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AEROMYCOFLORA OF RBNB COLLEGE CAMPUS, SHRIRAMPUR, DIST. AHMEDNAGAR, MAHARASHTRA

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ABSTRACT:
The present study aimed to evaluate of air-borne fungal flora of R.B.N.B. college campus, Shrirampur, Ahemednagar to determine their identification and diversity in both indoor and outdoor environment was carried out to understand aeromycoflora composition. In the present investigation, the mycoflora were investigated between August 2017 to February 2018. Air samples were obtained by exposing petri dishes with Potato Dextrose Agar (PDA) media to air. These petri dishes were incubated at 25 to 28^{0}c. Fungal colonies that formed within 3-5 days were isolated and identified on the basis of micro and macro morphological characteristics. Total 11 fungal species were identified from indoor and outdoor environment. *Alternaria*, *Aspergillus, Rhizopus, Cladosporium* were the most common findings. In this study environmental condition such as Temperature, Humidity, Speed of air, Rains affect the variation among the aeromycoflora.

Key wards: Aeromycoflora, Shrirampur, PDA, Humidity.

INTRODUCTION:

Fungi are heterotropic eukaryotes that are usually filamentous, devoid of chlorophyll and with chitinous cell wall. Aeromycoflora simply refers to the airborne fungal contributors of the environment. (Ghosh *et. al.*, 2014) The term aerobiology was first coined by the American plant pathologist "Fred Cambell Meier" in 1993. A large number of air borne microfungal propagates were found in Indoor and Outdoor environments and generally widely distributed in nature. Fungal spores represent a major fraction of bioaerosol with more than 80,000 species of which the majority are cosmopolitan in distribution. (Hawksworth *et. al.*,1983)

Fungal density in the air varies in accordance with geographical region and season. Besides climatic parameters such as wind, humidity, temperature, precipitation, altitude and flora combination may also affect the type and amount of fungi in the air. Some fungi like *Alternaria*, *Aspergilus*, *Cladosporium* and *Penicillium* are generally considered to be important causes of allergic diseases. *Cladosporium* and *Alternaria* exist more commonly in the atmosphere in period of warm air while *Aspergillus* and *Penicillium* exist more intensively in cool periods. (Reddy *et.al.*, 2015)

The indoor aeromycology includes study of indoor aeromycoflora of laboratories, hospitals, museum, building, glass houses, and office. environment, school and public institutions. (Kalbende *et.al.*,2012) Fungi have both beneficial and negative effects on our lives. From the negative point of view they destroy our food fabrics leather and other similar articles. They also cause diseases in plants that include Rust, Smut, Blight etc. *Alternaria* cause leaf blight, leaf spot diseases to plants and they are also common allergens in human causing hypersensitivity reactions that sometimes lead to asthma. *Aspergillus* species also cause the black mold on crops and ornamental plants.

The aim of present study is to determine the aeromycoflora, their identification and concentration in both indoor and outdoor environment.

MATERIAL & METHODS:

Study Area:-

The present study was conducted in the R.B.N.B. College, Shrirampur Dist. Ahmednager located at latitude 19° 37' 10" N, longitude 74° 40' 23" E established in 1960.

Media preparation:

PDA (Potato Dextrose Agar) is used for growing fungi.

Composition of PDA medium (1000ml)
Potato infusion- 200 gm
Dextrose- 20 gm
Agar- 20 gm
Distilled water- 1000 ml

Sampling Method:

In the present study air samples were obtained from study area by exposing petri dishes with nutrient media to air for a period of time. The petri dishes were taken to the selective sites to trap the fungal composition. The sampling sites were majority divided into 1) Indoor environment-Botany lab. 2) Outdoor environment of the Block-A building.

OBSERVATION:

After inoculation period resulting colonies were counted. The fungal colonies were counted based on their macro-morphological properties. Then compound microscope was used to determine the morphological structure of fungi after mounting in cotton blue covered with cover slip on slides. Identification of fungal species was based on microscopic observation.

RESULT & DISCUSSION:

The data represented in the Table shows that a total of 11 species in 8 genera were trapped, isolated, and identified. These identified species were *Aspergillus niger, A.flatus, Alternaria alternata, Alternaria sp., Rhizopus stolanifer, Rhizopus sp., Mucor sp., Cladosporium sp., Monilia sp., Torula sp., Colletotrichum sp.*

Alternaria alternata, Rhizopus stolanifer, Aspergillus niger, Aspergillus flavus shows their highest occurrence in both indoor and outdoor environment.

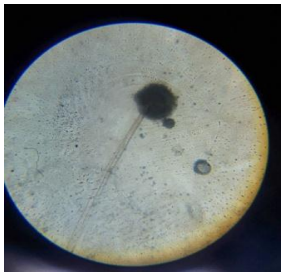
Table. 1: Observed fungal species in indoor and outdoor environment of R.B.N.B. College, Shrirampur.

S.No	Fungal type	Indoor Environment	Outdoor Environment
1	*Aspergillus niger*	+	+
2	*Aspergillus flavus*	+	+
3	*Alternaria alternata*	+	+
4	*Alternaria sp.*	-	+
5	*Rhizopus stolanifer*	+	+
6	*Rhizopus sp.*	-	+
7	*Mucor sp.*	+	+
8	*Monilia sp.*	+	-
9	*Cladosporium sp.*	-	+
10	*Torula sp.*	+	-
11	*Colletotrichum sp.*	-	+

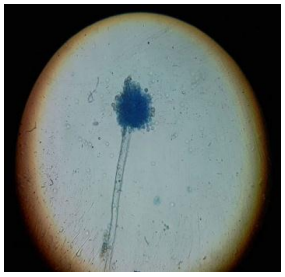
Abbreviations + = present of fungal species, - = absence of fungal species

CONCLUSION:

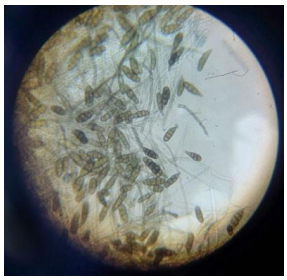
The present study revealed diversity of fungal spores present in indoor and outdoor environment, out of which some are harmful and cause health problems like asthma and some other respiratory disorders.



1. *Aspergillus niger*

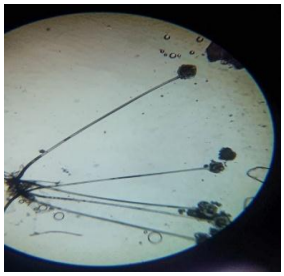


2. *Aspergillus flavus*

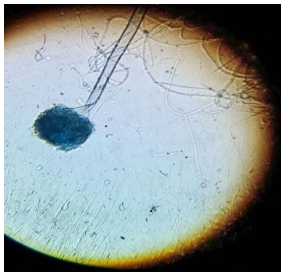


3. *Alternaria alternate*

4. *Alternaria sp.*



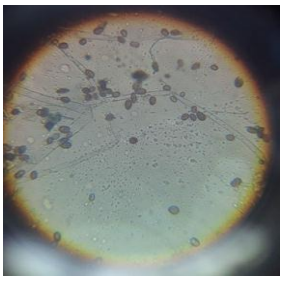
5. *Rhizopus stolanifer*



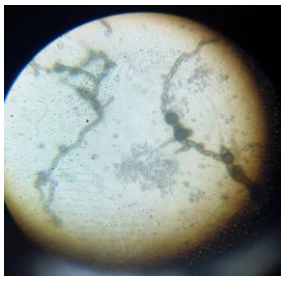
6. *Rhizopus sp.*

7. *Mucor sp.*

8. *Monilia sp.*



9. *Cladosporium sp.*



10. *Torula sp.*

11. *Colletotrichum sp.*

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