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AEROMYCOLOGICAL STUDY OVER GROUNDNUT FIELD IN RENAPUR TEHSIL OF LATUR DISTRICT

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ABSTRACT

Aerobiology is a scientific approach that focuses on the release, dispersal, deposition, and effects of airborne microorganisms into the atmosphere. The air contains various particles like fungal spores, pollen, viruses, bacteria, dust particles, insect parts etc. At present aerobiological examination was carried out in Renapur, Tehsil of Latur district using Tilak air sampler. The Tilak air sampler was used to capture aerobic biological components, which incidentally provided continuous quantitative and qualitative data. The purpose of the present investigation is to study the population of microorganisms prevalent in the surrounding air in a groundnut field during a rabi crop season.

KEYWORDS: Aerobiology, Renapur, Groundnut field.

INTRODUCTION:

The air contains various particles including fungal spores, pollen grains, insect parts, bacteria, viruses, dust particles etc. The diversity of microorganisms depends on the environmental conditions, the atmosphere is not static but always dynamic and the context of the place changes from time to time. to place.Fungal spores are primarily responsible for causing pathogenic diseases in crop plants. Aerobiology is a scientific and multidisciplinary approach that focuses on the transport of biologically important materials. Therefore, aerobiology does not only mean the study of microorganisms in the atmosphere. It is a study of the sources of organisms, their release into the atmosphere, their dispersal, their deposition, and their effects on plants, animals, and humans. Groundnut (Arachis hypogea L.) is an important food and oilseed crop in the tropics and subtropics. It is native to South America, where the arachnid species is distributed in a wide range of peanuts from the south of the Amazon to an altitude of 340 s and from the east coast to the eastern slopes of the Andes (Gregory 1980). The crop is the fourth largest source of edible oil in the world. Peanut oil is used in cooking, in making vegetable ghee, in

making shaving cream, as a lubricant. It can be used in different recipes. Arachis hypogaea L. plants are used as fodder for cattle after harvest. Oil cake is a by-product of oil extraction from seeds and is rich in protein and is used as animal feed and fertilizer for many crops. Peanut crop is susceptible to aerial diseases caused by many types of soil, seeds and fungi, viruses, bacteria and nematodes, resulting in reduced kernel production and poor fruit quality.

MATERIALS AND METHODS:

The present study includes qualitative and quantitative analysis of aerospora on land in Renapur tehsil of Latur district in the state of Maharashtra in aerobiological examination. Aerial observation survey was conducted using volumetric tilak air sampler. The Tilak Air Sampler was installed in the center of a 2-hectare area of a groundnut field and its holes were placed on a stool to the west and 2 feet above the ground level. The Tilak Air Sampler is an electrically operated device with a rotating drum.

The drum completes one cycle in eight days. One surface of the acelofen tape is sticky, wrapped around the drum, while the other surface is glued with petroleum jelly to make the spores stick. After the drum completed one rotation, continuous air was sampled at the rate of five (5) liters per minute every eight days for one year rabbi season, the previous cellophane tape was removed and replaced with new cellophane tape. A cellophane tape was brought to the laboratory and cut into 16 (sixteen) pieces of equal length. Each section provides qualitative and quantitative data on the bio-components of day and night air. Slides were created and scanned. Air samples were taken eight days before sowing of groundnut seeds in the experimental field and continued for eight days after harvest.

In the present study, groundnut (Arachis hypoxia L.) was grown on JL24 1.62 ha. During the period from 30 January 2015 to 20 April 2015, the land area was dedicated for one consecutive rabi season groundnut cultivation from 30 January 2015 to 20 April 2015 and air samples were taken eight days before sowing groundnut seeds in the experimental field and it continued for eight days. . Even after harvesting the same. Daily meteorological statistics of temperature, relative humidity and rainfall were obtained from Meteorological Department, Latur.

Table 1.1 Reveals the total airspora and its percentage contribution to a rabbi season on the groundnut field.

Sr. No.	Score Type	First Rabbi Season	
		Spore Concentration	% Concentration
	ZYCOMYCOTINA		
1.	Albugo	491	0.11
2.	Cunninghamella	7935	1.72
3.	Mucor	1270	0.29
4.	Phytophthora	974	0.23
5.	Rhizopus	2269	0.49
	Total	**12939**	**2.84**
	ASCOMYCOTINA		

1	Amphisphaerella	10392	2.21
2	Bombardia	9721	2.07
3	Chaetomium	17179	3.66
4	Claviceps	12912	2.74
5	Cucurbitaria	849	0.22
6	Didymosphaeria	15331	3.26
7	Hysterium	5639	1.21
8	Melanospora	1667	0.39
9	Pleospora	9975	2.17
10	Sordaria	8827	2.75
	Total	**92492**	**20.69**
BASIDIOMYCOTINA			
	Basidiospores	4097	0.93
	Smutspores	21436	4.68
Total		**25533**	**5.61**
DEUTEROMYCOTINA			
1	Altemaria	28053	5.12
2	Aspergillus	652	0.21
3	Beltrania	14951	3.19
4	Bispora	24298	5.18
5	C'eratophorum	7324	1.59
6	Cercospora	22491	4.78
7	Cladosporium	11256	2.42
8	Curvularia	4419	0.98
9	Clasterosporium	19654	4.18
10	Dictyoarthrinium	9109	1.98
11	Dictyosporium	11057	2.38
12	Diplodia	6674	1.49
13	Epicoccum	14618	3.13
14	Exosporium	14251	3.13
15	Fusarium	12536	2.78
16	Helminthosporium	28571	6.08
17	Heterosporium	11305	2.42
18	Hirudinaria	9234	1.97
19	Harknessia	1479	0.38
20	Memnonniella	19398	4.12
21	Nigrospora	11624	2.51
22	Pestabtia	9521	2.17
23	Pithomyces	11858	2.59
24	Pyricularia	5750	1.39
25	Sirodesmium	9321	2.13
26	Sporothirx	5074	1.12
27	Tetraploa	1459	0.303

28	Trichoc lad ium	7150	1.52
	Total	**333087**	**71.243**
OTHER TYPES			
1	Hyphal fragments	3445	0.76
2	Insect parts	2836	0.63
3	Pollen grains	5169	1.18
	Total	**11450**	**2.57**

Table 1.2 Spore Group Percentage

Sr. No	Spore Group	% Contribution
1.	ZYCOMYCOTINA	2.84
2.	ASCOMYCOTINA	20.69
3.	BASIDIOMYCOTINA	5.61
4.	DEUTEROMYCOTINA	71.243
5.	OTHER TYPES	2.57

RESULT AND DISCUSSION:

During aerobiological examination of groundnut crop (Arachis hypogea L.Var.JL24) during Rabi season. The slides were observed and compared with the identification of fungal spores with the help of visual identification, permanent slides and available materials of aerobiology and the results of the analysis given in Table 1.1. In the current aerobiological investigation of the current rabbi season, a total of forty-five of these 45 (45) aerobic components are fungal aerobic bio-components and Zycomycotina has been classified into four groups, namely, three (3) spore types, Escomycotina. Twenty-two (22) spore types, a total of four (4) spore types of bacidiomycotin and a total of 21 (21) spore types contributed to deuteromycotin. The remaining five (5) aerodynamic components form artificial groups and they are of other types.

It appears that temperature, humidity, growth and age of the plant are conducive to the spread and spread of the disease. From January to April, members of the Zygomycotina group contributed a minimum percentage of phytophthora 976 and 0.27% (total contribution/m^3) and a maximum spore percentage of Cunninghamella 7934 and a 1.71% (total contribution/m^3), Ascomycotina percentage. 850 and 0.21% (total contribution/m^3) and maximum spores' percentage of Chetomium 17174 and 3.68% (total contribution/m^3). Basidiomycotina contributed a minimum percentage of Basidiospores 4092 and 0.90% (total contribution/m^3) and Smutspores 21430 and a maximum spore percentage of 4.62% (total contribution/m^3), deuteromycotin contributed a minimum percentage (total contribution/m^3) and a minimum of Asperg Percentage 19% and 190% contribution. Helminthosporium 28570 and 6.09% (total contribution/m^3), other species contributed minimum percentage of insect parts 2839 and 0.62% (total contribution/m^3) and maximum spore percentage of pollen grains 5159 and 1.13% (total contribution/m^3).

Rhizopus members of the Zygomycotina group contributed 3.53% conc / m^3 of air to the total airspore. The concentration of these spores was constant throughout the investigation. April saw the highest percentage of spores.

The Chaetomium member of Ascomycotina contributed 3.04% conc / m_3 to the total airspora in the crop area in March. Smut spores are related to Basidiomycotina in the month of

March has a maximum percentage of 5.42% conc./m_3. Which indicates an increase in the percentage of diseases that have occurred. This is a worrying situation for producers.

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