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Study of Airspora during Celebration of Rajyotsava, 2010

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ABSTRACT: The microorganisms are ubiquitous in our environment; they influence the man in different ways. Microorganisms are sensitive indicators of environmental quality Thus diversity of microbial activities varies from causing diseases in human, other animals and plants. Microorganisms have special impact on the whole biosphere. The air is never completely free from the incidence of microbial propagules, which are collectively termed as Air spora. Air borne fungal spores play an important role in the etiology of respiratory allergic disorders. The present study has been undertaken to assess the account of airborne fungal spores in the play ground of Govt. N .P .G .College of Science Raipur (C.G.) during celebration of Rajyotsava, 2010.

Key words: Air-spores, Microorganisms, Rajyotsava.

INTRODUCTION

Fungal spores are part and parcel of air and their quality and quantity depends on geography, seasonal variation in local environment. Air is mainly the dispersal medium for microorganisms. Air contamination caused by fungi is considered because of their dangerous influence on human health. Microorganisms occur everywhere on the planet and more so in the tropics where humidity and temperature are better suited for them to grow and multiply. Cunningham (1873) published his comprehensive work in the form of a book named 'Microscopic Examination of Air'. Perhaps this happened to be the first write up on Aerobiology in India. The subject Microbiology of atmosphere or Aerobiology was established as a special branch of study by Meier *et al* (1933) of United States and Stepanov (1935) of U.S.S.R. Systematic and intensive studies of Aerobiology in India can be said to have started with the work initiated by Prof. Sreeramulu at Visakhapatnam.

Many workers have worked on Aerobiology in different parts of India including Chhattisgarh but this type of work has not been performed in Raipur, Chhattisgarh *i.e.* newly born state in 2000.

MATERIALS AND METHODS

The survey was conducted by Gravity petriplates exposure technique in playground of Govt. N.P.G. College of Science Raipur (C.G.), India during celebration of Rajyotsava from October 25-31, 2010.Triplicate sets of petriplates containing sterlized Modified Mortin's media were prepared and exposed daily in study site (Rajyotsava ground) for 10 minutes. Proper care was taken to avoid contaminations of petriplates before and after the exposure. The exposed petriplates were incubated at room temperature.

In such an environment attempt was made for qualitative and quantitative analysis of airspora. At the end of incubation period % frequency and % contribution was assessed (Jadhav and Tiwari 1994).

RESULT AND DISCUSSION

In this study 138 colonies of 12 different fungal types were isolated in which *Cladosporium cladosporioides* (54 colonies) followed by *Aspergillus flavus* (21 colonies), *Mycelia sterilia* black (16 colonies) and *Fusarium moniliforme* (14 colonies). These fungal types were most dominant. *Aspergillus flavus*, *Cladosorium cladosporioides* was most frequent (100 %) followed by *Fusarium moniliforme* (71.4%), *Curvularia lunata* & *Mycelia sterilia* white (57%), respectively.

In this study *Aspergillus flavus* was observed as most frequent and dominant species similar result were found by earlier workers Kakde and Choudhari (1999), Kakde *et al* (1999) Saoji and Chati (1999) at Nagpur, Murthy and Mallaiah (1999) at Nagarjunnagar, Guntur, Nayak and Nanda (2010) at Pondicherry city.

Similarly *Cladosporium cladosporioides* were predominant and most frequent airspora at different places reported by Agashe *et al* (1999) at Bangalore Appanna & Janaki Bai (1999) at Visakhapatanam, Kakde *et al* (1999) at Nagpur Patil *et al* (1999) at Osmanabad, Tiwari (1999) at Raipur, Devi *et al* (2002, 2007) at Guwahati, Sahni and Purwar (2002) at Allahabad, Dahia and Gupta (2003-2011), Kochar (2011) at Rohtak, Peerally & Rao (2003) reported common genera at air of Mauritius, Uday Prakash (2005) in Austin Texas, U.S.A., Pund *et al* (2007) at Amravati, Potty (2007), at Mumbai, Saroja and Bagyalaxmi (2007) at Hyderabad, Mishra *et al* (2008) in Sonbhadra (U.P.) Hazarika *et al* (2008) at Assam, Giri and Sawne (2010) at Nagpur, Khan and Shrivastava (2011) at Bilaspur.

Fusarium moniliforme was most frequent species during this study, Sahu (1998) observed as common fungi on leaf surface as well as air of Bhilai on *Solanaceous* plants.

Singh *et al* (2003) observed this fungal type in Manipur, Dahia and Gupta (2003) in Rohtak city, Talde and Kadam (2005) observed peak time 8-10 hrs in Sugarcane field, Nanded, Rajasab and Shabbir (2005) studied different species of *Fusarium* on Sorgham field, Mandloi *et al* (2010) reported as a dominant species in three different sites of Bhopal.

Similarly *Curvularia lunata* was also most frequent species found during this study period, this is in agreement with earlier works carried out by Mishra *et al* (1991) at Gaya, Arora and Jain (2003) in Bikaner, Tiwari *et al* (2006) at Raipur Ahire *at el* (2007), Kalkar and Tatte (2007), Mahajan and Cholke (2007), Pund *et al* (2007), Saroja and Bagyalaxmi (2007) at Pune, Nagpur, Pune, Amravati and Hyderabad, respectively.

List of air spora isolated during Rajyotsava, October 25-31, 2010.

Fungal types	Dates							Total colonies
	25	26	27	28	29	30	31	
Zygomycotina								
Mucor mucedo	-	-	1	-	-	-	-	01
Ascomycotina								
Aspergillus flavus	3	3	2	4	3	4	2	21
A. fumigatus	4	-	-	-	1	-	-	05
A. niger	1	-	-	-	-	-	3	04
A. sulphureus	1	-	-	-	-	-	-	01
Anamorphic fungi								
Fusarium minliforme	1	6	-	-	1	3	3	14
F. pallidoroseum	1	-	-	-	-	-	1	02
Helminthosporium sp.	-	-	-	-	1	-	1	02
Cladosporium cladosporioides	5	12	8	3	12	4	10	54
Curvularia lunata	-	5	-	2	-	2	1	10
Mycelia sterilia white	2	-	1	-	4	-	1	08
Mycelia sterilia black	16	-	-	-	-	-	-	16

Giri and Sawne (2010) reported predominant species in Nagpur, Khan and Shrivastav (2011) and Saluja *et al* (2011) reported most abundant species at Bilaspur and Raipur, respectively. Air borne fungal spores are known to be responsible for the diverse human allergic reactions. So study of air spora during celebration of Rajyotsava, indicate that several genera cause various allergic reactions in humans. The common genera are *Aspergillus, Cladosporium, Curvularia* and *Fusarium,* these fungal spores are also known as aero allergens (Karne & Pande, 2007, Mishra, 1995, Sharma, 2007).

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