

AIR SPORA OVER TOMATO FIELD AT UDGIR

*Sunita Lohare, Rajabhau Kamble, **Hanmant Lakde and ***V.S. Nagpurne

The present investigation deals with the study of fungal air spora over Tomato (*Lycopersicon esculentus*) field at Udgir. Dist. Latur (Maharashtra) during the period from 1st November 1999 to 27th January 2000 and 1st November 2000 to 15th January 2001 for two rabbi seasons using Tilak continuous air sampler. Altogether 57 fungal spore and other types were identified out of which 01 belongs to Phycomycetes, 12 to Ascomycetes, 04 to Basidiomycetes, 34 to Deuteromycetes and 06 to other types. The Deuteromycetes dominated all other groups and its mean contribution was 76.36% to the total air spora followed by other types 16.72%, Ascomycetes 3.57%, Basidiomycetes 3.31% and Phycomycetes 0.04%. The phycomycetes group was represented by only *Albugo* sp.

In the air spora *Cladosporium* sp. was found to be the most dominant type. It was followed by *Alternaria* sp., *Aspergilli* sp., *Nigrospora* sp., *Torula* sp. and *Curvularia* sp.

INTRODUCTION-In the atmosphere many microbioparticles are present called as air spora. These are fungal spores, pollen grains, insect parts. The study of aeromycology is important in plant pathology and in disease forecasting of plant diseases. Tomato is one of the important vegetable of the world and is rich in Vitamins 'C' and 'A'. Tomato also enrich the health of human beings. There are several factors which reduce the yield of this crop, among which fungal diseases are found to be harmful as it reduces the quality and quantity of the crop. Since not much work has been done on Tomato from Maharashtra region, therefore 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 Tomato diseases.

MATERIALS AND METHODS-Continuous 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. Which enables to analyse microbial population both qualitatively and quantitatively. The air sampler was

kept at constant height of 4 feet from ground level. Field work was done in three acres of land near Nideban Village, Taluka Udgir, Dist. Latur.

The cello tape was fixed over the rotating drum of Tilak Air Sampler. After operating for one week cello tape was cut into 8 divisions of equal size and mounted in glycerine jelly on a glass slide. The slides were scanned under the microscope. The identification of fungal types was made on the basis of size, colour, shape septation of spores. The slides were scanned under 10 X and 45 X eye piece and objective combination under the research microscope. The spore counts are expressed as number / m³ of air.

RESULTS AND DISCUSSION-In the present investigation 57 types have been reported of which 51 were fungal spores and remaining were other biological components like fungal hyphae, insect parts, pollen grains etc. have been counted from Tomato field. The work was carried out in two rabbi seasons.

First season : 1st November 1999 to 27th January 2000.

Second season: 1st November 2000 to 15th January 2001.

In the first season total number of spores counted 367032 spores / m³ and in the second season 318032 spores / m³. The spores belonging to Deuteromycetes contributed highest percentage (76.36%) to the total air spora of two season followed by other types (16.72%), Ascomycetes (3.57%), Basidiomycetes (3.31%) and phycomycetes (0.04%). The concentration and percentage contribution of each group is given in the Table-I. The variations studies for two seasons in individual components of fungal air spora are significant. The dominant spore types are *Cladosporium* sp. (32.37%) and *Alternaria* sp. (13.48%) similar results are also recorded by Arora and Jain in Bikaner (Rajasthan)¹, Dahiya and Gupta in Rohtak city (Haryana)², *Aspergilli* (11.40%), *Nigrospora* (4.31%), *Torula* (4.21%) and *Curvularia* (4.07%), shown comparatively higher of Tomato field.

The pathogenic spore types like *Alternaria* sp., *Cercospora* sp., *Albugo* sp., *Curvularia* sp. rust spore 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

*Department of Botany, Shri Havagiswami College, Udgir, Dist. Latur.(M.S.)

**Department of Botany, Gramin Mahavidyalaya, Kotgyal, Dist. Nanded (M.S.)

***Department of Botany, Maharashtra Udaygiri Mahavidyalaya, Udgir, Dist. Latur.(M.S.)

infection and disease. The meteorological factors like temperature, relative humidity and rainfall had a pronounced effect on spore liberation and ultimately affected air spora composition qualitatively and quantitatively. The concentration of spore types in

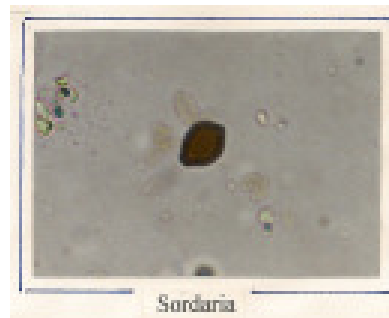
both the seasons were more or less same but in few cases it was quite different such fluctuations in the incidence of air borne fungal spores were also reported by Jyoti Nayar from Hyderabad and Reddy from Vikarabad (A.P.)³.

Table I : Concentration and percentage contribution during the period of investigation of Tomato field.

Ist season : 1st November 1999 to 27th January 2000.

IInd season : 1st November 2000 to 15th January 2001.

Spore group	Total spora		Percentage		Average percentage
	I season	II season	I season	II season	
Phycomycetes	196	98	0.06	0.02	0.04
Ascomycetes	8086	15094	2.49	4.66	3.57
Basidiomycetes	11838	5614	4.91	1.71	3.31
Deuteromycetes	296298	254316	72.54	80.18	76.36
Other group	50614	42910	20.00	13.43	16.72
Total	367032	318032			



References-

- 1) Anil Arora and V.K. Jain 2003, Fungal airspora of Bikaner, Rajasthan, Ind. J. Aerobiology, Vol. 16 : 1 – 9.
- 2) Dahiya P. and Gupta R. 2003, Aeromycoflora of Rohtak city, Haryana, Ind. J. Aerobiology, Vol. 16 : 46 – 50.
- 3) Jyoti Nayar, 1993, Aeromycological survey of a semiurban area in Secundrabad Ind. J. Aerobiology, Vol. 06 : 33 – 35.
- 4) Anisworth, G.C. and Bisby, G.R. : (1971) : Dictionary of Fungi, M.I. Kew, Surry.
- 5) Anisworth, G.C. : (1971) : The fungi – Volume-II.
- 6) Alexopolous C.J. (1964) : Introductory mycology.