

## Isolation of airborne fungal flora from poultry farm

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### ABSTRACT

Observation of airborne fungal flora was carried out at poultry farm situated in Bilaspur (C.G.) India. The culture plate method was used to determine air borne fungi from poultry farm during the period of Feb. 2009 to May 2009. Fungal spores recorded were representatives of the three major groups i.e. Zygomycotina, Anamorphic fungi and Mycelia sterilia. A total of 19 fungi were isolated from air of poultry farm. In summer season, maximum percentage contribution observed for *Cladosporium sphaerospermum* was (17.01%) followed by *Aspergillus niger* (15.4%), *Alternaria alternata* (8.04%), *Aspergillus flavus* (7.21%), *Aspergillus nidulans*, (5.67%), While minimum (0.51%) percentage contribution was observed for *Aspergillus ochraceus*. The maximum fungal species belonged to anamorphic fungi. In air total 388 fungal colonies represented 19 fungal species were observed during the present investigation period. Out of 19 fungal species, 02 from Zygomycotina, 15 from anamorphic fungi and 02 from Mycelia sterilia were observed. *Cladosporium sphaerospermum* showed the maximum percentage contribution of total aero-mycoflora. The results provide to be helpful to allergologist and clinician in treatment of fungal related disease.

**Key words:** Poultry farm, *Aspergillus niger*, aero mycoflora.

### INTRODUCTION

Fungal spores are among the most common airborne bioparticles in air and play an important role in biodeterioration, allergy and many diseases. Composition and concentration of airborne mycoflora depend on several factors including topography, time of day, meteorological conditions, types of vegetation, air pollution, agricultural, industrial and other human activities. The present paper deals with the aerobiological survey of poultry farm of Bilaspur (C.G.). Aerobiological studies are of great importance as they provide with qualitative and quantitative information about airborne fungi in a given region. Airborne fungi are considered to be an indicator of the level of atmospheric biopollution. Air consists of a mixture of permanent gases and water in different proportions, solid particles, pollen- grains and fungal spores.

### MATERIAL AND METHODS

The gravity petriplate exposure method was used for the trapping of fungal species using PDA (Potato Dextrose Agar) media at fortnightly intervals. Three Petri plates were exposed for 5 to 10 min. in poultry farm of Bilaspur city. The exposed petriplates were brought to laboratory and incubated at  $28 \pm 1^\circ\text{C}$  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 DISCUSSIONS

During the investigation period total 388 fungal colonies belonging to 19 species were observed. The major types of fungal flora were *Cladosporium sphaerospermum* (17.01%) *Aspergillus niger* (15.4%), *Alternaria alternata*

(8.04%), *Aspergillus flavus* (7.21%), *Aspergillus nidulans*, (5.67%), to the total air spore (Table 1).

The results of present investigation reveal with various work done by researchers. Singh *et al.* (2000), Sharma and Dutta (2001), Devi *et al.* (2002) isolated important fungal types *Aspergillus*, *Cladosporium*, *Alternaria*, and *Penicillium* from different poultry farms.

Roymon *et al.* (2007) observed *Aspergillus*, *Cladosporium* in common public places. *Aspergillus sp.* was observed throughout the study period and Anamorphic fungi recorded as the most contributed fungal group similar result was also reported by Tiwari *et al.* (2006).

Singh (1988) from Delhi reported that the poultry workers dealing with chicken feed have highest incidence of respiratory disorders. The results provided are helpful to allergologist and clinicians in treatment of fungal related diseases.

**Table 1: Percentage Contribution of Fungi**

S. No.	Name of Fungi	Total	% Contribution
Zygomycotina			
1.	<i>Mucor sp.</i>	05	1.28
2.	<i>Rhizopus sp.</i>	18	4.63
Anamorphic fungi			
3.	<i>Alternaria sp. I</i>	32	8.24
4.	<i>Alternaria sp. II</i>	06	1.54
5.	<i>Aspergillus flavus</i>	28	7.21
6.	<i>A. fumigatus</i>	22	5.67
7.	<i>A. niger</i>	60	15.4
8.	<i>A. ochraceus</i>	02	0.51
9.	<i>A. nidulans</i>	22	5.67
10.	<i>Cladosporium sp. I</i>	66	17.01
11.	<i>Cladosporium sp. II</i>	22	5.67
12.	<i>Curvularia sp. I</i>	14	3.60
13.	<i>Curvularia sp. II</i>	08	2.06
14.	<i>Curvularia sp. III</i>	03	0.77
15.	<i>Nigrospora sp.</i>	03	0.77
16.	<i>Penicillium sp.</i>	22	5.67
17.	<i>Pestalotiopsis sp.</i>	03	0.77
ycelia sterilia			
18.	Mycelia sterilia black	22	5.67
19.	Mycelia sterilia white	30	7.73
Total no. of Fungal colonies		388	

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