

Occurrence of Aeromycological Species: Dombivli-Kalyan Region

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Article Info	Abstract
<p>Available online on http://www.ijlsci.in</p> <p>ISSN: 2320-964X (Online) ISSN: 2320-7817 (Print)</p> <p>Editor: Dr. Arvind Chavhan</p> <p>Cite this article as: Patil Vivekkumar Vasudeo (2015) Occurrence of Aeromycological Species: Dombivli -Kalyan Region, <i>Int. J. of Life Sciences</i>, Special Issue A4: 62-64.</p> <p>Copyright: © Author, This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	<p>Airborne particles of biological origin are mainly consisting of fungal spores, pollen, bacteria, viruses, algal filaments, epidermal hairs, plant fragments etc. Fungi are the most important aero-allergens. Fungal spores' constitute a significant fraction of air borne particles. Extramural aerobiological research includes aero microbial survey at various places to identify fungi in urban environment and to study the variation in their concentration at four different sites. In the vegetable markets of metropolitan cities, rotten vegetables and fruits, gunny bags, paper bag, packing materials, straw, discarded leaves and stems forms the main substrates for the growth of airborne fungi. The culturable molds presents in the air of different sites was collected by exposing petriplates at four different sites. The maximum contributor at the aerospora was cladosporium with 8.79% contribution followed by <i>aspergillus</i> sp (6.58%) contribution tops the rank and it was followed by <i>Helminthosporium</i> (5.38%), <i>Aspergillus</i> sp (4.90%) and <i>Alternaria</i> sp with 4.47% contribution.</p> <p>Key words: aerospora , fungal spores</p> <p>INTRODUCTION</p> <p>Aerobiology is a scientific and multidisciplinary approach focused on the biodiversity of biologically significant materials. Airborne particles of biological origin are mainly consisting of fungal spores, pollen, bacteria, viruses, algal filaments, epidermal hairs, plant fragments etc. they occur in varying concentration in the atmosphere depending upon the climatic factors, locations. Altitude and proximity to large or small water bodies. When dispersed in air they are known as aerosols.</p> <p>The present study was carries out to identify culturable fungi in urban environment and to study the variation in their concentration at four different sites. In the vegetable markets of metropolitan cities, rotten vegetables and fruits, gunny bags, paper bag, packing</p>

materials, straw, discarded leaves and stems forms the main substrates for the growth of airborne fungi. A residential area closely aggregated houses and a site in industrial area having food processing industries in the vicinity was also selected for trapping culturable fungi from the air.

MATERIALS AND METHODS

Petri plate exposure methods were used to know the status of culturable airborne fungi at different sites. The sites were sector A, sector B, sector C, and sector D. Petriplates containing potato dextrose agar as a culture medium were exposed 1 m above the ground level once in a month for 15 minutes. The petriplates after exposure were incubated at laboratory temperature for 5-7 days till sporulation. The fungal forms were identified and isolated to obtain pure cultures. The fungal colonies were counted. Identification of fungal colonies upto generic level was done on the basis of confirmed with the help of relevant literature (Gilman 1957; Barnett, 1991; Ellis 1971 and Subramanian 1971). At the time of petriplate exposure, about 30 ml of sterilized medium was poured quickly under aseptic conditions in each petriplate (size-lid O.D× height mm 100×15 and base O.D. × total height mm 94× 17) petriplate containing medium were covered with lid. Occurrence of culturable fungal colonies was correlated with metrological factors such as rainfall, relative humidity and temperature.

RESULTS AND DISCUSSION

Volumentric information on culturable molds present in the air of different sites was collected by exposing petriplate at four different sites in study area. Not all genera recorded on the cellotape were found growing on culture plates but only 21 culturable genera were recorded. The genera such as *Aspergillus*, *Penicillium* and *Trichoderma* were precisely identified by their

cultures which otherwise would have remained ignored or grouped under *Aspergilli*.

Highest colony count (680) was recorded with 36.17% owed by (545 colonies) with 23.13% contribution. The least colony count (220) was recorded at sector D with 11.17% contribution.

The maximum contributor of the aerospora was *Cladosporium* sp with 8.79% contribution followed by *Aspergillus* sp (6.15%) and *Helminthosporium* (5.79%) *Cladosporium* sp with 6.58% contribution tops the rank and it was followed by *Helminthosporium* (5.38%), *Aspergillus* sp (4.90%) and *Alternaria* sp with 4.47% contribution. *Humicola* (0.21%) and *Chlamydomyces* (0.30%) contribution registered as the lowest contributor of aerospora in respective years.

Table 1: List of fungal taxa identified from the exposed petriplates at different sites

1. *Cunninghamella*
2. *Rhizopus* sp
3. *Rhizopus* sp
4. *Chaetomium*
5. *Alternaria* sp
6. *Aspergillus* sp
7. *Cercospora* sp.
8. *Chlamydomyces* sp.
9. *Cladosporium* sp.
10. *Drechslera* sp
11. *Drechslera* sp
12. *Eoiccoccum* sp.
13. *Fusarium* sp
14. *Gleotrichum* sp.
15. *Heterosporium* sp.
16. *Heterosporium* sp.
17. *Humicola* sp
18. *Memmoniella* sp
19. *Nigrospora* sp.
20. *Paecilomyces* sp.
21. *Papularia* sp.

Maximum incidence of *Cladosporium* during monsoon was encountered, however its incidence during winter and summer season was maximum. maximum incidence of *Aspergillus* during all season was recorded . Dominance of *Curvularia* during monsoon and winter was observed whereas during summer season its higher concentration was recorded. However *Aspergillus* sp exhibited somewhat equal distribution in all seasons.

Biocomponents like fungal spores and pollen grains may initiate allergic response to susceptible individuals. Allergic people have an altered capacity to react to potential allergens, being hypersensitive to them, causing several types of eye, skin and respiratory disorders. Airborne infections and the resulting diseases threaten the lives and productivity of human beings, animals and plants. Aerobiology thus not simply means the study of microorganism in the atmosphere,

but it also take into consideration the allergic properties of various boiparticles like pollen and spores. The results of the present study will be valuable in solving to cure various diseases and environmental issues.

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