

Aeromycological Indoor Environmental Study Of Christanand Hospital Bramhapuri

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Abstract

Comparative survey of indoor aeromycoflora in four different section of “Christanand hospital Bramhapuri” was carried out for consecutive period using petriplate method. *Aspergillus Sp.*, *Penicilium Sp.*, *Alterneria Sp.*, *Sterile mycelia*, *Mucor*, *Fusarium*, *Carvularia*, *Rhizopus*, *Torula*, *Tricothesium*, these approx 10 different fungal spores were observed. Qualitative similarities were found in various fungal spores. In that *Aspergillus Sp.*, *Penicilium Sp.*, *Alterneria Sp.*, *Sterile mycelia* was seen abundant in all the section of Christanand hospital Bramhapuri. The maximum fungal spores were seen in O.P.D. section followed by general ward and pathology laboratory of while minimum fungal spores were seen in Operation Theater of Christanand hospital Bramhapuri. Air atmospheric factor were also affects on concentration of fungal spores. Therefore it is important to know the microbial composition of indoor air in order to take measures to improve air quality helping to reduce health problems to respiratory allergic diseases in synthesized patients.

Keywords:-allergic, fungal spores, mycoflora, aeromycology,

Introductions

Among the spacious range of biological particles present in the atmosphere, there is a very considerable number of fungal spores, [1] fungi live as saprophytes on organic material or as parasites (mainly plant pathogens), consequently the majority of fungal spores in the air indoors arrive from outdoor air atmosphere, and various indoor sources. Due to their quantity in the atmosphere and small size, fungal spores play an important role in respiratory allergies and cause a wide range of symptoms, including allergic rhinitis, asthma, chronic bronchitis, etc., [1] The population of air born particles of plants and animals origin is known as air spora. Fungal spores and pollen grains are important constituent's air spora. The occurrence of fungal spores in the atmospheres has directly affected by climatic factors and causes effect on human, animals and plants.[2]The air we breathe contents fungal spores causes respiratory diseases [3]. Fungal spores also responsible for causing human allergies such as asthma,

seasonal cold , urinary problems , skin diseases etc.[4]Vegetation are the main sources of mycoflora [1] and after that transmitted to the outdoor air. The fungal spores present in air inside the houses are studied in indoor aeromycology. The concentration of indoor aeromycoflora depends on climate, humidity, temperature, cleaning, movement of people etc. Now a day’s fungal allergy is world wide problem and the prevalence of mold allergy might be high [5]. Because of that reason the concentration of fungal spores should be maintained and that purposes the present work was carried out in Christianand hospital Bramhapuri, to determine the concentration of fungal spores in indoor air of different section of hospital.

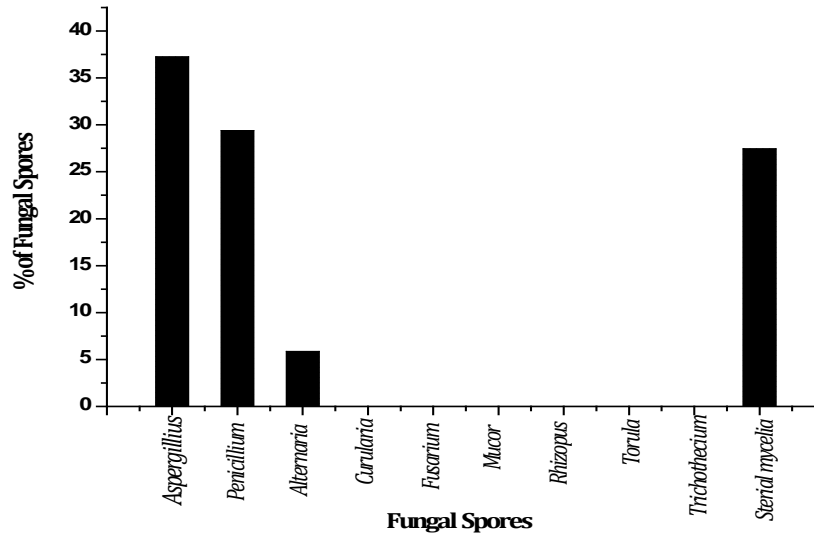
Materials and Methods

Result and Discussion

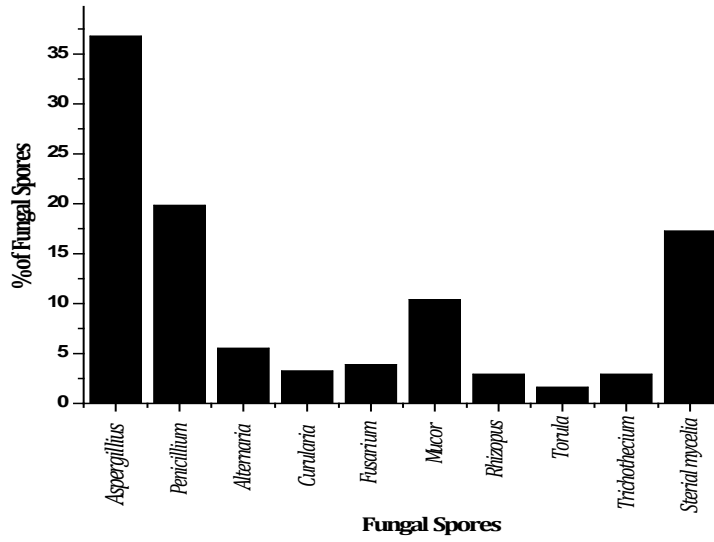
In a laboratory conditions for optimal growth of a fungal species a suitable nutrient culture media was required. For that Czepak’s Dox agar media was prepared in a aseptic condition. After that sterile petriplates 10 ml liquid media was poured with aseptically. After solidifying media the petriplates sealed by selotapes and store in a cooled place.A consecutive survey of Aeromycology was carried out in Christianand hospital Bramhapuri, at four different section such as Outdoor patient department, general ward, operation theater and pathology laboratory. Air was sampled using petriplate method. [6] The sterilized petriplate containing 10ml Czapek’s Dox Agar Media was exposed for a10 minute at a height of 2 to 3 feet in different section of hospital and after 3-4 days the developing colonies were counted and identified with the help of literature [7, 8].

Sr.No	Fungal Spores	Operation Theater		Out Door Patient Department (OPD)		General Ward		Pathology Laboratory	
		No. of Calories	% of Fungal Spores	No. of Calories	% of Fungal Spores	No. of Calories	% of Fungal Spores	No. of Calories	% of Fungal Spores
1	<i>Aspergillus Species</i>	19	37.25	113	36.80	98	36.29	53	29.60
2	<i>Penicillium Species</i>	15	29.41	61	19.86	57	21.11	42	11.73
3	<i>Alternaria Species</i>	03	5.88	17	5.53	12	4.44	10	5.58
4	<i>Curularia</i>	00	00	10	3.25	07	2.59	08	4.46
5	<i>Fusarium</i>	00	00	12	3.90	10	3.70	06	3.35

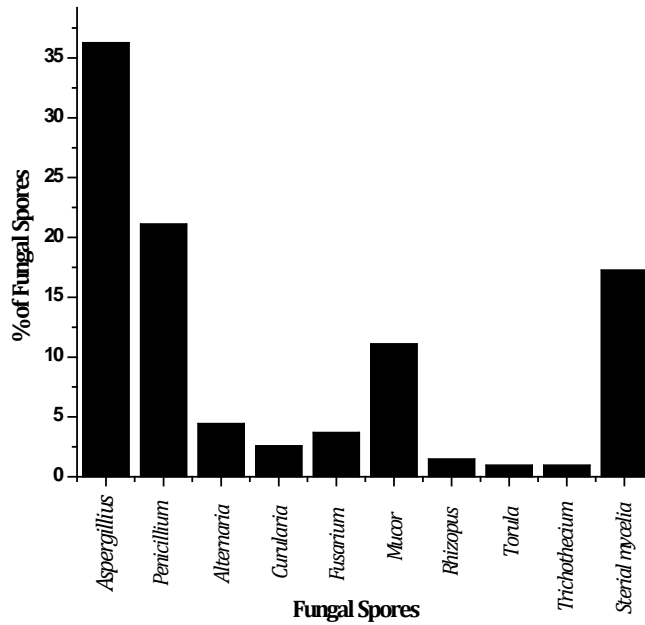
6	<i>Mucor</i>	00	00	32	10.42	30	11.11	27	15.08
7	<i>Rhizopus</i>	00	00	09	2.93	04	1.48	05	2.79
8	<i>Torula</i>	00	00	05	1.62	02	0.96	00	00
9	<i>Trichothecium</i>	00	00	09	2.93	02	0.96	00	00
10	<i>Sterial mycelia</i>	14	27.45	53	17.26	48	17.77	28	15.64
	Total	51		307		270		179	



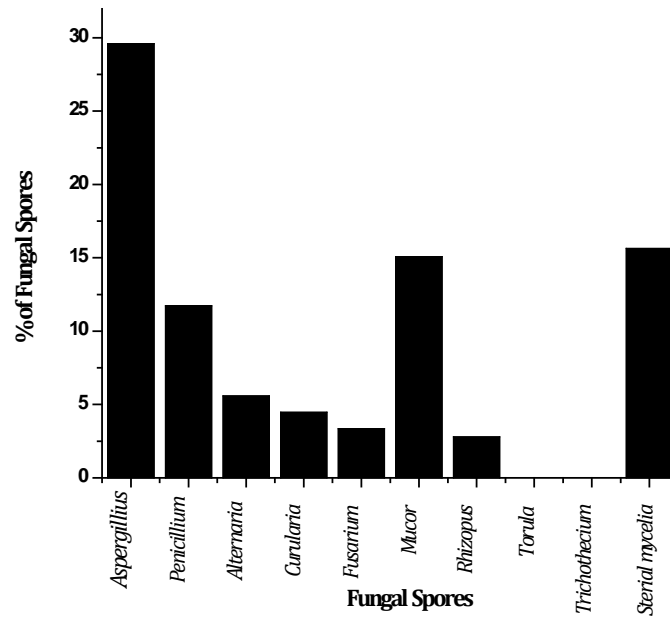
% of Fungal Species in Operation Theater at Christanand Hospital Bramhapuri



% of Fungal Species in O.P.D at Christanand Hospital Bramhapuri



% of Fungal Species in General ward at Christanand Hospital Bramhapuri



% of Fungal Species in Pathology Laboratory at Christanand Hospital Bramhapuri

In the present work the total number of colonies observed that in O.T. -51, O.P.D.-307, G.W.-270 and in pathology laboratory-179. The maximum number of colonies observed in outdoor patient department followed by general Ward and Pathology Laboratory and minimum number of colonies was observed in Operation Theater. In outdoor patient department and general ward (10) different fungal species were observed in indoor environment, while in pathology laboratory (08) different fungal species were observed. And in Operation Theater fungal spores were observed. In this survey the fungal form isolated were similar as studied by other workers. [9-10] In this work it was observed that *Aspergillus Sp.* Was seen maximum percentage of contribution in all four section, followed by *Penicillium Sp.*, *Sterile mycelia*, *Alternaria Sp.*, *Mucor*, *Curvularia*, *Fusarium* , *Rhizopus* are the next common isolated fungal species. *Torula* and *Trichothecium* was seen minimum percentage of contribution and seen only in O.P.D. and General ward. The result also shows that the decreasing diversity and concentration of fungal spores in four different section such as, O.P.D., G.W., Pathology laboratory and O.T. Because of number of people present in that section, number of people visit in that section, area of cleanliness.[11]

Conclusion

After the survey of indoor aeromycoflora at different sites of Christanand hospital Bramhapuri, observed that the number of fungal spore and fungal type are vary in all the four sites. The number of fungal spores is maximum in O.P.D. followed by general ward, Pathology laboratory and minimum in Operation theater. 10 different fungal spores were recorded i.e. *Aspergillus Sp.*, *Penicillium Sp.* *Sterile mycelia*, *Alternaria Sp.*, *Mucor*, *Curvularia*, *Fusarium* , *Rhizopus*, *Torula* and *Trichothecium*. *Aspergillus Sp.*, *Penicillium Sp.* *Sterile mycelia*, *Alternaria Sp.* Are commonly observed in all four sites, but *Aspergillus Sp.* Are most dominant fungal spore. The clean environment is important to reduce the number of fungal spores and help in controlling different allergies. For that purposes this study has tremendous scope in human health.

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