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AIR SPORA OVER ONION FIELD



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A B S T R A C T

Aerobiological survey was carried out over Onion field at Udgir, Dist. Latur (M.S.) from 8th November 1999 to 27th January 2000 and 3rd November 2000 to 15th January 2001, for two rabbi seasons by using continuous Tilak air Sampler. Altogether 56 fungal spores and other types were identified. The Deuteromycetes dominated all other groups and its mean contribution was 71.76%, to the total airspora followed by Ascomycetes 16.36%, other types 7.85%, Basidiomycetes 3.32% and Phycomycetes 0.71%. In the air spora Cladosporium was found to be the dominant type. It was followed by Alternaria, Curvularia, Didymosphaeria, Cercospora, Helminthosporium, Chaetomium, Sordaria, Nigrospora and Aspergilli.

INTRODUCTION

In the air numerous aeroflora are present. These are fungal spores, pollen grains, insect parts. The study of aeromycology is important in plant pathology and in disease forecasting of plant diseases. Onion (*Allium cepa*) is an important vegetable crop grown in India. Several factors are responsible for reducing the yield of this vegetable among which fungal diseases are destructive and reduce the quality and quantity of the crop. The present investigation has been carried out to understand pathogenic and nonpathogenic fungal spores, their seasonal variation and disease forecasting system for the prevention, avoidance and treatment of Onion diseases.

MATERIALS AND METHODS

Air sampling was carried out by using volumetric continuous Tilak air sampler which gives the data of various components of air / unit volume / unit time. The air sampler was kept at constant height of 4 feet from ground level in onion field near Nideban Village,

Taluka Udgir, Dist. Latur. The cello tape was fixed over the rotating drum of sampler. After operating for one week cello tape was cut into 8 divisions and mounted in glycerine jelly on a glass slide. The slides were scanned under the microscope. The identification of fungal types was done with the help of literature ¹⁻². The slides were scanned under the research microscope. The spore counts are expressed as number / m³ of air.

RESULTS AND DISCUSSION

In the present investigation 56 types were reported of which 51 were fungal spores and remaining were other biological components like fungal hyphae, insect parts, pollen grains etc. counted from Onion field. The work was carried out in two rabbi seasons.

First season : 8th November 1999 to 27th January 2000.

Second season: 3rd November 2000 to 15th January 2001. The spores belonging to Deuteromycetes contributed highest percentage (71.76 %) to the total

airspora of two seasons followed by Ascomycetes (16.36%), other group (7.85%), Basidiomycetes (3.32%) and phycmycetes (0.71%). During the period of investigation the dominant spore types were Cladosporium (21.68%) and Alternaria (16.92%), Dominance of Cladosporium in the airspora is also reported at other places in India³⁻⁸. Curvularia (5.01%), Didymosphaeria (4.46%), Cercospora (3.73%), Helminthosporium (3.06%), Chaetomium (2.83%), Sordaria (2.67%), Nigrospora (2.50%) and Aspergilli (2.20%). The pathogenic spore types like Alternaria, Cercospora, Helminthosporium, Albugo were

observed during investigation. This is useful for to advise the farmer about incidence of disease which is going to occur and also to protect the crops from infection and disease. The meteorological factors like temperature, relative humidity and rainfall had a pronounced effect on spore liberation and ultimately affected airspora composition qualitatively and quantitatively. The concentration of spore types in both the seasons were more or less similar but in few cases it was quite different such fluctuations in the incidence of air borne fungal spores were also reported by Nayar from Secunderabad (A.P.)⁹.

Table I : Maximum percentage contribution of some spore types in I and II Rabbi season and mean percentage contribution.

Spore type	Percentage contribution to the total airspora		Mean percentage contribution
	I season	II season	
1) Cladosporium	21.89	21.48	21.68
2) Alternaria	14.75	19.09	16.92
3) Curvularia	4.22	5.80	5.01
4) Didymosphaeria	6.22	2.71	4.46
5) Cercospora	4.26	3.20	3.73
6) Helminthosporium	4.42	1.71	3.06
7) Chaetomium	1.67	4.55	2.83
8) Sordaria	4.10	1.25	2.67
9) Nigrospora	3.46	1.54	2.50
10) Aspergilli	0.99	3.42	2.20

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