



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 6, June 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.118

9940 572 462

6381 907 438

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Aeromycological Profile of Common Vegetable Market of Gondpipari Town, Chandrapur(MS), India.

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ABSTRACT:The Fungi grow in diverse habitats in nature. It is found in almost every available habitat on the earth. Many fungi grow on food material like bread, jam, jelly, pickle, fruits, vegetables etc and they contaminate foodstuff. Fungi are ubiquitous in nature present all the time in air that we breathe and cause various respiratory disorder to human being. Therefore, present investigation was done to identify and study aeromycoflora of common vegetable market of gondpipari town, Chandrapur. Present investigation is done for the period of six month from July 2018 to December 2018 by using “Rotorod Air Sampler” the total 20 fungalspores’ types were identified in six month of investigation and some other types and unidentified spores’ type have been identified from market. Commonly occurring spores in the market were found are Alternaria, Aspergillus, Helmithosporium, Mucor, Cladosporium, Rhizopus, Nigrospora etc.

KEYWORDS: Aeromycoflora, Vegetable market, Respiratory Disorder, Contamination, Spores.

I. INTRODUCTION

Bio pollutant such as bacteria, virus, fungal spores, pollen grains occur in different environmental condition are the major cause of different human disorder. Specially airborne fungal spore recognized a pollutant are important in the cause of diseases like asthma, bronchitis and other respiratory disorder (Bajaj, 1998; Durham, 1998; Verma and George, 1997). Various researcher work has been done to study aeromycological profile of different area and to study airborne fungal spores and its impact on hazardous effect on human beings/ The fungal spores found everywhere and vary place to place and show great variation in their composition and concentration. (Khilare and Chitnavis, 2002; Sgsdhar et al., 2002; Tilak, 2009). By the deposition, colonization and growth on vegetables the fungal spores spoil and reduce the market value of vegetable and after the exposure to human beings can cause various allergic and respiratory problems and other health hazards. (Chandel, 2002). Therefore, present investigation is done to understand and identify the concentration and composition of different fungal spore types in common vegetable market of Gondpipari town.

II. MATERIAL AND METHODS

The aeromycological investigation is done from July 2018 to December 2018 in the common vegetable market of gondpipari town of Chandrapur district by using “Rotorod air sampler”. The air sampling is carried out on daily basis and data is collected for above said period. The sampler is run in the morning at 7 am and evening at 6 pm for 30 minutes each. After that slide is prepared and identified with help of available literature (Barnett, 1969; Ellis, 1949; Hunter and Barnett, 1987; Nagamani, et al., 2005).



III. RESULT AND DISCUSSION

The present investigation was aim to study the aeromycofloral profile of common vegetable market of gondpipari town. During the three month of investigation various fungal spore types found was 5895/m³. There are 20 different fungal spores types identified. Other than fungal spore different bioparticle along with unidentified spore type was 1625/m³. Table number 1 and 2 indicate that percentage of contribution of deuteromycotina is higher 52.42% followed by Zygomycotina which was 13.06%, and least percentage of contribution shown by basidiomycotina was 6.96%, where as other types 9.58% and unidentified group was 17.98%. Highest concentration among fungus spores was found to be of Aspergillus (14.33%) after this Alternaria (7.72%), Rhizopus(7.04%),Biospora(4.66%),Penicillium(3.90%),Mucor(3.82%),Exosporium(3.22%),Cladosporium(2.71%), Rust spores (2.63%). The less contribution of fungal spores found was of nigrospora (0.76%), Fusarium (0.68%) and Helmithosporium (1.87%).The result is also shown in the various investigation done by reserchers Jadhav and Kunjam (2009) in Raipur, Chauhan and Kulshrestha (2006)in agra, kakade and kakade (2012) in Nagpur.

Table-1: Aeromycofloral profile in common vegetable market of Gondpipari town from July 2018 to December 2018.

Sr. No.	Spore Type	Spore / Cubic meter of air	% of individual Aerospora from July2018 to December 2018
I	Zygomycotina		
1	Rhizopus	415	7.04
2	Mucor	225	3.82
3	Albugo	130	2.21
II	Basidiomycotina		
4	Rust spore	155	2.63
5	Smut spore	135	2.29
6	Basidiospore	120	2.04
III	Deuteromycotina		
7	Alternaria	455	7.72
8	Aspergillus	845	14.33
9	Cladosporium	160	2.71
10	Fusarium	40	0.68
11	Biospora	275	4.66
12	Exosporium	190	3.22
13	Sporidesmium	210	3.56
14	Penicillium	230	3.90
15	Heterosporium	165	2.80
16	Fusariella	120	2.04
17	Nigrospora	45	0.76
18	Helminthosporium	110	1.87
19	Memnoniella	120	2.04
20	Pithomyces	125	2.12
IV	Other Types		
21	Hyphal Fragment	350	5.94
22	Epidermal Hair	40	0.68
23	Insect part	140	2.37
24	Pollen Grain	35	0.59



V	Unidentified	1060	17.98
	Total	5895	100

Table-2: Total number of spore found in each group.

Sr. No.	Spore Type	Total Number of spore	Spore/m ³	Percentage of Contribution
1	Zygomycotina	3	770	13.06
2	Basidiomycotina	3	410	6.96
3	Deuteromycotina	14	3090	52.42
4	Other Type	4	565	9.58
5	Unidentified	1	1060	17.98
	Total	25	5895	100

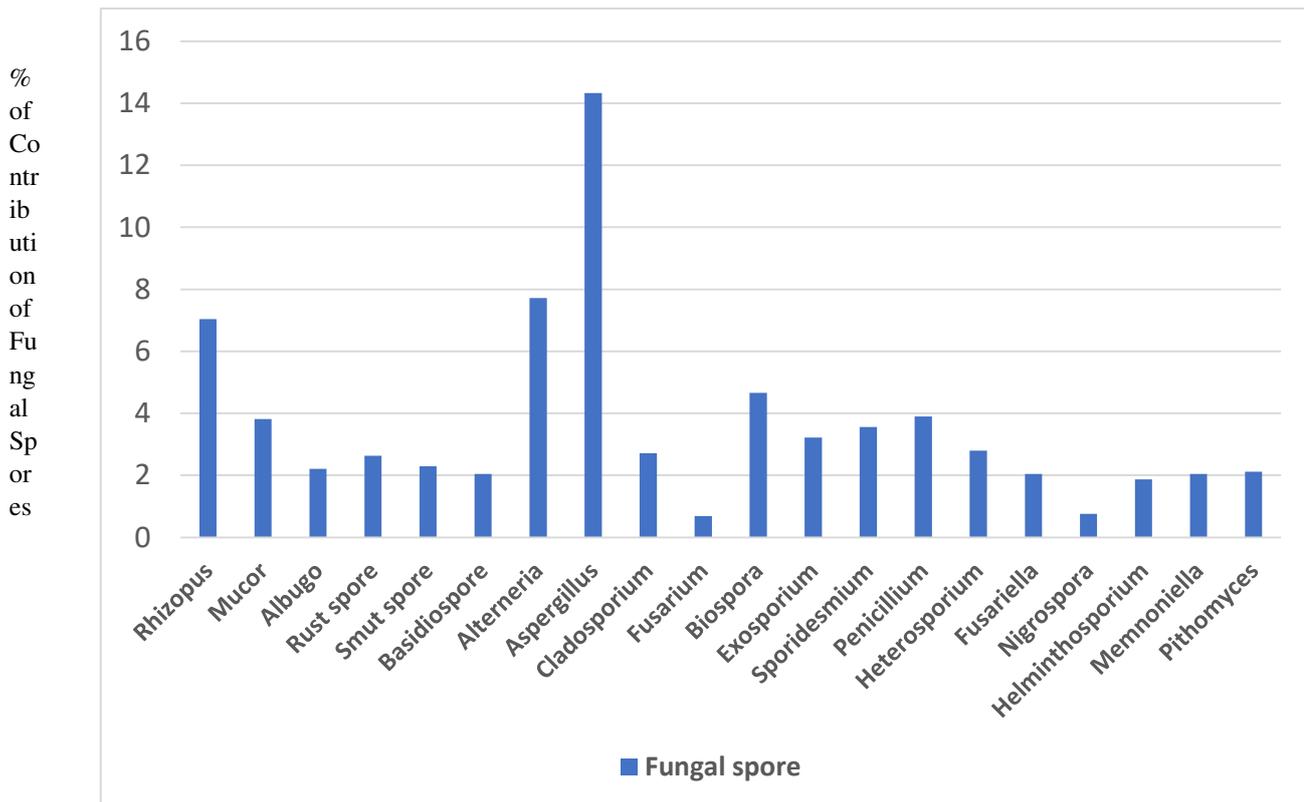


Figure-1: Percentage Contribution of Individual fungal spore

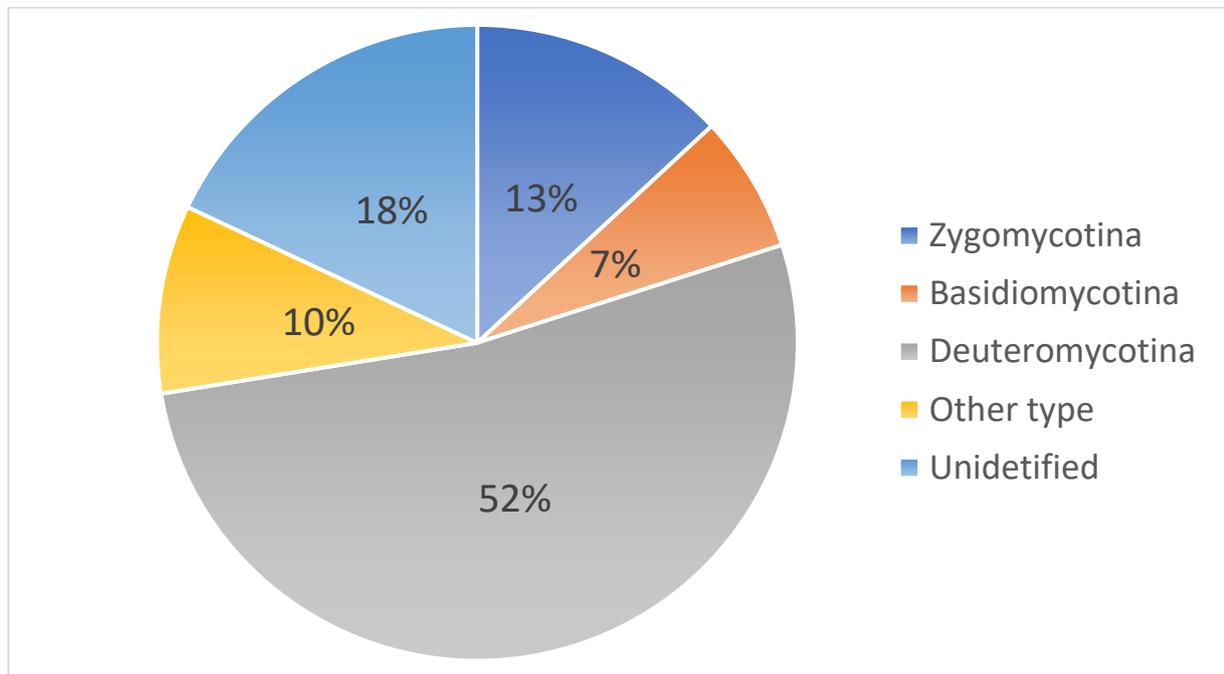


Figure-2: Percentage of contribution of spore type

IV. CONCLUSION

In the present Investigation of aeromycological survey of common vegetable market of Gondpipari town, it is shown that Deuteromycotina dominates the aerospora of the market air with the highest percentage of contribution followed by Zygomycotina and Basidiomycotina. The highest concentration among fungal spore was found of *Aspergillus* than *Alternaria* and least contribution was of *Fusarium* and *Nigrospora*. Exposer to such great number of allergic and pathogenic fungal spores can create number of human respiratory and other health hazards. The significance of this present investigation is to identify such pathogenic harmful fungal aerosporawhich damage the market valuable product and causevarious health disorder of human beings.

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