



ATMOSPHERIC CONCENTRATION OF AIR BORNE ASCOSPORES AT UDGIR

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ABSTRACT

The investigation of air borne fungi was carried out by operating continuous Tilak air sampler over Soybean (*Glycine max*) Khariff crop at Nidebanvillage, TalukaUdgir, District Latur (M.S) India. Occurrence and variations of air borne ascospores at two different seasons (I season June 2014 to October2014 and II season June 2015 to October 2015) have been observed over Soyabean field .In the present investigation it was evident that the maximum concentration of ascospores 20.69%/m³ of air were recorded during the rainy season. It also becomes very clear that there is a close relation between rainfall and release of ascospores. The maximum numbers of ascospores were found during night time than day time.

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INTRODUCTION

In the air numerous aeroflora are present. These are fungal spores, pollen grains, insect parts. Soyabean (*Glycin max*) is important crop in India. It is extensively cultivated in Marathwada region of Maharashtra state and most of the farmers are dependent on the khariff crop seasons. Soyabean is rich in protein and carbohydrates. It suffers from a large number of fungal diseases, causing heavy loss to the economy of farmer. The paper constitutes variations in occurrence of pathogenic and saprophytic ascospores in two seasons.

MATERIALS AND METHODS

The spores catches were obtained by operating continuous Tilak air sampler (Tilak, 1970) in the Soyabean field for a period of two seasons I (15-06-2014 to 10-10-2014) and II (17-06-2015 to 09-10-2015) at NidebanTq. Udgir, DistLatur. The air sampler was kept at constant height of four feet from ground level in Soyabean field. The cellotape was fixed over rotating drum of Tilak air sampler. After operating for one week callotape was cut into 8 divisions of equal size and mounted in glycerine jelly on a glass slide. The slides were scanned under microscope.

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The identification of fungal spore types were done with the help of literature (Tilak, 1980 and Nair, 1986) and also by comparing with the reference permanent sporeslide.

RESULT AND DISCUSSION

The composition of airspora over Soyabean field comprises Phycomycetes-0.07%, Ascomycetes-14.53%, Basidiomycetes-3.06% , and Deuteromycetes-70.36%.The other group included hyphal fragments, pollen grains and insect parts were also encountered. The ascomycetes group was found to contributed 15.24% and 13.83% to the total airspora over Soyabean field during I and II season respectively. Their occurrence and seasonal variation has been studied which indicated maximum spore concentration was found during rainy period and gradual increase also observed according to the rainfall. It is evident from Table I that, the spores of *Didymosphaeria* (6.15% and 2.14% to the total air spora) recorded a highest percentage contribution and lowest was recorded as *Pringsheamia* (0.01% and 0.01% to the total airspora). These spores are nonpathogenic to the crop except *Erysiphae*. High frequency of ascospores were encountered only when environment was favourable for their formation and release . The incidence of most of the ascospores in the air depend upon the occurrence of rainfall, even a little rainfall leads to abundant release of ascospores. The maximum numbers of ascospores were recorded in the month of August during both the season. The increase in the ascospores concentration in the rainy season is

in accordance with the result of Tilak and Chakre (Tilak, 1978), Ingold (Ingold, 1965), Sreeramulu and Ramlingam (Sreeramulu, 1966), Harvey et.al. (Harvey, 1969), Tilak and Bhalke (Tilak, 1979). The ascospores and their percentage contribution to the total air spora over Soybean had shown in the Table I. It is revealing that spore concentration found to be closely associated with rainfall, high humidity and low temperature. The present investigation shows that, the rainfall has its immediate impact on the spore release of ascomycetes and has been suggested by Meredith (Meredith, 1962). The presence of many types of ascospores in the airspora reveals the abundance of parasitic and saprophytic ascomycetes in and around the field.

Table 1. Incidence of different spore types and their percentage contribution to the total airspora over Soyabean fields during I and II Seasons

Sr.No.	Spore type	Percentage contribution to the total airspora	
		I Season	II Season
1.	Bitrimonospora	0.45	0.02
2	Chaetomium	1.85	0.43
3	Didymosphaeria	6.15	2.14
4	Erysiphae	0.24	0.04
5	Hypoxylon	0.07	0.01
6	Leptosphaeria	0.57	0.91
7	Lophiostoma	0.02	0.004
8	Pleospora	0.65	0.21
9	Pringsheamia	0.01	0.01
10	Sporormia	0.25	0.88
11	Sordaria	4.59	2.19
12	Xylaria	0.28	0.009

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