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Aero mycological survey of school environment

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ABSTRACT

Microorganisms found everywhere in nature adapted to all kinds of the environment. Air acts as a vehicle for the dispersion of microorganisms. It introduces into air from different sources *i.e.* soil, water, organic waste of man, plant leaves, sneezes and cough. This study was conducted to collect the air-borne mycoflora from the environment of schools at Raipur, during the period from Feb.2008 to Jan.2009. A total number of 22 fungal genera were isolated. Genus Aspergillus was the most predominant followed by *Alternaria, Penicillium, Curvularia, Cladosporium, Fusarium, Mucor, Rhizopus, Drechslera, Nigrospora, Trichoderma*, and *Bispora.* During present study 1032 fungal spores were observed. The major types of airspora were *Cladosporium sp.* (12.69%), *Aspergillus niger (*11.53%), *Alternaria sp.* A (10.27%), *Curvularia lunata* (9.30%), and *Drechslera* (6.78%), *Fusarium sp.* (5.03%) to the total air spora. Higher concentration of spores was observed during January (104) and Lower in the month of April (75). The results provide to be helpful to allergologist and clinician in the treatment of fungal related disease.

Key words: Airborne, mycoflora, schools, environment.

INTRODUCTION

Microorganisms always present in the nature and they migrate through one place to another by air current. Fungus is the common microorganisms in our environment, and always present in form of spores. There are multi-thousands of recognized species of fungi. They are found in soil, in water, on animals, on vegetation, in humans, and in almost every part of the environment. Anemophilous fungi are spread by the atmospheric air. Fungal spores are always present in the air. Due to increasing awareness of the relationship of airborne fungi to allergy in patients suffering from asthma and rhinitis, many scientists and allergists began to study the presence and type of fungal spores in both indoor and outdoor air._Therefore the aim of this study was to explore the air-borne fungal flora present in the school environments of Raipur city,

MATERIAL AND METHODS

The gravity petriplate exposure method was used for the trapping of fungal spores using PDA (Potato Dextrose Agar) media at fortnightly intervals. Three petri plates were exposed for 5 to 10 min. in different schools of different localities in Raipur city. These localities were north, south, east and west. The exposed petriplates were brought to laboratory and incubated at 28 ± 1°C for 6 to 8 days. At the end of incubation period the fungal colonies were counted, isolated and identified with the help of available literature. (Barnett, 1969 **;** Nigmani *et al*. 2006).

RESULTS AND DISCUSSION

During the investigation period total 1032 fungal colonies belonging to 22 species were observed.In the summer season307, in rainy 339

and in winter 386 fungal colonies were isolated. The major types of airspora were *Cladosporium sp.* (12.69%), *Aspergillus niger (*11.53%), *Alternaria sp.* A (10.27%), *Curvularia lunata* (9.30%), and *Drechslera* (6.78%), *Fusarium sp.* (5.03%) to the total air spora{table 1}. Higher concentration of colonies was observed during January (104) and Lower in the month of April (75).{table 2}.The results of present investigation revel with various work done by researchers.Majumdar & Ranjan(2007) isolated *Aspergillus, Cladosporium, Alternaria* in Kolkata.Roymon et.al. (2007) observed *Aspergillus Cladosporium* in comman public places. *Aspergillus sp*. was observed throughout the study period similar result was also reported by Tiwari *et al*. (2006). Anamorphic fungi recorded as the most contributed fungal group throughout the study period similar result also recorded by Tiwari *et al*. (2006). Sharma&Tiwari (2009) have also reported *Aspergillus niger* was most frequent fungal species during the investigation period.

Table 1: % Contribution of flora.

S.No	Fungi	%Contribution
1	*Alternaria alternata*	10.27
2	*Alternaria* sp.	1.25
3	*Aspergillus flavus*	5.91
4	*A. fumigatus*	7.75
5	*A.japonicus*	1.93
6	*A. nidulans*	1.93
7	*A. niger*	11.53
8	*A. temari*	1.74
9	*Bispora sp.*	1.74
10	*Cladosporium* Sp	12.69
11	*Curvularia lunata.*	5.81
12	*Curvularia clavata*	9.30
13	*Drechslera sp.*	6.78
14	*Fusarium sp.*	5.03
15	*Mucor sp.*	1.93
16	*Mycelia sterilia (white)*	4.84
17	*Nigrospora sp.*	1.74
18	*Penicillium* SP.A	3.87
19	*Penicillium* SP.B	1.35
20	*Rhizopus sp.*	1.06
21	*Trichoderma viride*	1.35
22	Unidentified	0.19

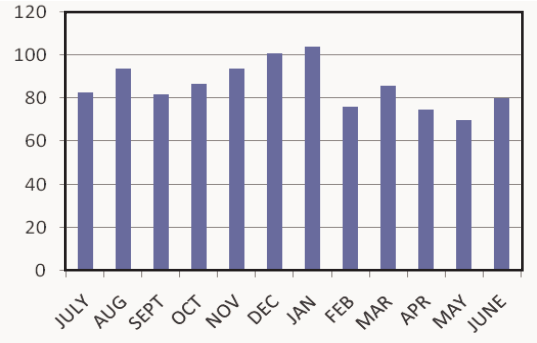

Fig. 1: No of Fungal colonies in different month

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