

# STUDIES ON COMPOSITION AND COMPONENTS OF AIRSPORA BELONGING TO PHYCOMYCETES OVER GREEN GRAM FIELDS.

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## ABSTRACT:

Present paper deals with the aerobiological investigation over Green gram fields by using Volumetric continuous Tilak Air Sampler was employed for exploring fungal airspora over a Green gram field at Kada, Tal.Ashti and Dist.Beed from 5<sup>st</sup> June 2007 to 28<sup>th</sup> August 2007 for one kharif season. During the present studies composition & component of the spores belonging to phycomycetes over the Green gram field was studied. For this study of spore catches were prepared, mounted and spore scanning was carried out regularly. Two types of fungal spores belonging to the phycomycetes were trapped during one Kharif season. Apart from these various dust particles were also seen in abundance.

**Key Words:** Phycomycetes, Green Gram field, Air Sampler, metrological parameters.

## **INTRODUCTION:**

Aerobiology is an interdisciplinary science which deals with the study of biological component like pollen grains, fragments of fungal spores, hyphal fragments, bacteria, viruses, algae, lichens, minute insects & insect parts, protozoan, etc. In the atmosphere a biotic particulates & gases affecting living organisms have been recently included in the concept of aerobiology. The aerobiological studies are mainly concern with interrelationship between the biological component in the atmosphere, source of biological component, their release in the atmosphere, their deposition & impact on health of plants & animals including human beings. Airborne infections & the resulting diseases threaten the lives & productivity of plants. Airborne diseases still pose a challenge to mankind. The role of fungi in causing diseases to crop plants, man, domestic animal, in bringing deterioration of food grains in storage, valuable monuments has been subject of great interest for long time. Standing vegetation has a great influence of aerospora of any place and it changes with changes in weather. Aerobiological survey conducted in various part of India revealed richness of aerospora. Green gram (*Phaseolus aureus* Roxb.) 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 25% proteins, which almost three times that of cereals 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 conescens*, 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 lindemuthiana*. 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 5<sup>th</sup> June to 28 August 2007.

#### **MATERIAL AND METHODS:**

Continuous Volumetric Tilak air sampler (Tilak and Kulkarni 1970) was installed in the green gram fields of a constant height at 1 meter above the ground level at Kada, Tal. Ashti, and Dist. Beed for one kharif season i.e. from 5<sup>th</sup> June to 28<sup>th</sup> Aug 2007. The air was sampled at the rate of 5 litres/minutes which left traces of deposition over cellophane tape, affixed on the outer surface of drum. The slides were prepared every after eight days & scanned regularly. The identification of spores was done which was based on visual characteristic of spores such as shape, size, colours, wall structure and ornamentation etc. The daily record of meteorological data was regularly maintained.

#### **Results and Discussion:**

Analysis of spore catches from the result presented in table revealed that two types of fungal spores belonging to the phycomycetes were trapped on the cellophane tape fixed on the drum of the sampler during one kharif season.

Enumeration of the identified spores of fungi belonging to the phycomycetes over the Green gram field for one Kharif season.

*Albugo Pers.*

Spores one celled, nearly globose, thick walled, smooth hyaline to light yellow coloured, 14-16  $\mu\text{m}$ , borne on nonseptate club shaped conidiophores in chains. These're recorded maximum during rainy season. Their contribution to the total airspora was recorded as 1.32% during the one Kharif season. The maximum monthly mean Concentration ( $910/\text{m}^3$ ) was recorded in the month of June 2007 and minimum ( $490/\text{m}^3$ ) in August 2007

during the one Kharif season. The maximum daily mean concentration ( $70/m^3$ ) was recorded on 22<sup>nd</sup> July 2007 during the one Kharif season. The recent observation (Tilak and Patil 1987) indicated that the spores of *Albugo* were prevalent in the air during the months of August and September when humidity range is between 85 and 95% with lower temperature and associated rainfall. Patil (1985) recorded 0.2% spores of *Albugo* contributing to the total airspora over jowar fields at Parbhani. Jogdand (1987), Ahuja (1991) also reported this spore type over jowar fields at Aurangabad. Garje (2000) recorded 0.14% of spores of *Albugo* over jowar fields at Aurangabad. Mali (2002) recorded 0.42% of spores over bajara fields at Kada. Patel (2002) also reported these spores over vegetable fields. Banswadkar (2002) reported these spores over sunflower fields at Udgir.

#### *Rhizopus Ehrenbe:*

Spores one celled unequal, round to oval, thin walled, smooth, striate, dark in mass,  $9.11 \times 7 \mu m$ . It is common saprophyte and facultative parasite on mature fruits, vegetables, and also on many other substrates. Their contribution to the total airspora was recorded as 2.02% during one Kharif season. The maximum monthly mean Concentration ( $2058/m^3$ ) was recorded in the month of July 2007 and minimum ( $1134/m^3$ ) in August 2007 during one kharif season only. The maximum daily mean concentration ( $224/m^3$ ) was recorded on 21<sup>st</sup> July 2007 during the one Kharif season. *Rhizopus* spores were recorded in air by Sreeeamulu and Ramalingam (1966) at Visakhapatnam. Mishra and Kamal (1971) at Gorakhpur, recorded two species of *Rhizopus* throughout the year. Gaikwad (1974) reported 0.56% spores from Ahmedpur airspora. Tilak and Kulkarni (1975) reported 0.2% spores from Aurangabad airspora. Pande (1976) reported 0.4% spores from Nanded airspora. Patil (1985) and Jogdand (1987) from Aurangabad airspora, Kavishwar (1990) from Dhule reported these spores. Narsimha (1966) at Siddipet (A.P.), Pawar (1998) and Thite (1998) recorded these spores at Nanded and Shrigonda respectively. Garje (2000) reported 0.68% spores from Aurangabad airspora. Mali (2002) recorded these spores at Kada. Gopan (2004) and Pathare (2005) recorded 1.05% to the total airspora at Kada.

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