Study of Aeromycological investigation of Kharif Season over the Groundnut Field fromAusa District Latur

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Abstract

The present investigation deals with the diversity of fungal spores in Groundnut field. The aerobiological investigation carried out by using Tilak air sampler to determine the concentration of airspora over Groundnut field in Ausa region. The period of investigation was carried out from June 2017 to Oct 2017. During present investigation total 55 fungal spore type and 4 other types were recorded. The total no of fungal catches observed were 59. *cladosporium* contributes as highest (43408M³of air) 27.01% followed by *Aspergillus* (19529 M³ of air 12.15%, *Nigrospora* (12895 M³of air) 8.02% *Periconia* (8021 M³of air) 4.99%, *Alternaria* (7915M³of air) 4.92%, Rust Spore(5984 M³of air) 3.72%, *Torulla* (6100 M³of air) 3.80%, *Penicilium* (4427M³of air) 2.75%, smut spores (3825M³of air) 2.38%, The Deutromyctes contributes as dominant group consisting 31 types fungal spore caches i.e.[75.86%] followed by Ascomycetes [3.5%] consisting 14 types of fungal spores and Zygomycetes consist 4 types of fungal spores [1.3%], Basidiomycetes 4 types of fungal spores [10.39%] Oomycocetes 2 types of spores [0.54%] and other groups consist four types fungal spores contributed [8.3 %] **Table (1**)

Keywords: Groundnut, Tilak air sampler, fungal spores.

Introduction:

Groundnut (*Arachis hypogaea* L.) belongs in the family Fabaceae. Oilseed production occupies an important position in the Indian agricultural economy. Our country accounted for 4.77% of total world production of Groundnut in 2004. The major diseases are airborne. Present investigation focused on airospora over Groundnut crop and more stress has been given of fungal components of airospora. For a kharif crop, with the onset of rains in May-June, the field is given two ploughing and the soil is pulverized well to obtain a good tilth. Harrows or tiller can be used for cultivation The crop does best on sandy loam and loamy soils and in black soils with good drainage As an irrigated crop it is grown to limited extent between January and March and between in May and July.

Groundnut crop however continuously influences from various diseases out of which fungal diseases are dominant these are Root rot, Bunchy top, Tikka disease or leaf spot in this connection. Groundnut crop was subjected to airborne fungal diseases, Pande (1976), Bhalke (1981), and Patil (1985). Aerobiology takes into consideration, the studies of all biologically significant materials that are transported in the atmosphere. Fungal study of is of great significant due to its role in the field of human allergy and plant diseases, Agarwal M.K. (1969). The present investigation deals with the airspora over Groundnut field at Ausa region. Ausa is a taluka place in Latur district is situated at **17.89'23⁰"N and 74.04'80⁰"E** latitude.

Material and Methods:

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The investigation was carried out by using Tilak Air Sampler. The Tilak air sampler is an electric device. It contains rotating drum on which cello tape of 1.5 cm Width is fixed and on its nonsticy end petroleum jelly is applied. It was installed in the middle of Groundnut crop field at 1m height from June 2017 to Oct 2017 during kharif season at Ausa region. The apparatus was fixed at such a place so it can operate continuously for 24 hours every week for entire study period. After air sampling the cellotape was removed and equally divided into sixteen equal segments each piece of the tape thus obtained represents air sampling for twelve hours, day and night respectively. Each segment was mounted on clean glass slide with glycerin jelly which is prepared in laboratory according to proportion as per aerobiology manual of Tilak S.T and covered with cover slip. Scanning was done regularly after slide preparation under 10 x 45 eye piece objective combination of binocular research microscope.

Result and Discussion:

The present investigation in relation to general airspora studies over Groundnut field (Arachis hypgeae L.) was carried out for Kharif season from June 2017 to October 2017. Total 55 fungal spore types and other 4 types were recorded it include Fungal fragments, Insect parts, and Pollen grains. *Cladosporium occurrence* throughout the year with highest concentrations From June to Oct. Basidiospore and ascospore types were essentially wet weather spore types. Most of the conidial types like *Curvularia, Nigrospora, Alternaria, Cercospora* and smut were common throughout the season, with higher concentrations in Nov months. The conidia of *Tetraploa, Arthrinium, Albugo* and spores of bunt type occurred in very low concentrations and discontinuously with no definite seasonal trend but were conspicuous because of their size and shape.

Total 59 fungal spore types and other types were recorded it include Fungal fragments, Insect parts, and Pollen grains. Cladosporium occurrence throughout the year with highest concentrations From June 2017 to October 2017. Cladosporium contributes as highest (56429M³ of air) 17.85%, Aspergillus (37458 M³ of air 11.85%, followed by Nigrospora (25916M³ of air) 8.21%, Basidiospores (16178M³ of air) 5.11%, Alternaria (13197M³ of air)) 4.1% Followed by Smut spores (12166M³ of air) 3.83%, Cercospora (10871M³ of air) 3.44%.Lowest contribution was Oospore (556 M^3 of air) 0.17%, mucor (573 M^3 of air) 0.18 %, Arthrinium (755 M^3 /of air) 0.23% and Albugo (2298 M^3 /of air) 0.86%. The Deutromyctes contributes as dominant group consisting 31 types fungal spore caches i.e.[63.6%] followed by Ascomycetes [15.37%] consisting 14 types of fungal spores and Zygomycetes consist 4 types of fungal spores [3.41%] ,Basidiomycetes 4 types [9.8%] Oomycocetes 2 types of spores [0.49%] and 0ther type consist 4 groups contributed [7.2%] **Table (1)**

Table (1)

Variation in total airspora concentration, percentage contribution of different spore (m³ of Air) types during Kharif seasons K1 (June 2017 to Oct 2017) over groundnut field at Ausa

S	Spore Type	Total Concentration of spores	Percentage Contribution to the total
r		to total airospora (m3 of air)	airspora (m3 of Air)
		K1(Kharif First)	K1(Kharif First)
Ν			
0			
•			
	Zygomycotina		
1.	Albugo	2729	0.86
2.	Cunninghamella	2751	0.87
3.	Mucor	573	0.18
4.	Rhizopus	4736	1.4
	Ascomycotina	0	0
1.	Acremonium	687	0.21
2.	Ascospores	223	0.070
3.	Cheatomium	2256	0.71
4.	clavicep	2680	0.84
5.	Hypoxylon	1456	0.46
6.	Hysterium	3865	1.2
7.	Leptosphaeria	10144	3.2
8.	Lophiostoma	177	0.056
9.	Monilinia	220	0.069
10.	Pleospora	12808	4.0
11.	Sporomia	465	0.14
12.	Teichospora	248	0.078
13.	Valsaria	167	0.052
14.	xylaria	13193	4.17
	Basidiomycotina	0	0
1.	Basidiospore	16178	5.11
2.	Rust Spore	2264	0.71
3.	Smut Spores	12166	3.8
4.	Uromyces	376	0.11
	Deuteromycotina	0	0
1.	Alternaria	13197	4.1
2.	Arthrinium	755	0.23
3.	Aspergillus	37458	11.85
4.	Beltrania	913	0.28
5.	Beltraniella	303	0.095
6.	Bipolaris	167	0.052
7.	Bispora	2417	0.76
8.	Cercospora	10871	3.44
9.	Clesteothesium	842	0.26
10.	Cladosporium	56429	17.85
11.	Cordana	666	0.21
12.	Corynespora	2145	0.67
13.	Curvularia	4536	1.43
14.	Deightoniella	69	0.021
15.	Diplodia	427	0.13

16.	Epicocum	2569	0.81
17.	Exosporium	92	0.029
18.	Fusarium	4226	1.3
19.	Helminthosporium	3576	1.13
20.	Heterosporium	712	0.22
21.	Hirudinaria	162	0.051
22.	Memnoiella	579	0.18
23.	Microconidia	837	0.26
24.	Nigrospora	25916	8.2
25.	Penicilium	4348	1.3
26.	Periconia	8273	2.6
27.	Pithomyces	6562	2.0
28.	Spegazzina	591	0.187
29.	Sporothrix	589	0.186
30.	Tetraploa	457	0.14
31.	Torulla	10532	3.33
	Oomycotina	0	0
1	Phythopthora	1022	0.32
2	Oospore	556	0.17
	OTHER TYPES	0	0
1.	Algal filaments	503	0.15
2.	Hyphal fragments	15457	4.8
3.	Insect scales	2311	0.73
4.	Pollen Grains	4578	1.4
	Grand Total	316005	100

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