Seasonal variation of Aeromycoflora of Chhattisgarh Institute of Medical Sciences (CIMS), Bilaspur, C.G. (India)

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Abstract
This study was carried out to study the diversity of fungi in hospital environment. Gravity settle plate method was used for the isolation of aeromycoflora. The investigation period for this study was from July 2011 to June 2012. During this investigation total 62 fungal species (571 fungal colonies) belonging to 33 fungal genera were isolated. Various environmental factors: wind, moisture, temperature and air pollution affect and alter the density and frequency of a fungal species in any medium. Furthermore, temperature, water potential, humidity and pH have a critical influence on the growth and survival of fungi. It was observed the concentration of the spores in the air varies from season to season probably due to variation in meteorological parameters.

Keywords: Aeromycoflora, Fungal spores, meteorological parameters.

INTRODUCTION

The term aerobiology was introduced by Meier (1935) as collective term for studies of aerospora like air borne fungal spores, pollen grains and other microorganisms. Aerobiological studies have received much attention recently because of application in the field of allergy, dispersal of pathogens and in allied aspect of microbiology. Since fungal species constitute the major component of airborne flora, the study of aeromycology is highly significant. Fungi are ubiquitous organisms they make up approximately 25% of earth's biomass. Fungi are very adaptable and can colonize dead and decaying organic matter (e.g. textiles, leather, wood, paper) and even damp, inorganic material (e.g. glass, painted surfaces, bare concrete) if organic nutrients such as dust or soil particles are available. Though many workers have worked on aeromycology in different parts of the world including Chhattisgarh, but such type of investigation has not been performed in Bilaspur. Therefore, the work entitled "Seasonal variation of aeromycoflora of indoor environment of hospital was carried out to study the diversity of fungi in hospital environment.

METHODOLOGY

Some wards of CIMS, Bilaspur were selected for this study i.e. female surgical ward, children ward and general ward (Plate 1). For the isolation of aeromycoflora gravity settle plate method was used (Jadhav and Lall 2009). Potato Dextrose Agar (PDA) is used for the

cultivation of fungi. Isolated species were identified by authorized authority.

RESULT AND DISCUSSION

A seasonal variation in the diversity of fungal species was easily seen in the study area throughout the year. During rainy season 41 fungal species (146 fungal colonies) belonging to 22 fungal genera was observed. Out of 41 fungal species, 2 fungal species (4 fungal colonies) belongs to 2 fungal genera of Zygomycotina, 1 fungal species (2 fungal colonies) belongs to 1 fungal genera of Ascomycotina, 37 fungal species (139 fungal colonies) belongs to 18 fungal genera of Anamorphic fungi, 1 fungal species (1 fungal colony) belongs to 1 fungal genera of Mycelia Sterilia. (Table 1)

During the winter season 44 fungal species (291 fungal colonies) belonging to 24 fungal genera were isolated. Out of 44 fungal species, 2 fungal species (4 fungal colonies) belongs to 2 fungal genera of Ascomycotina, 40 fungal species (273 fungal colonies) belongs to 21 fungal genera of Anamorphic fungi, 2 fungal species (14 fungal colonies) belongs to 1 fungal genera of Mycelia Sterilia. Zygomycotina was absent in this season.

During summer season 34 fungal species (134 fungal colonies) belonging to 21 fungal genera were found. Out of 34 fungal species, 1 fungal species (1 fungal colony) belongs to 1 fungal genera of Zygomycotina, 2 fungal species (3 fungal colonies) belongs to 2 fungal genera of Ascomycotina, 30 fungal species (129 fungal colonies) belongs to 17 fungal genera of Anamorphic fungi, 1 fungal species (1 fungal colony) belongs to 1 fungal genera of Mycelia Sterilia.

Tilak and Kulkarni (1972) have reported that maximum numbers of fungal species are recorded during winter season, Moderate in rainy season while minimum number of fungal species recorded in summer season in inside and outside the caves at Aurangabad. Similar result also made Tripathi (1987) from

aeromycoflora of Central library of Gorakhpur, Tiwari *et al.* (1995) from green house of Raipur, Kulshrestha and Chauhan (2001) from

aeromycoflora of Agra city.

Table 1. Seasonal variation in aeromycoflora of Chhattisgarh institute of medical sciences (CIMS) during rainy season

S. N.	FUNGAL GROUPS	TOTAL NO. OF FUNGAL COLONIE IN RAINY SEASON	TOTAL NO. OF FUNGAL COLONIES IN WINTER SEASON	TOTAL NO. OF FUNGAL COLONIES IN SUMMER SEASON
1.	Zygomycotina	04	-	04
2.	Ascomycotina	02	04	02
3.	Anamorphic Fungi	139	273	139
4.	Mycelia sterilia	01	14	01
	TOTAL	146	291	134

Plate 1. Different wards of CIMS

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