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Aeromycoflora of Fruit and Vegetable Market of Bhatapara Region.

Dr.Diksha Khare*

*Govt N.PG. College, Raipur, Chhattisgarh, 492001, INDIA

***Corresponding Author:** Dr.Diksha Khare
*Govt. Nagarjun PG College,Raipur, Botany Department .dr dikshakhare @ gmail .com

ABSTRACT
During the present investigation percentage contribution in July was 7.24 from Zygomycotina, and 91.80 from Anamorphic Fungi. In August, 100.00 of Anamorphic Fungi, in Spetmber, 100.00 of Anamorphi**c** Fungi, in October, 100.00 of Anamorphic Fungi were recorded. In August, September and October month, Zygomycotina were totally absent. In November, 2.70 from Zygomycotina and 93.20 from Anamorphic Fungi, in December 100 from Anamorphic Fungi, and 90.40 from Anamorphic Fungi in June, 97.22 from Anamorphic Fungi was recorded

Key Word: Aeromycoflora Zygomycotina, Ascomycotina, Anamorphic

INTRODUCTION

Aerobiology is a branch of science which deal with the source at organism or the other materials and their release, dispersion and deposition into the atmospheric and their impact various kinds of living system life amused, plants and human beings air is not a medium for microorganism but is carrier of a particulate matter dust and droplets which remain generally laden with micro organism [1]. The fungal flora al air is not constant and is highly variable. The fungal population varies [1-2]. From session to season and month to month and day to day. Biodiversity of fungi is essential for anyone collecting or monitoring any fungi. Fungal spores are an ever-present component of the atmosphere and are present in almost all seasons of the year [2]
Nevertheless, sporulation and the dispersion of spores are closely related to variations in meteorological conditions [3]
The numerous earth vegetables, underground vegetables, herbage vegetables and fruit vegetables vegetable market were found to be infected by various fungi.Fruits and vegetables supply vitamins, minerals, dietary fibers that function as antioxidants, phytoestrogens and anti-inflammatory agents. Vegetables are rich in vitamin A, vitamin C, fiber, folate and potassium [4].

Materials and Methods:

During present studies aeromycoflora of above fruit and vegetable market was observed fortnightly with the help of gravity petriplate method.

Selection of Aera

Selection of knish upaj vegetable and fruit market of bhatapara is big market and have different section for fruit and vegetable .For present studies selected area have distribution section for vegetable and fruit from june to Nov month that have huge collection and sale

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 mentied the pure cultrate 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

$$\text{Percentage frequency} = \frac{\text{No. of observation in which species appeared}}{\text{Total No. of observation}} \times 100$$

$$\text{Percentage contribution} = \frac{\text{No. of colonies of a species in the observation taken together appeared}}{\text{Total No. of colonies}} \times 100$$

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Result and disusion

Month wise percentage contribution of each class in different month was also observed. The percentage contribution in July was 7.24 from Zygomycotina, , and 91.80 from Anamorphic Fungi. In August, 100.00 of Anamorphic Fungi, in Spetmber, 100.00 of Anamorphi**c** Fungi, in October, 100.00 of Anamorphic Fungi were recorded. In August, September and October month, Zygomycotina and Ascomycotina were totally absent. In November, 2.70 from Zygomycotina and 93.20 from Anamorphic Fungi, in December 100 from Anamorphic Fungi, and 90.40 from Anamorphic Fungi in June, 2.77 from Ascomycotina**,** 97.22 from Anamorphic Fungi was recorded (**Table 1**).

During present period of investigation, the percentage frequency of was also observed. *Chaetomium aureum, Aspergillus niger, Aspergillus flavus, Penicillium rugulosum, Curvularia lunata, Curvularia clavata, Alternaria citri, Alternaria alternata, Cladosporium oxysporum, Cladosporium cladosporioids,* Mycelia sterila while where most frequent fungi. On the contrary moderate frequent fungi were *Choaenephora cucurbitarum, Mucor sp*., *Rhizopus rhizopodiformis, Aspergillus ustus, Aspergillus awamori, Aspergillus nidulans, Curvularia eragrostidis, Curvularia oryzae, , Nigrospora oryzae, Fusarium oxysporum, Colletotrichum dematium,* Mycelia sterile black. While least frequent fungi were, *Aspergillus stellatus, Aspergillus nidulans var. acristatus, Alternaria chlamydospora, Penicillium notatum, Curvularia senegalensis, sp.* (Table 2).

Atmosphere is never free from the fungal spore but there occurrence varies day to day, fungal spore are always present in the air, fungal spore varies time, season and locality. The meteorological data was present in the **Table No.3** Maximum number of fungal population was recorded during winter season due to favorable temperature (28.46ºC). Moderate number of fungal species during rainy season due to temperature slightly favorable (32.86ºC). Minimum number of fungal population in summer season was due to unfavorable temperature (38.47ºC). The influences of Temp, RH and RAF on TNC were analyses statistically through linear correlation between total numbers of colony (TNC) and were shown in **equation1, 2, 3.** The regression with temperature is quite good about 0.909, while with rainfall is about 0.454 that shows that temperature effect more on the spore of related fungi while effect of rainfall is low as due heavy rainfall flashed out the spore. The effects by sampling time were also effect during rainy season if it carried out in rainy time than effect on the data. The moderate relation of RH on TNC was 0.627.Althrough some author also state the significance of the correlation with humidity on the number of spore.

PC = 52.70536(±3.32138) -0.15548(±0.04884) TEMP, R = 0.90946, N=6 {1}
PC = 84.2084 (±14.83363) -0.32648 (±0.21813) RH, R = 0.62781, N=6 {2}
PC = -8.521 (±118.99382) + 1.45135 (±1.74981) RAF, R = 0.45371, N=6 {3}

CONCUSION

The analysis of data indicates that concentration of airborne fungi over vegetable and fruit market is environment dependent is very high and quite variable depending on the climatic conditions. The seasonal climate had positive variations of the influence on occurrence of aeromycoflora. Winter and rainy months registered maximum contibution of fungal spores due to favorable growth and sporulating conditions for fungi and availability of suitable.

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Table No.1 Showing Total Number of Colonies of Aeromycoflora of Different Month

	Name Of Fungi	June	July	Aug	Sep	Oct	Nov	Total
	ZYGOMYCOTINA							
1	*Cunninghamella blakesleeana*		1					1
2	*Rhizopus rhizopodiformis*	1						1
3	*Syncephalastrum racemosum*		1		3		1	5
	ANAMORPHIC FUNGI							
1	*Alternaria alternata*	3	7	5	3	8	1	27
2	*Alternaria chlamydospora*		5	10	4	6		25
3	*Alternaria radicina*		5	10	4	6	10	35
4	*Aspergillus flavus*	6	6	5	2	4	3	26
5	*Aspergillus fumigatus*	7	4	2	6			19
6	*Aspergillus nidulans*						5	5
7	*Aspergillus niger*	4	5	10	4	6	4	23
8	*Aspergillus terreus*		4	6			4	14
9	*Aspergillus versicolor*	2	11	8	1		5	27
10	*Cladosporium cladosporioides*					6	6	12
11	*Cladosporium oxysporum*		5	5			5	15
12	*Curvularia clavata*	2	2	5	8	6		23
13	*Curvularia lunata*	2	3	5	3		3	13
14	*Curvularia pallescens*					2		2
15	*Diplococcium sp.*		2		3	4		9
16	*Epicoccum purpurascens*				2	1	2	5
17	*Fusarium oxysporum*		3	5	4	6	3	21
18	*Nigrospora oryzae*	3	2			3	2	10
19	*Penicillium notatum*		3					3
20	*Pestatotiopsis glandicola*					1	2	3
21	*Mycelia sterilia black*	1	2	1	3			7

TABLE.NO. 2 Showing percentage contribution of Different Fungi in Different Season and Month

	NAME OF FUNGI	Frequency %
	ZYGOMYCOTINA	
1	*Cunninghamella blakesleeana*	16.66
2	*Rhizopus rhizopodiformis*	16.66
3	*Syncephalastrum racemosum*	50
	ANAMORPHIC FUNGI	
1	*Alternaria alternata*	100
2	*Alternaria chlamydospora*	66.66
3	*Alternaria radicina*	83.33
4	*Aspergillus flavus*	100
5	*Aspergillus fumigatus*	83.33
6	*Aspergillus nidulans*	16.66
7	*Aspergillus niger*	100
8	*Aspergillus terreus*	33.33
9	*Aspergillus versicolor*	83.33
10	*Cladosporium cladosporioides*	16.66
11	*Cladosporium oxysporum*	50
12	*Curvularia clavata*	83.33
13	*Curvularia lunata*	83.33
14	*Curvularia pallescens*	16.66
15	*Diplococcium sp.*	50
16	*Epicoccum purpurascens*	50
17	*Fusarium oxysporum*	83.33
18	*Nigrospora oryzae*	66.66
19	*Penicillium notatum*	16.66
20	*Pestatotiopsis glandicola*	33.33
21	*Mycelia sterilia black*	66.66

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TABLE.NO. 2 Showing Densities of Different Fungi in Different Season and Month

	Name of Fungi	June	July	Aug	Sep	Oct	Nov	Total
	ZYGOMYCOTINA							
1	*Cunninghamella blakesleeana*		1.44					1
2	*Rhizopus rhizopodiformis*	3.33						1
3	*Syncephalastrum racemosum*		1.44		6.38		1.81	5
	ANAMORPHIC FUNGI							
1	*Alternaria alternata*	10	10.1	6.49	6.38	13.55	1.81	27
2	*Alternaria chlamydospora*		7.29	12.98	8.514	1.016		25
3	*Alternaria radicina*		7.29	12.98	8.514	1.016	18.18	35
4	*Aspergillus flavus*	20	8.69	6.49	4.22	6.79	5.45	26
5	*Aspergillus fumigatus*	23.33	5.79	2.59	6			19
6	*Aspergillus nidulans*						9.09	5
7	*Aspergillus niger*	13.33	7.29	12.98	8.514	1.016	7.27	23
8	*Aspergillus terreus*		5.79	7.79			7.27	14
9	*Aspergillus versicolor*	6.66	15.94	10.38	2.12		9.09	27
10	*Cladosporium cladosporioides*					1.016	10.09	12
11	*Cladosporium oxysporum*		7.24	6.49			9.09	15
12	*Curvularia clavata*	6.66	2.9	6.49	17.02	1.016		23
13	*Curvularia lunata*	6.66	4.33	6.49	6.38		5.45	13
14	*Curvularia pallescens*					3.39		2
15	*Diplococcium sp.*		2.9		6.38	6.79		9
16	*Epicoccum purpurascens*				4.22	1.67	5.45	5
17	*Fusarium oxysporum*		4.34	6.49	8.514	1.016	5.45	21
18	*Nigrospora oryzae*	10	2.9			5.08	3.66	10
19	*Penicillium notatum*		4.343					3
20	*Pestatotiopsis glandicola*					1.69	3.66	3
21	*Mycelia sterilia black*	3.33	2.89	1.79	6.38			7
	TOTAL	30	69	77	47	59	55	324

Table 3 Month wise Meteorological data

S.No	Month	Temperature		Relative Humidity	Rainfall [mm]
		Maximum	Minimum		
1	June	35.00	25.9	60.00	000.00
2	July	32.80	24.3	61.50	026.00
3	August	28.10	24.4	60.00	031.00
4	September	34.20	24.4	47.50	011.60
5	October	29.80	19.3	38.00	004.20
6	November	28.20	13.8	34.00	008.90

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