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Frequency of fungi at different heights of Dongargarh, India

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Abstract
Frequency of fungi at different height of Dongargarh was studied with the help of Petriplate method. Total 389 fungal colonies represented 31 fungal types from altitude and 18 fungal floras were isolated from ground level during the present investigation period. The fungal species were *Cladosporium oxysporium, Fusarium* Mycelia sterilia, *Aspergillus, Penicillium, Curvularia, Cladosporium, Rhizopus,Trichoderma* species were observed. *Aspergillus niger* observed as most frequent fungi from both side, altitude (83.33%) as well as ground level (75%). While minimum percentage frequency (8.33%) is observed *for Neosartorya fischeri and A.terreus.* on hill-top and *A. oryzae, Dictyochlamydospora, Fusarium pallidoroseum* at ground level.

Keywords: Hilltop, fungal species, dongargarh, frequency.

INTRODUCTION

Meir (1930) was the first aerobiologists who used the term aerobiology for the studies of airborne fungal spores, pollen grains and other microorganisms. Jacobs (1951) elaborated the term aerobiology for dispersion of fungal spores, bacteria, insects and pollen grains population which become airborne and transported partly or wholly by the environment and their impact on all life belonging forms. The fungal spores are liberated in air from various sources in massive concentration and can remain airborne for a long time. Fungal spores are important source of various plants and animals diseases. Aerobiological investigations and survey of different outdoor environment would provide significant and useful data. Sabariejo *et.al* (2000) reported the effect of meterological factors on the daily variation of the airborne fungal spores in Granada, Southern Spain. Kulshreshta and Chauhan (2000) studied aeromycoflora of Agar city. Kakade *et al.* (2001) studied seasonal variation of fungal propegules in a fruit market environment Nagpur, India. Singh and Singh (2009) observed incidence of airborne fungal spores in the air of Ima market, Imphal West, Manipur.

Dongargarh the famous tourist and pilgrimage center of Rajnandagon District is surrounded by lushgreen forest and hillocks. The famous temple of Maa BAMBLESHWARI is on a hilltop of (1600) feet. The present work deals with the aerobiological survey of Dongargarh.

MATERIALS AND METHODS

The survey was conducted for a period of one year from May 2010- April 2011 (Twice a month for a year). Dongargarh the famous tourist and pilgrimage center of Rajnandagon District in the state of Chhattisgarh, India. The fungi to be identified is collected from the different heights (ground level and hill top).

For isolation of aeromycoflora, PDA culture media was used. Aaeromicoflora of the given area was observed by exposition petriplate containing PDA medium. This method also used by Tiwari *et al*. (2007) for survey of aeromycolfora. At the end of incubation period fungal colonies are counted, isolated and identified with the help of available literature and finally identified by the authentic authority: National Centre of Fungal Taxonomy, Delhi.

RESULT AND DISCUSSION

Frequency is the main parameter which we help to known the distribution of individual species in that particular area. On hill-top,

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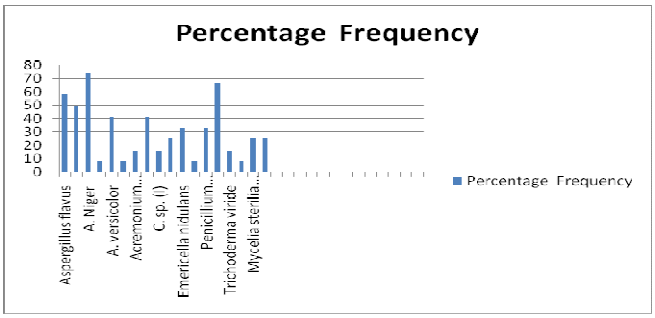
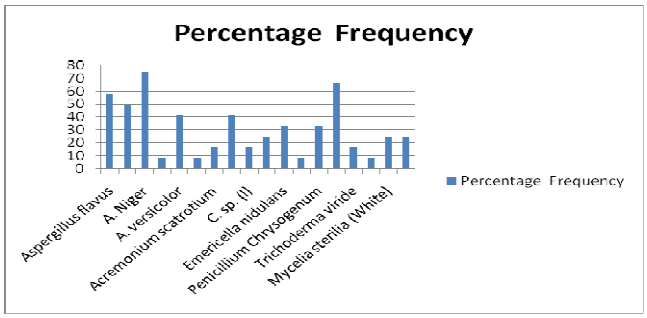
Maximum percentage frequency are observed for *Aspergillus niger* (83.33%), followed by *Cladosporium oxysporum* (66.66%), *Aspergillus fumigatus*, *A. versicolor*, *Fusarium pallidoroseum* (58,33%). Some fungal species i.e., *Alternaria alternate*, *Botryodiplodia theobrome, Nigrospora oryzae, Trichoderma viride* and *Mycelia sterilia* White & pink showed (41.66%), *Penicillium chrysogenum* (33.33%). While minimum percentage frequency (8.33%) is observed for *Neosartorya fischeri and A.terreus.*

Hill-Top



Ground level



Hill-Top

S. No.	Name of Fungi	Percentage Frequency
1	*Rhizopus* sp.	**75%**
2	*Chaetomium globosum*	**16.66%**
3	*Emericella nidulans*	**16.66%**
4	*Neosartorya fischeri*	**8.33%**
5	*Aspergillus niger*	**83.33%**
6	*A.fumigatus*	**58.33%**
7	*A.nidulans*	**16.66%**
8	*A. terreus*	**8.33%**
9	*A. flavus*	**50.00%**
10	*A.flavipes*	**25.00%**
11	*A.versicolor*	**58.33%**
12	*A.oryzae*	**16.66%**
13	*A.ochraceous*	**16.66%**
14	*Acremonium scalrotium*	**16.66%**
15	*Alternaria alternata*	**41.66%**
16	*Botryodiplodia theobrome*	**41.66%**
17	*Chaetomella raphigera*	**25.00%**
18	*Cladosporium oxysporium*	**66.66%**
19	*Curvularia lunata*	**25.00%**
20	*Curvularia lunata var. aeria*	**33.33%**
21	*Epicoccum purpurascence*	**33.33%**
22	*Fusarium pallidoroseum*	**58.33%**
23	*Myrothecium roridum*	**16.66%**
24	*Nigrospora oryzae*	**41.66%**
25	*Paecilomyces varioti*	**25.00%**
26	*Penicillium chrysogenum*	**33.33%**
27	*Phoma sp.*	**16.66%**
28	*Trichoderma viride*	**41.66%**
29	Mycelia sterilia (white)	**41.66%**
30	Mycelia sterilia (Black)	**25.00%**
31	Mycelia sterilia (Pink)	**41.66%**

Ground level

S. No.	Name of Fungi	Percentage Frequency
1	Aspergillus flavus	58.33
2	A. fumigatus	50.00
3	A. Niger	75.00
4	A. oryzae	8.33
5	A. versicolor	41.66
6	A. sp. (I)	8.33
7	Acremonium scatrotium	16.66
8	Cladosporium cladosporioides	41.66
9	C. sp. (I)	16.66

10	Curvularia lunata	25.00
11	Emericella nidulans	33.33
12	Fusarium pallidoroseum	8.33
13	Penicillium Chrysogenum	33.33
14	Rhizopus sp.	66.66
15	Trichoderma viride	16.66
16	Dictyochlamydospora	8.33
17	Mycelia sterilia (White)	25.00
18	Mycelia sterilia (Pink)	25.00

At ground level, Maximum percentage frequency are observed for *Aspergillus niger* (75%), followed by *Rhizopus sp.* (66.66%), and *Aspergillus flavus* (58, 33%). Some fungal species i.e. *A.versicolor* and *Cladosporium cladosporioides* observed (41.66%) frequent, *Penicillium chrysogenum* reported as (33.33%) frequent fungi. While minimum percentage frequency (8.33%) is observed *for A. oryzae, Dictyochlamydospora, Fusarium pallidoroseum.*

The results of present investigation revel with various work done by researchers. Anamorphic fungal groups were recorded as dominant fungal group similar results were also recorded by Sharma (2009) at Raipur. The isolated fungal species were found to be adapted to low temperature**.** Arora and Jain (2003) reported *Cladosporium*, *Aspergillus* and *Penicillium* as most frequent fungi from Bikaner. Lugauskas *et.al* (2003) reported *Aspergillus fumigates*, *A. niger*, *Cladosporium herbarum*, *C. cladosporioides*, *C. sphaerospermum*, *Penicillium funiculosum*, *Geotrichum candidum* as most frequent fungal species at the Urban areas in Lathuania. Anamorphic fungi recorded as the most contributed fungal group throughout the study period similar result also recorded by Tiwari *et al*. (2006).

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