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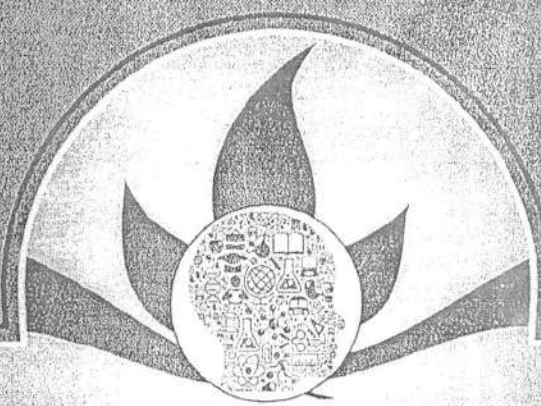
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ASSESSMENT OF FUNGAL CONTAMINANTS IN THE VEGETABLE MARKET AT NASHIK

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ABSTRACT : Aerobiology is multidisciplinary branch, drawing on aspects of physics to explain the movement of air material suspended in it, and biology to describe the biological processes affecting the production of particles and their impact on the health of animals, including humans, and plants. Keeping this in mind the fungal air spora of vegetable market in Nashik decided to investigate. A qualitative and quantitative aeromycological studies will be carried out by operating Tilak's air sampler in a vegetable market of Nashik. Air monitoring was done during the period of one year i.e. from 1st Dec. 2012 to 30th Nov. 2013. During the present investigation a total number of 32 biocomponents were recorded out of which 2 belong to Phycomycotina, 3 to Ascomycotina, 3 to Basidiomycotina, 15 to Deuteromycotina and 4 to other types. Deuteromycotina contributed the highest percentage followed by Basidiomycotina, Ascomycotina and Phycomycotina. The dominant fungal spore types recorded were *Aspergillus*, *Cladosporium*, *Alternaria*, *Curvularia*, *Dreschlera*, *Nigrospora*, Smut spore, Rust spore, *Torula* etc.

Keywords: Aerobiology, fungal spore, Tilak's Air Sampler, vegetable market.

INTRODUCTION:

The present attempt to investigate the airspora of Vegetable Market in Nashik city is a pioneer attempt and will render valuable information regarding the composition and component of airspora of this city. Nashik is one of the important districts of Maharashtra states. The climate of Nashik city is generally cool with the exception of a month or two in summer. The environmental parameters show clear fluctuation in relative humidity, temperature and rainfalls during the three seasons of the year. May is the hottest month of the year and December is the coolest month. Hence the study of airspora in vegetable market is of great importance. The present study gives information on the monthly variation of airspora in the vegetable market. The studies on the airspora of vegetable market are very few²³.

MATERIALS AND METHODS:

Aeromycological studies were decided to carry out in a vegetable market at Nashik during a period of December 2012-November 2013 by using Tilak's Air Sampler, which provides the data of components of airspora. The sampler was installed at a constant height of 3-4 feet from ground level in the vegetable market. After sampling slides were prepared and scanning of prepared slides was regularly done. The identification and description of spore types is essentially based on visual identifications by spore morphology, comparisons with reference slides. The slides were scanned under Binoocular research microscope. The fungal spores and other components were identified by referring published literature (Tilak, 1989) and reference slide prepared. The counting of spores was done by using 'short transverse' method of Hirst (1959). The total exposed area was scanned under the microscope with 10X-45 X eyepiece objective combinations.

RESULTS AND DISCUSSIONS

The study of air-borne fungi of vegetable market highlights the importance. High concentration of fungal spores in vegetable market highlights the unhygienic conditions which affects the health of the habitats of the market. The large airborne fungal spore concentration associated with different conditions viz. musty odour, intrusion, vegetable waste, high humidity etc. ecological conditions significantly were responsible for the occurrence and incidence of fungal spores in the market. A number of mould fungi are associated with high levels of organic debris, poor landscaping and maintenance make them to be more in air. The market environment had higher population of *Cladosporium*, *Alternaria*, *Curvularia*, *Nigrospora*, Rust spore, *Rhizopus* etc. are some of the fungal spores recorded in significant concentration in this study. This fungal spore indicates possible contamination and possible role in the damage of vegetable. This fungal spores have also been recorded by earlier studies as pathogenic and aeroallergic.

In the present Aeromycological investigation the fungal spores were collected in the vegetable market with the help of Tilak's Air Sampler for the said period. During the investigation 32 types of fungal spore were encountered. 15 belonging to Deuteromycotina, 08 belonging to Ascomycotina, 2 belonging to Phycomycotina, 3 to Basidiomycotina) along with 4 other types were recorded. Deuteromycotina dominated the air spora and the highest concentration 944530/m³ followed by, Ascomycotina 117820/ m³, Basidiomycotina 56190/ m³, Phycomycotina 29456/ m³ and other types 143206/ m³.

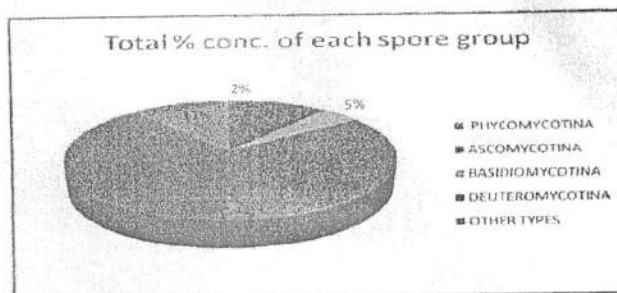
TABLE: 01: Variation in the concentration and % contribution of the different spore types to the total air spora recorded in the vegetable market

Name of the Spore	Total No. of spores/ m ³ of air	Percent contribution of each spore type
I] PHYCOMYCOTINA		
1. <i>Cunninghamella</i> Matr.	6454	0.50
2. <i>Rhizopus</i> Entenb	23002	1.78
II] ASCOMYCOTINA		
	0	
1. <i>Chaetomium</i>	41258	3.20
2. <i>Hysterium</i> Tode ex.Grev	16016	1.24
3. <i>Melanospora</i> Corda.	13622	1.05
4. <i>Meliola</i>	2870	0.22
5. <i>Rosellina</i> Ces.and de.No.	3836	0.30
6. <i>Pleospora</i>	34594	2.68
7. <i>Teichospora</i>	2896	0.22
8. <i>Xylaria</i>	2728	0.21
III] BASIDIOMYCOTINA		
	0	
1. Smut spores	21834	1.69
2. Rust spores	25312	1.96
3. Uredospore	9044	0.70
IV] DEUTEROMYCOTINA		
	0	
1. <i>Alternaria</i> Nees.	203014	15.72
2. <i>Aspergillus</i> Mach ex.Fr.	48496	3.76
3. <i>Cercospora</i>	42244	3.27
4. <i>Cladosporium</i> Link.	247422	19.16
5. <i>Curvularia</i> Boed.	37618	2.91
6. <i>Dictyosporium</i>	7896	0.61
7. <i>Diplodia</i> Fr.	37926	2.94
8. <i>Drechslera</i> Ito.	28770	2.23
9. <i>Fusarium</i>	12432	0.96
10. <i>Helminthosporium</i> Link.	81816	6.34
11. <i>Heterosporium</i>	3430	0.27
12. <i>Nigrospora</i> Zimm.	145936	11.30
13. <i>Papularia</i> Fr.	6118	0.47
14. <i>Spegazzinia</i>	20818	1.61
15. <i>Torula</i>	20594	1.59
OTHER TYPES		
	0	
1. Hyphal Fragments	65590	5.08
2. Insect scales	12558	0.97
3. Pollen grains	57918	4.49
4. Unidentified spores.	7140	0.55
Total	1291202	100

Total: 2: contribution of each spore group and total percentage contribution to the total aero spora recorded in the vegetable market

Name of the Fungal group	Total contrib.	Total % contri.
I] Phycomycotina	29456	2.28
ii] Ascomycotina	117820	9.12
iii] Basidiomycotina	56190	4.35
iv] Deuteromycotina	944530	73.15
v] Other Types	143206	11.09
Total	1291202	100

Graph: 01



REFERENCES

- Ahire Y.R and Sangale M.K (2012) Survey of aeromycoflora present in vegetable and fruit market, *Elixir Appl. Botan.* 52 (2012), pp. 11381-11383.
- Cunningham D.D. (1873) Microscopic examination of air. Government printers, Calcutta pp 58.
- Kakde U.B. and Kakde H.U (2012) Incidence of post-harvest disease and airborne fungal spores in a vegetable market. *Acta Bot. Croat.* 71(1), pp147-157.
- Pande B.N., Derle P.K. and Arsule C.S. (2012) Atmospheric fungal diversity over the vegetable market at Aurangabad (M.S.), Bionano Frontier, Eco revolution 2012- Colombo-Srilanka, pp 145-150.
- Patel S.I.(2008) Effect of rainfall on dissemination of air-borne cladosporium link spores over tomato fields at Nashik, India., *Giobios* Vol-35, pp.233-236.
- Rajasab A.H. and Chawda H.T. (2009) Dispersal of the conidia of colletotricum gloeosporioides by rain and the development of anthracnose on Onion, Grana.
- Rajurkar S.K.(2008) Aeroallergens in vegetable market, *Bionano frontier* Vol. 1, Issue-2, pp95-99.
- Reddy M.K., Srinivas T. and Lakshmi K.A. (2011) A Study of aeroallergens in area of Visakhapatnam, *International Jaour. Of Environmental Biology*, 1(1), pp. 1-7.
- Reddy M.K., Srinivas T. and K. Aruna Lakshmi (2011) A study of aeroallergens in an area of Visakhapatnam, *International Journal of Environmental Biology*, 1(1):pp. 1-7.
- Saadabi Abdulmoneim M.(2011) Prevalence and assessment of air-borne fungi at vegetable central market of khartoum state, Sudan, *Journal of Applier science Reaserch*, 7(5): pp.550-553.
- Tilak, S.T. and Srinivasulu, B.V. (1967) Airspora of Aurangabad. *Ind. J. Microbiol.*, 7: 168- 170.
- Tilak S.T. (1989) Air Borne Pollen and Fungal spores Vijayant Prakashan, Aurangabad