sphaerospermun*	11	20		31
27	*Colletotrichum dematium*	3	5		8
28	*Corynespora cassiicola*	10	2		12
29	*C. borreriae*	1	5		6
30	*C. clavata*	15	18	6	39
31	*C. eragrostidis*			3	3
32	*C. lunata var. aeria*	7			7
33	*C. lunata*	11	18	7	36
34	*C.ovoidea*		3		3
35	*C.pallescens*		2		2
36	*C. senega lensis*		2		2
37	*Diplococcium sp.*		5	14	19
38	*Drechslera autstraliensis*			3	3
39	*Drechslera hawaiiensis*	2	7		9
40	*Epicoccum purpurascens*	3	5		8
41	*Fusarium moniliforme*	2	8		10
42	*F.oxysporum*	18	9	5	32
43	*Glioclodium viride*	2			2
44	*Macrophomina sp.*	5		3	8
45	*Monodictys fluctuate*			3	3
46	*Nigrospora oryzae*	5	13	3	21
47	*Nigrospora sphaerica*	1		4	5
48	*Paecilomyces varioti*	3			3
49	*Penicillium purpurrogenum*		1		1
50	*P.notatum*	3	9		12
51	*P. ruguoasum*		1	5	6
52	*Periconia sp.*	1			1
53	*Pestatotiopsis glandicola*		2		2
54	*Pithomyces graminicola*		2		2
55	*Trichoderma sp.*		7		7
56	*Ulocladium alternariae*		7	2	9
57	*Mycelia sterilia black*	6	4	3	13

TABLE 2: Showing Percentage Frquency of Aeromycoflora Of *Barleria Pirionitis*

S.No.	NAME OF FUNGI	Percentage frequency
1	*Cunninghamella blackesleeana*	33.33
2	*Rhizopus rhizopodiformis*	66.66
3	*Syncephalastrum raceomosum*	100.00
4	*Chaetomium globosum*	66.66
5	*Thielavia boothi*	33.33
6	*Thielavia terricola*	33.33
7	*Aspergillus nidulans var. latus*	33.33
8	*A. nidulans var. acristatus*	66.66
9	*A. awamori*	100.00
10	*A. flavus*	100.00
11	*A. fumigates*	100.00
12	*A. nidulans*	66.66
13	*A. niger*	100.00
14	*A. ochraceus*	66.66
15	*A. niveus*	66.66
16	*A. terreus*	66.66
17	*Aspergillus versicolor*	100.00
18	*Alternaria alternate*	100.00
19	*A. brassicola*	33.33
20	*A. chlamydospora*	66.66
21	*A.citri*	66.66
22	*A. humicola*	33.33
23	*A. radicina*	66.66
24	*Cladosporium cladosporioides*	66.66
25	*C. oxysporum*	100.00
26	*C. sphaerospermum*	66.66
27	*Colletotrichum dematium*	66.66
28	*Corynespora cassiicola*	66.66
29	*Curvularia borreriae*	66.66
30	*C. clavata*	100.00
31	*C. eragroastidis*	33.33
32	*C. lunata var. aeria*	33.33
33	*C.lunata*	100.00
34	*C. ovoidea*	33.33
35	*C. pallescens*	33.33
36	*C. senegalensis*	33.33
37	*Diplococcium sp*	66.66
38	*Drechslera autstraliensis*	33.33
39	*Drechslera hawaiiensis*	66.66
40	*Epicoccum perpurascens*	66.66
41	*Fusarium moniliforme*	66.66
42	*F.oxysporum*	100.00
43	*Glioclodium viride*	33.33
44	*Macrophomina sp.*	66.66
45	*Monodictys fluctuate*	33.33
46	*Nigrospora oryzae*	100.00
47	*Nigrospora sphaerica*	66.66
48	*Paeceilomyces varioti*	33.33

49	*Penicillium purpurogenum*	33.33
50	*P.notatum*	66.66
51	*P. rugulosum*	66.66
52	*Periconia sp*	33.33
53	*Pestalotiopsis glandicola*	33.33
54	*Pithomyces graminicola*	33.33
55	*Trichoderma sp.*	33.33
56	Ulocladium alternariae	66.66
57	Mycelia sterilia black	100.00

TABLE 3: The Month wise Percentage Contribution Of Each Class Aeromycoflora Of *Barleria* *Prionitis*

S.No	NAME OF CLASS	RAINY SEASON				WINTER SEASON				SUMMER SEASON			
		July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	*June*
1	Zygomycotina	2.4	-	5.50	-	1.00	-	1.23	-	6.25	-	8.33	-
2	Ascomycotina	-	-	-	-	-	-	-	8.00	6.25	-	5.55	2.2
3	Anamorphic Fungi	97.55	100	94.50	100	99.99	100	98.72	92.00	87.50	100	86.12	97.75

TABLE 4: The Percentage Contribution Of Aeromycoflora Of Each Class In All Season Over *Barleria Prionitis*

S.No	NAME OF CLASS	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
1	Zygomycotina	15.35	-	23.00	-	7.69	-	7.69	-	23.14	-	23.13	-
2	Ascomycotina	-	-	-	-	-	-		18.18	40.90	-	36.36	04.54
3	Anamorphic Fungi	10.55	8.07	6.88	11.63	13.15	11.55	10.56	6.09	5.56	5.96	4.15	5.82

Fig 1 : Class wise Distribution of Aeromycoflora in Different Season

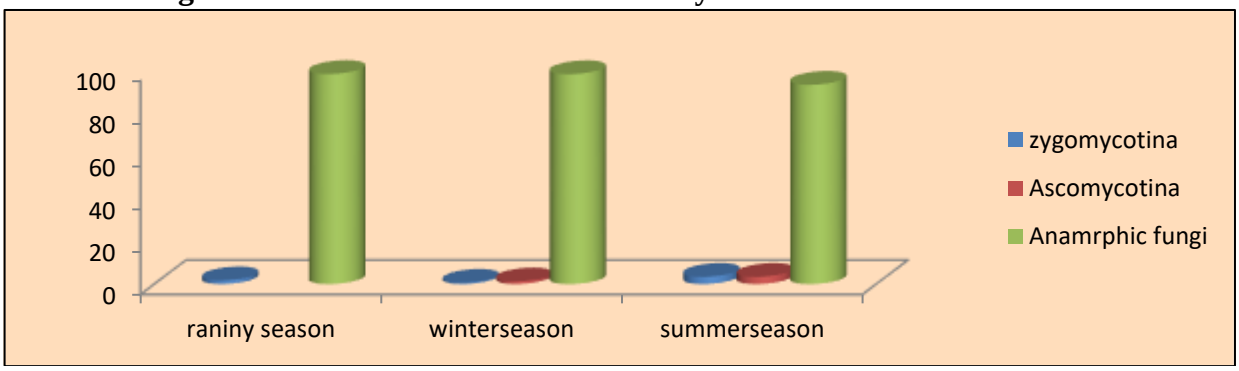
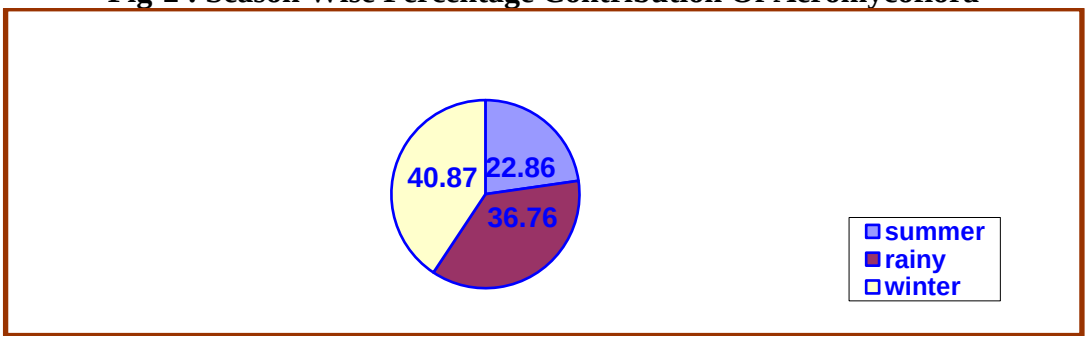


Fig-2 : Season Wise Percentage Contribution Of Aeromycoflora



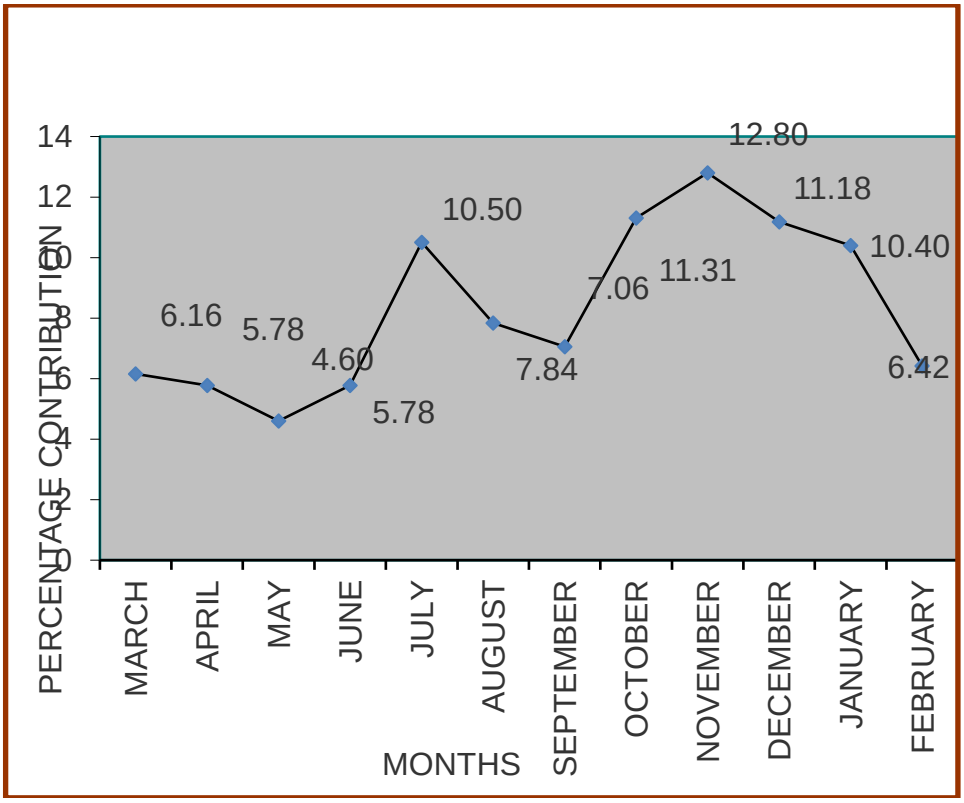
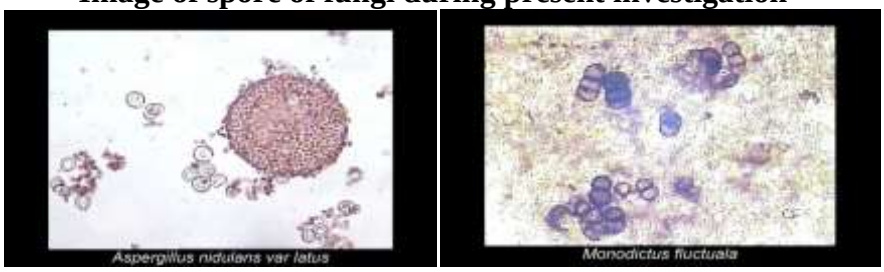
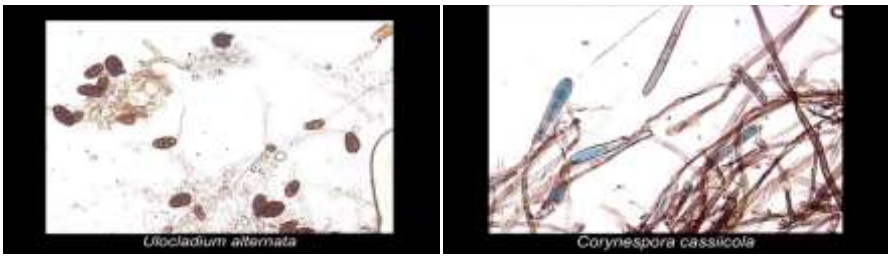


Fig-3: MONTHWISE PERCENTAGE CONTRIBUTION OF AEROMYCOFLORA, Biometeorology

Image of spore of fungi during present investigation





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