



RELEVANCE OF *ALTERNARIA* SPORES OVER GREEN GRAM FIELD

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Abstract

The present paper deals with airborne concentration of *Alternaria* spores over a green gram field for one kharif season i.e. season from 5th June to 28th August 2007 using continuous Volumetric Tilak Air Sampler concentration of airborne *Alternaria* spores was assessed and the role of the Metrological Parameters over the spore concentration were discussed. The spore concentration was maximum (5726/m³) in the month of August 2007 and minimum (4242/m³) in June 2007. Metrological parameters such as Rainfall, Relative humidity, Wind velocity and Temperature showed significant effect on liberation of spores of *Alternaria* in the airspora composition qualitatively and quantitatively.

Key words: Fungal spores, Green Gram field, Air Sampler, Air borne microbes.

Introduction

Aerobiology is an interdisciplinary science which deals with the study of biological components like pollen grains fungal spores, hyphal fragments, viruses, algae, lichens, plant seeds and other propagules minute insects and insects' parts etc. in the atmosphere. The role of fungi in causing diseases to crop plants, man, domestic animals, in bringing about deterioration of food grain in storage, valuable monuments has been subject of great interest for long time. Standing vegetation has a great influence on airspora of any place and it change in weather. Aerobiological survey conducted in various parts of India revealed the richness of airspora. Greengram (*Phaseolus aureus* Rorb.) is one of the most important pulses crop in Marathwada region. Pulses are being grown India since ancient time. It is believed that Green Gram is native of India and Central Asia. Green gram is protein rich staple food. It contains about 2.5% proteins. As considering the survey of this crop that since last few years green gram is suffer with different types of pathogenic disease like Fungi, bacterial, viruses.

In India green gram is affected by various fungal diseases such as leaf spot caused by *Alternaria tenuissima*, *Cercospora canescens*, leaf web blight caused by *Rhizoctonia solani*, Powdery Mildew caused by *Erysiphe polygoni*, Dry root caused by *Macrophomina phaseolina*, Rust caused by *Uromyces*

phaseoli, Anthracnose caused by *Glomerella lindemuthianum*. Seed and seedling root caused by *Rhizoctonia solani*, etc. Due to this disease plant yield and poor quality of pods and seeds. This decreases product and valuation. It has been reported that other legume crop diseases. G. Rangaswami (1966).

It was with the aim to find out the important airborne pathogens, their distribution and seasonal variation in the concentration these investigations were undertaken, the prediction of airborne fungal disease could be attempted. If well in advance information of airspora of this crop is made timely available. In view of the above fact using by continuous Volumetric Tilak Air Sampler carried out an aero mycological survey over green gram field for kharif season. From 5th June to 28 August 2007.

Materials and Methods

In the present investigation an exploration of airborne spores of *Alternaria* (Tilak and Kulkarni 1970) was undertaken over the fields of green gram field for kharif season Tilak Air Sampler was installed at a constant height of 1 Meter above the ground level at Kada Tal Ashti Dist Beed (M.S.) for one kharif season i.e. from 5th June to 28th Aug 2007. The air was sampled at the rate of 5litres/minutes which left traces of deposition over cellophane tape, affixed on the outer surface of drum. The slides were prepared every offer eight days. Before the scanning, the slides were marked with a ball pen point pen in the six equal parts, each part, indicating the spore

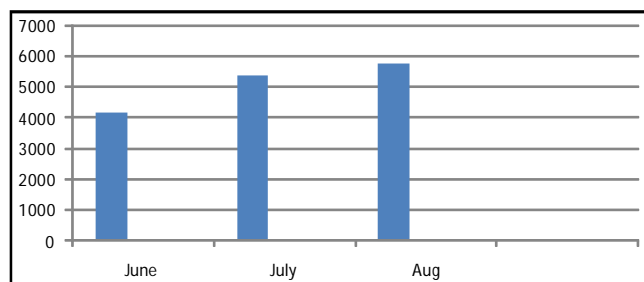


Fig. 1: Histograms Showing the monthly variations of *Alternaria* Spore type during kharif season.

catch of two hours of sampling period. Area of 9600sq.micron of the total area of the trace obtained was scanned under 10X×45X eye piece objective combination of binocular research microscope. The transformation of spore was done which was based on visual characteristics of spore such as size, shapes. The metrological data was recorded during period of investigation.

Results and Discussion

During the period of present investigation, spores of *Alternaria* Contributed as 9.68% which total concentration of 15302/m³ of air. Spores of *Alternaria* occurred continuously throughout the period of investigation spores eventually parasitic or saprophytic were collected on plant material, dead stem and leaves of *Phaseolus mungo*, *Dodonaea*. The maximum monthly mean concentration (5726/m³) was recorded in the month of August 2007 and minimum (4242/m³) of air in June 2007. Mane (1978) of Vaijapur, Thube (1992) reported 7.25% incidence of these spores over wheat field at Ahmednagar. Thite (1998) and Pawar (1998) reported these spores over groundnut fields of Shrigonda and Nanded respectively. Mali (2002) and Pathare (2005) also reported these spore types at kada, while performing aerobiological survey obtained similar results.

Their daily maximum mean concentration (322/m³) was recorded on 23rd Aug 2007 Similar observation were

also recorded by Shashtri (1996) Pawar and Ahuja (1998) Aher *et al.*, (2002) Sheehly & Hugelot (1967).

During the period of present investigation the spores of *Alternaria* were almost continuously found in the atmosphere over the mung field. Metrological parameters such as rain fall, relative humidity, wind velocity and temp showed significant effect on liberation of spores of *Alternaria* in the air spores composition qualitatively and quantitatively.

The pathogenic fungi *Alternaria* generally bring about leaf spot disease incidence, however very much significant in the atmosphere, nevertheless, they did not bring about leaf spot disease incidence to the mung crop. Therefore the entire mung crop in Kharif season 2007 was found healthy.

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