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SOME COMPARATIVE ASPECTS CORELATED WITH CLIMATIC FACTORS OF THE AEROBIOCOMPONENTS AT THREE DIFFERENT SITES OF NAGBHID (MS).

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ABSTRACT

Airborne pollen grains, fungal spores and various other biocomponents are known to play an important role in allergic disorders. A comparative study the concentration of these aerobiocomponents was carried out at Nagbhid during 2016 to 2018 at three different sites. The qualitative and quantitative study was made according to the previously standardized methods and a marked difference at all the three sites were recorded. This variation in aerobiocomponents was directly correlated with the climatic parameters and also the flowering periods in case of pollen grains. Airborne pollen exhibited peak periods between August- October and February-April; airborne fungal spores between July-September and March-May; whereas other aerobiocomponents predominated during dry and windy days. Aerobiocomponents types were more in both the years at site- A (Friends Poultry farm).

KEYWARDS: Aerobiocomponents, Fungal spores, Pollen grains, Poultry farm, Nagbhid.

INTRODUCTION

Aerobiology is a scientific and multidisciplinary approach focusing on the source, release, up-lift, transport, deposition and impact of organisms and biologically significant materials which affect plants, animals and human beings (Tilak1987).The airborne fungal spores are adapted to transfer by means of air in greater extents comparatively to any other biological components whichare transferred by wind such as pollen, insect, bacteria etc. Dust particles including variety of microorganisms i.e. fungi producing spores, pollen grains get airborne are called Aeromicrobiota or aerospora. Aerospora implicating with changing environment and lifestyle act as significant cause of allergy. With the alarming increase in allergic disorders, such as allergic rhinitis, bronchial asthma and atopic dermatitis covering as high as 30% of the population world over, there is an increasing interest in the study of incidence, concentration and movements of bioparticulate matterin the earth atmosphere and their impact on human health. Air monitoring for knowing the diversity, abundance and variation of airborne mycoflora according to seasonal changes. The continuous air sampling is needed and estimation of qualitative and quantitative of aerospora.

MATERIAL AND METHODS

The 'Volumetric Tilak air sampler' (Tilak and Kulkarni, 1970) is an electrically operated device was fixed in the various indoor environment of Nagbhid. The air sampler installed at heightof 1.5 meter from ground level and runs continuously for the period of two consecutive academic year from June 2016 to May 2018. The glycerine jelly mounted 14 slides were prepared from Vaseline coated cello tape on drum by impingement process, cello tape removed from rotating drum of the sampler at the end of 7th day respectively.

The mounted slides were scanned by using binocular research microscope and microphotographs were captured by using micro-camera which directly attached to the microscope. The Spores per cubic meter were calculated by the following formula: Spores/m3 = No. of same type of spore X 14 (Where 14 is the conversion factor for Tilak Air Sampler).

RESULTS AND DISCUSSION

This investigation embodies aeroenvironmental sampling by using volumetric Tilak Air Sampler for a period of two consecutive academic years starting from June, 2016 to May, 2017 and June, 2017 to May, 2018. During the period of air sampling, 71 fungal spore types and 7 other types including airborne mites have been recorded and listed. A clear variation was seen among the fungal spores with respect to changing environmental conditions. Some spores were observed throughout the a year like *Alternaria, Ascospores, Basidiospores, Bitrimonospora, Bispora, Cladosporium, Curvularia Didymosporium, Diplodia, Ganoderma, Helminthosporium, Hytridium, Haplosporella, and Smut*

spores. Some spores are seasonal; *Ascospores*, *Cercospora* and *Chaetomium* were dominant observed in July, August and November month. 21 types of Ascomycotina includes higher percentage contribution were *Ascospores* (18.81%), *Didymospheria* (17.29%) *Bitrimonospora* (8.32%) and *leptospheria* (2.31%), H*istridium* (1.84%) were less. 39 types of spores from Deuteromycotina highest percentage contribution to be *Aspergilli* (41.3%), *Cladosporium* (18.21%), *Nigrospora* (3.65%) and lowest to be *Helminthosporium* (1.21%), *Haplosporella* (1.09 %,), *Diplodia* (1.8%) respectively.

Seasonwise Comparative Percentage Contribution of Some Dominant Fungal Spores duringStudy Period

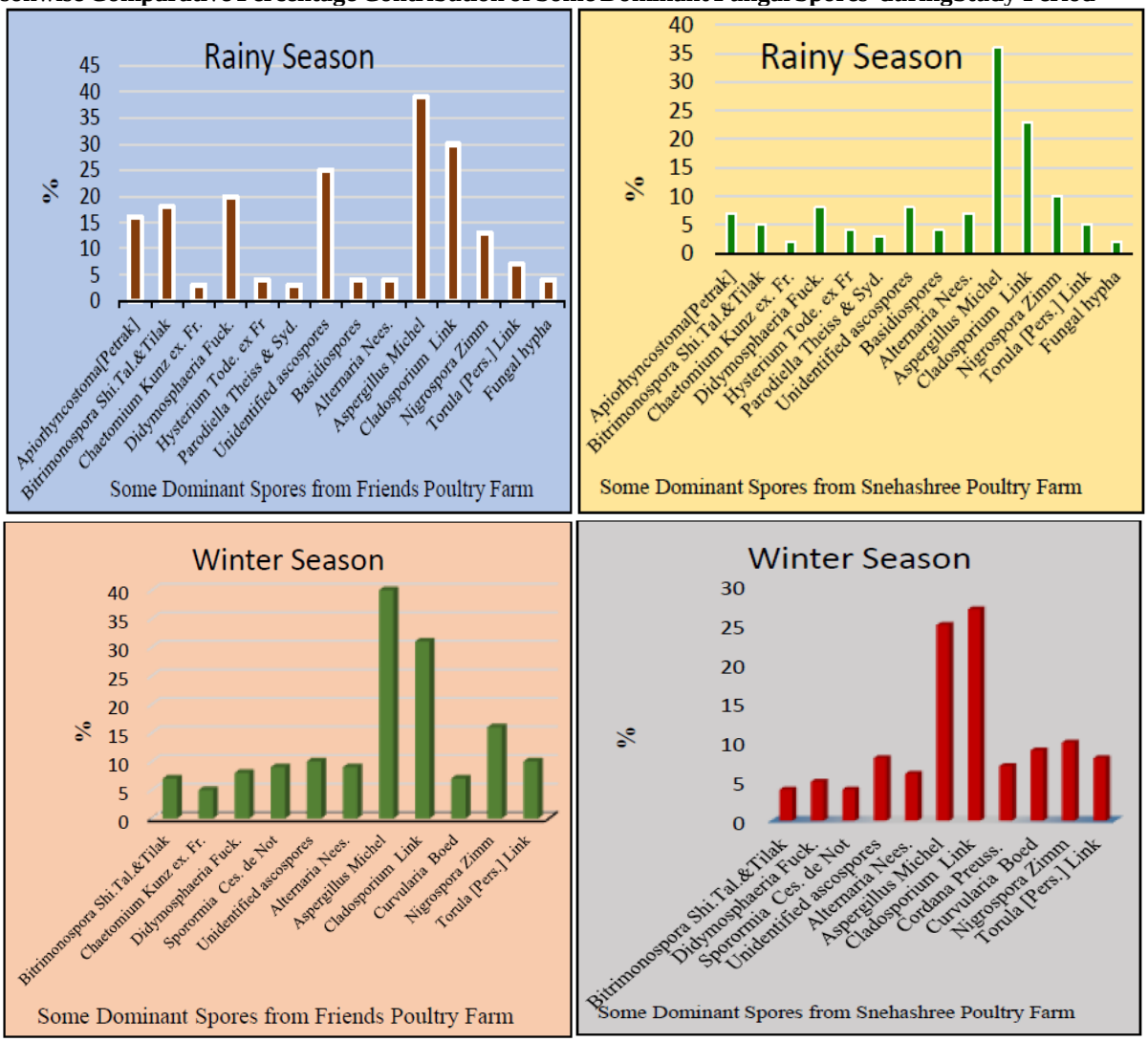


Fig. 1: Classwise Percentage contribution of aerospora to the total aerospora during studyperiod.

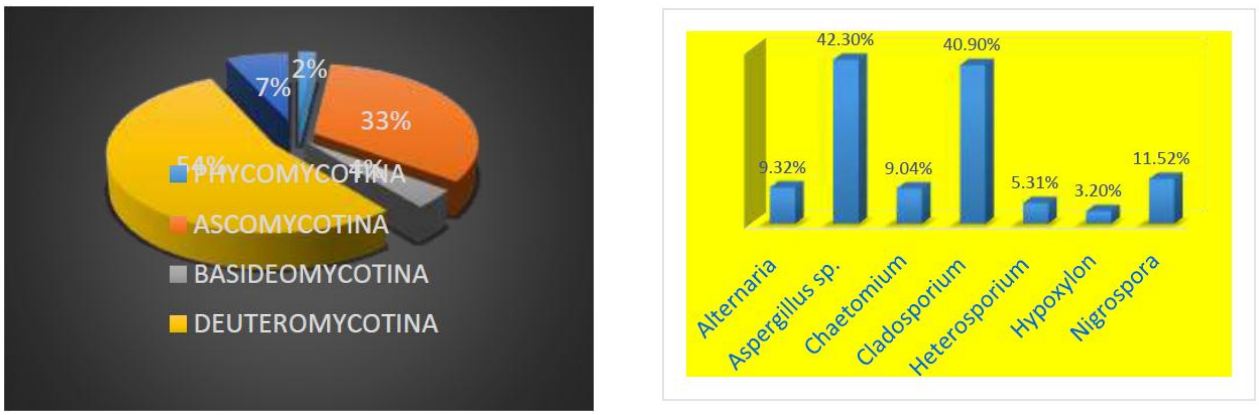
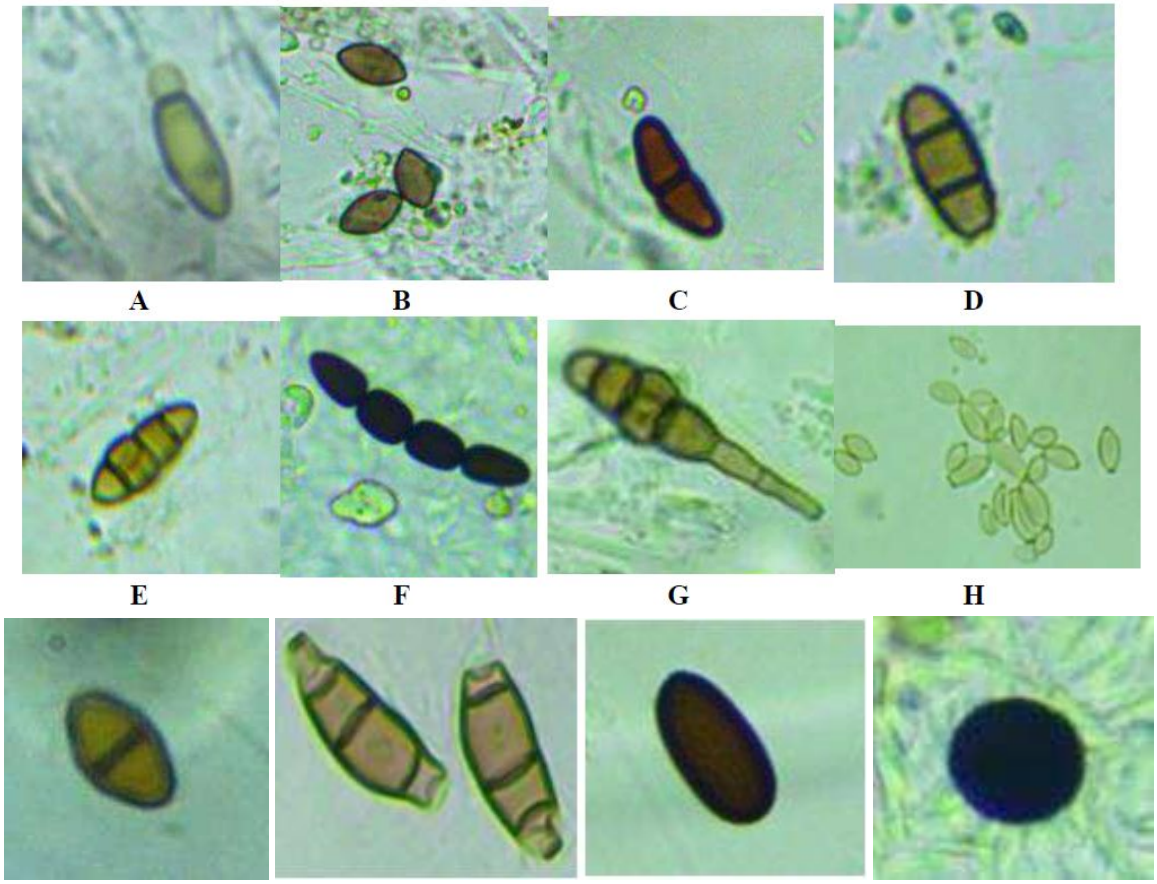


Fig. 2: Percentage contribution of some dominant aerospora to the total aerospora duringstudy period.

CONCLUSION

This study concluded that there is rich mycoflora biodiversity in the indoor environment of poultry farm. Present investigation clearly shown that environmental parameters directly affect on incidence of aerospora. Aerospora have been seemed to act as a bioindicator of the level of environmental bio-pollution and helpful as a bioindicator for rainfall. However bihourly qualitative and quantitative observations are very important for providing data of growth, liberation and dispersion of aerospora. Indoor air qualities are essential for indoor survivals of poultry birds, poultry workers. The efforts have been made for well the well-being of the humans and environment. Monitoring the special and temporal variation in number & types of airborne fungal spores, mites was carried out. At the end of the research work, it was proven that, airborne fungal spores, airborne mites and dust mites were found in large scale. The indoor air, intramural environment of poultry farms had never been free of fungal spores and mites. Conclusion of the present research work to control the dampness by good ventilation and hygiene conditions in indoor should be maintained, which reduce the chance of fungal propagules and mites in the poultry farms.

Microphotographs of some airborne fungal spores obtained during study period from twoconsecutive academic year. (From June 2016 to May 2018)



Ascomycotina*:* - A-*Apioryncostoma,* B-*Cheatomium,* C-*Didymospheria,* D- *Hystidium,* E- *Pleospora,* F- *Sporormia.*
Deuteromycotina*:* - G- *Alternaria,* H- *Cladosporium,* I- *Cordana,* J- *Curvularia,* K- *Haplosporella,* L- *Nigrospora.*

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