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Aero mycological Investigations on the Tomato Field at Udgir.

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ABSTRACT

Aero mycological investigations were carried out over the tomato field at Udgir during 2009-10 using Roto-rod air Sampler. Deuteromycotina was largest group of fungi which contributed 69.16% to the total airspora while ascomycotina was minor group with 2.54% to the total airspora. Altogether 39 biocomponents were recorded *Cladosporium* was major contributor with 29.35% contribution to the total airspora.

KEY WORDS: Tomato field, Airspora, *Cladosporium*.

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INTRODUCTION

Aerobiology is an interdisciplinary science which deals with the study of biological components like pollen grains, fragments of fungal spores, hyphal fragments, bacteria, viruses, algae, lichens, plant seeds and other propagules, protozoa, minute insects and insect parts etc. in the atmosphere. Abiotic particulates and gases affecting living organisms have been recently included in the concept of aerobiology. The aerobiological studies are mainly concerned with the interrelationships between the biological components in the atmosphere, sources of biological components, their release in the atmosphere, their deposition and impact on health of plants and animals including human beings. Airborne infections and the resulting diseases threaten the lives and productivity of plants. Airborne diseases still pose a challenge to mankind.

It is evident from the literature that investigations on outdoor (extramural) atmosphere for the detection of microorganisms have got manifold significance and utility. The aero allergenic pollen grains, fungal spores and other biologically significant particles detected from the atmosphere have their impact on human health. The detection and trapping of the significant plant pathogenic airborne fungi over crop fields are ultimately helpful in formulating a better and efficient forecasting system.

It is also clear from the literature that many workers have focused attention towards the relationship between airborne fungi and psychopathological problems. In India several workers like Cunningham (1873)¹, Mehta (1952)², Padmanabhan (1953)³, Ramlingam (1966)⁴, and Sreeramalu (1970)⁵ carried out the systematic and classic aerobiological work on rust spores with reference to wheat, jowar, bajra, rice, sugarcane, cotton, banana, citrus and vegetables at various research centers.

In Maharashtra particularly in the Marathwada region aerobiological work with reference to many crop plants was extensively carried out by various workers like Nagpurne (1973)⁶, Bhalke (1979)⁷, Chakre (1979)⁸, Babu (1983)⁹, Meshram (1990)¹⁰, Naik (1995)¹¹, Pawar (1997)¹², Bembrekar (2005)¹³, Dhaware (2007)¹⁴ and Patil and Pillai (2009)¹⁵ at various centres. However in present investigation airspora was studied over the Cotton field.

MATERIALS AND METHODS

The investigation was carried out with the help of Tilak air sampler, which was installed at height of 1.5 meters from the ground level in the cotton field at Udgir from **June 2017 to March 2018**.

The slides were mounted with the help of glycerin jelly and were observed in the laboratory for further microscopic analysis of the spores.

During the period of investigations the meteorological factors i.e. rainfall, relative humidity and temperature were noted. Frequent field trips were made to assess the disease incidence in the field.

RESULTS AND DISCUSSION-

Analysis of spore catches from the results presented in table-1 revealed that 39 types of bioparticles were trapped on the cellophane tape fixed on the rods of the sampler. out of these 37 fungal spores were identified among these most of the fungal spores were belonged to the class Deuteromycotina (24) contributing 69.16% to the total airspora. *Cladosporium* was the major contributor contributing 29.35% to the total airspora.

Table 1- Showing Contribution Of Various Fungal Spores Over Tomato Field

BASIDIOMYCOTINA		
1	Smut spores	3.75%
2	Basidiospores	2.56%
3	Ganoderma	1.12%
		7.43%
ASCOMYCOTINA		
4	Chaetomium	0.21%
5	Cucurbitaria	0.70%
6	Didymospharia	0.60%
7	Leptospharia	0.55%
8	Melanospora	0.20%
9	Pleospora	0.20%
10	Sporormia	0.08%
		2.54%
DEUTEROMYCOTINA		
11	Alternaria	8.80%
12	Beltrania	0.60%
13	Bispora	2.42%
14	Botrytis	0.56%
15	Cercospora	0.80%
16	Cladosporium	29.35%
17	Cordana	0.12%
18	Curvularia	5.65%
19	Diplodia	0.12%
20	Epicoccum	1.80%
21	Exosporium	0.24%
22	Haplosporella	0.41%
23	Harknessia	0.33%

24	Helminthosporium	3.64%
25	Memnoniella	0.28%
26	Nigrospora	1.38%
27	Penicillium	2.50%
28	Periconia	2.51%
29	Pithomyces	3.10%
30	Spegazzinia	0.80%
31	Sporormia	0.70%
32	Tetracocco sporium	0.82%
33	Tetraploa	0.03%
34	Torula	2%
		69.16%
ZYGOMYCOTINA		
35	Albugo	0.90%
36	Cunninghamella	0.45%
37	Rhizopus	2.56%
		3.91%
OTHER TYPE		
38	Pollen grain	2.80%
39	Unidentified types	4.16%
		6.96%

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