

## Study of airborne imperfect fungi over bajra (*Pennisetum typhoids*) fields at Ahmedpur (M.S.)



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### SUMMARY

Air sampling was carried out by using Tilak volumetric air sampler over the bajra crop during the *Kharif* season from 5<sup>th</sup> July 2005 to 9<sup>th</sup> October 2005. The main aim of the experiment was to find out the concentration of air borne fungal spores and their relation with disease incidence with growth stages of the crop. The most frequently occurred spore types, which contributed in considerable number were *Cladosporium* (154546/m<sup>3</sup> of air), *Helminthosporium* (43512/m<sup>3</sup> of air), *Curvularia* (43778/m<sup>3</sup> of air), *Alternaria* (32340/m<sup>3</sup> of air), *Nigrospora* (30604/m<sup>3</sup> of air) and some other spores. The total airspora of imperfect fungi group was dominant in entire season as compared to the other groups. The imperfect group was represented by 410704/m<sup>3</sup> of air with the percentage contribution of 67.49% to the total airspora of the *Kharif* season. Maximum concentrations of the imperfect fungal spores were recorded in the month of September in *Kharif* season. From aerobiological sampling, fluctuation in the concentration of fungal spores were observed in different growth stages of the bajra crop. Meteorological parameters such as temperature, relative humidity and rainfall were recorded through out the period of investigation to correlate with the incidence of fungal spores.

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### Key words :

Airspora,  
Imperfect fungi,  
Bajra

The present investigation deals with the aerobiological studies over bajra (*Pennisetum typhoids* Stapf. and Hubb.) var. NBH-1035 Shanti field at Ahmedpur, Dist. Latur (M.S.). India is one of the leading countries in the world for the production of bajra. Next to jowar, wheat and rice, it is important food and fodder crop of India. Like many other crops, bajra is also subjected to various types of plant diseases, which cause extensive damage by reducing the grain production and quality as well (Wilson *et al.*, 1996). Being an important food and fodder crop it was undertaken to conduct the aerobiological experiment.

The paper deals with the study of imperfect fungi group in *Kharif* season over bajra fields at Ahmedpur Dist. Latur (M.S.).

### MATERIALS AND METHODS

Airspora studies were carried out by keeping the Tilak air sampler (Tilak and Kulkarni, 1970) in the bajra (*Pennisetum*

*typhoids* Staff. and Hubb.) fields at village Tambatsangvi, 4 km away from Ahmedpur Dist. Latur. The air sampling was started from 5<sup>th</sup> July 2005 to 9<sup>th</sup> October 2005. Air sampler was installed in the bajra fields with its orifice kept at a constant height at 1.5 meter above the ground level. Slide preparation and scanning were done for estimating spore type and their percentage contribution per day as per the criteria given by Tilak and Srinivasulu (1967). Identification of fungal spore was accomplished with the help of visual identification and consulting the literature of Ellis (1971), Barnett and Hunter (1972) and Tilak (1980) and Nair *et al.* (1986).

Incidence of the various spores of imperfect fungi has been recorded. During the period of investigations, meteorological data such as temperature, relative humidity and rainfall were maintained.

### RESULTS AND DISCUSSION

The aerobiological investigations over

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bajra fields recorded 58 types of spores. Out of these, 3 belonged to Mastigomycotina, 13 to Ascomycotina, 4 to Basidiomycotina, 33 to Deuteromycetes and 5 to other types. Deuteromycotina (Imperfect fungi) was the dominant group in the present study and its contribution was 67.49%.

The present study revealing 33 spore type of imperfect fungi showed the dominance to the airspora of bajra field, as observed in the present study and also recognized by earlier workers, Gregory and Hirst (1957), Sreeramulu and Ramalingam (1964), Wankhede (1983), Ramchander Rao (1987), Reddy (1988), Mali (2002),

Gopan (2004) etc.

It is evident from Table 1 that among all these types *Cladosporium* (25.39%) was found to be the most dominant spore type in the air followed by *Curvularia* (7.19%), *Helminthosporium* (7.15%), *Alternaria* (5.31%), *Nigrospora* (5.02%) in the *Kharif* season over bajra field. (Table 1). Dominance of *Cladosporium* in the airspora was recorded by many workers in India and abroad. They recorded it as a universally dominant spore type. The spores were trapped almost throughout the sampling period. High incidence of *Cladosporium* and other dominant spore types in air was due to their high saprophytic ability and high fecundity. More over the spore liberation was passive. Gregory (1961) suggested that the mist pick up mechanism (minute droplets carried mist laden air) may play a role in the dispersal of *Cladosporium*. Many Deuteromycetes spore types belonged to dry spora group and high incidence was observed among 2-3 days after rainfall.

Another important observation was made which showed that the class Deuteromycetes dominated and was abundantly found throughout the period of sampling. The dominance of Deuteromycetes is favoured by humid climatic conditions which lead to decay and deterioration of vegetation. The decaying matter might serve as a good ground for growth and development of this group of fungi.

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**Table 1 : Percentage contribution of imperfect group of fungal spore types over bajra field during *Kharif* season (5<sup>th</sup> July 2005 to 9<sup>th</sup> October 2005)**

Sr. No.	Spore type	Spore concentration	Percentage contribution
1.	<i>Alternaria</i>	32340	5.314
2.	<i>Aspergillus</i>	11578	1.902
3.	<i>Beltrania</i>	1288	0.211
4.	<i>Bispora</i>	1918	0.315
5.	<i>Botryodiplodia</i>	1484	0.243
6.	<i>Ceratophorum</i>	1414	0.232
7.	<i>Cercospora</i>	11998	1.971
8.	<i>Cladosporium</i>	154546	25.398
9.	<i>Colletotrichum</i>	2632	0.432
10.	<i>Cordana</i>	1358	0.223
11.	<i>Curvularia</i>	43778	7.194
12.	<i>Deightoniella</i>	1498	0.246
13.	<i>Dicoccum</i>	1008	0.165
14.	<i>Diplodia</i>	2912	0.478
15.	<i>Epicoccum</i>	1064	0.174
16.	<i>Exosporium</i>	966	0.158
17.	<i>Haplosporella</i>	6034	0.991
18.	<i>Helminthosporium</i>	43512	7.15
19.	<i>Heterosporium</i>	6440	1.058
20.	<i>Lacellina</i>	3528	0.579
21.	<i>Memnoniella</i>	12376	2.033
22.	<i>Nigrospora</i>	30604	5.029
23.	<i>Periconia</i>	7420	1.219
24.	<i>Pithomyces</i>	7490	1.23
25.	<i>Pseudotorula</i>	2688	0.441
26.	<i>Pyricularia</i>	2394	0.393
27.	<i>Sclerotium</i>	812	0.133
28.	<i>Sirodesmium</i>	1078	0.177
29.	<i>Spegazzinia</i>	2058	0.338
30.	<i>Tetraploa</i>	434	0.071
31.	<i>Torula</i>	7518	0.235
32.	<i>Trichoconis</i>	2170	0.356
33.	<i>Trichothecium</i>	2366	0.388

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