Aerial Mycoflora of Lake Ecosystem At Kandhar, Nanded, M.S.

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Abstract- Using the volumetric Tilak Air sampler air borne microbes of lake ecosystem were sampled daily at Kandhar. The Investigations were carried out for five months from 1st Jan 2012 to 31st May 2012. During the sampling period the meteorological data was maintained. The aerial mycoflora analysis reveals different catches which 4 belong to fungal groups one to algal group and rest of the five to other types like hyphal fragments, Insect parts, pollen, protozoan cysts and unidentified group. The maximum concentration of aerial microbiota was found in January ($37058/m^3$ of air) and a minimum in May ($5998/m^3$ of air). Among the fungal spores that were identified *cladosporium species* formed the major component of airspra, other spores like *periconia. Alternaria,* hyphal fragments, *curvularia. Helminthosporium, Chaetomium, Hypoxylon* and *Nigrospora* were frequently recorded. All these except a few ones were proven aeroallergens..

Index Terms- Airspora, Fish lake.

1. INTRODUCTION

Airspora is common all over India but quantitative and qualitative variation of airborne fungal spores was found in different localities. Aerial mycoflora was estimated to find out the correlation between the occurrence of airspora component especially pathogenic fungi and its relevance to the disease incidence of Fish and other aquatic animals. There are many fish parasites which cause skin and gills damage cause difficulty breathing, liver, Kidney, brain, Intestine overall effect the health of fishes. Lake is very rich in water resources and has great potentiality of fish production. Insect and Fishes constitute the major part of the animal population of the lake. As fish is one of the most important food constituents, it is thus, worth significant to study the factors affecting the fish production.

2. MATERIAL AND METHODS

Lake laid between the embarkment of the hillocks towards western part and the residential complex on the southern side. The depth of the lake is practically uniform throughout because there is a definite bank, though slightly more in the central region.The depth is about 20 feet during rainy season. During summer level fall to almost half. Many types of fishes were found in lake mainly Labeo rohita, catla catla, wallago attu, cirrhinus mrigla, ophio cephalus punctatus, clarias batrachus, Mastacumbelus armatus, Anguila anguila, channa gachua mystus singhala, cyprinus carpio etc. During the present investigations air samples were collected by using continuous volumetric Tilak air sampler (Tilak and Kulkarni 1970) at the bank of lake. The spores caught on the slides were identified up to generic level.

3. RESULTS AND DISCUSSION

The results of the analysis of 47 counts it presented in Table-I. The total airspora data shows that there is no spore free period in the lake area. During present survey no phycomycetes members were traced it may be due to summer month which is unfavorable to the most of the pathogenic phycomycetes, Ascomycetes represented by 12 spore types were, recorded throughout the period of investigation. They contributed 5.88% to the total airspora.The spores *chaetomium, Didymosphaeria, melanospora, pleospora and sordaria* were of common occurrence, while others were very less. The members of Basidiomycetes were recorded is Basidiospores, which were present throughout the period of observation. Their contribution to the total airspora was 1.90%. Deuteromycetes contributing 70.85% to the total airspora were of 29 types, which is the highest percentage contribution to the total airspora, *Cladosporium, periconia, Alternaria, curvularia, Helminthosporium and Nigrospora* were trapped more frequently as compared to others.The spores like *Beltrania, epicoccum, Haplosporiells, Humicola,* showed the lowest concentration. The highest percentage of deuteromyctes during the investigation is probably due to their predominance on number of decaying plant parts and aquatic animals in and around the lake. Algal filaments counted into single group. Their percentage contribution to the total airspora was 0.18% Due to hot weather the algal filaments get completely dried up and become light. Thus they can easily disseminated in the air and thus their concentration increases.Hyphal fragments were

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recorded throughout the period of survey. They contributed 5.31% to the total airspora. Insect parts were trapped throughout the period of investigation they contributed 2.05% to the total airspora. Insects are one of the major constituents of the lake thus insects parts are increased in air.Pollengrains (1.31%) and protozon cysts (0.39%) were recorded thought the period of investigation. From the investigations it appeared air spora of lake ecosystem was very rich in microbiota. The spore variation in their distribution owes to the weather parameters. *Cladosporium* is the chief constituent of airspora formed 27.07% contribution to the total airspora, as reported on extramural aerobiology by Meredith (1962) Rees (1964) Harvey (1967) and *Ramalingam* (1971). Reddy N.J.M. & Pandhare M.S. In present survey a few fish pathogenic fungal species were observed in the atmosphere probably indicate the insignificant role of air, airborne microbes in the disease of fishes. During the period of present investigation some of the spores which are of allergenic importance were recorded.

Table 1. Percentage contribution of each spore type to the total airspora from 1st January 2012 to 31st May 2012

Spore type	Percentage Contribution to the total airspora.
PHYCOMYCETES	Nil
ASCOMYCETES	
Bitrimonospora	0.63
Chaeotomium	0.98
Didymosphaeria	0.83
Hypoxylon	0.50
Leptosphaeria	0.31
Melanospora	0.66
Massaria	0.30
Pleospora	0.83
Pringsheimia	0.04
Rosellina	0.15
Sordaria	0.74
Sporormia	0.08
BASIDIOMYCETES	
Basidiospores	1.90
DEUTEROMYCETES	
Aleternaria	8.81
Aspergillus	0.59
Beltrania	0.21
Botrytis	0.09
Botrydiplodia	0.28
Curvularia	4.37
Cladosporium	27.07
Cordana	2.01
Dictyoarthrinium	0.24

Epicoccum	0.34
Exosporium	0.46
Haplosporella	0.22
Helminthosporium	3.18
Heterosporium	1.34
Humicola	0.61
Lacellina	2.43
Lacellinopsis	2.85
Memnoniella	1.36
Nigrospora	2.74
Periconia	9.08
Pithomyces	0.14
Papularia	1.04
Pseudotorula	0.08
Pastolotia	0.04
Spegazzinia	0.24
Tetrococcosporium	0.19
Torula	0.51
Trichoderna	0.14
Trichothecium	0.18
OTHERS TYPES	
Hyphal fragments	5.31
Insect parts	2.05
Algal filaments	0.18
Pallengrains	1.81
Protozoan cysts	0.39
Unidentified.	0.45

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