AEROMYCOLOGICAL SURVEY OF VEGETABLE AND FRUIT MARKET AT PATODA, DIST. BEED (M.S)

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ASTRACT

A survey has been made to study the fungal airspora of Vegetable and Fruit Market at Patoda. Sampling was carried out from October 2016 to November 2016. In survey 59 different types of fungal spore have been identified. The most dominant species were Basidiospores followed by *Alternaria, Nigrospora, Curvularia, Smut spores, Cladosporium, Chaetomium, Helminthosporium, Pithomyces, Pleospora, Cercospora, Aspergilles Sp., Rhizopus* etc. Spore concentration of group Deuteromycotina was found to be dominant as compare to other groups of fungi. Spore concentration of Zygomycotina was found to be less. Spore count of *Cladosporium* was dominant in Vegetable and Fruit Market.

Figure: 00 **References:** 13 **Table:** 02

Key words: Air borne Fungi, Metrological parameters. Volumetric Air Sampler.

Introduction

The number of fungal airspora and their diversity vary with time to time of day, weather, season, geographical condition and the presence of local spores sources. The large number of airborne spores was found to be in temperate and tropical regions and least in dry places. (Lacey, 1981). Human beings as well as plants are sensitive to the air particles, Jacobs (1951) identified the term to include dispersion of airborne insect populations, fungal spores, pollen and bacteria. The fungal spores have been known as one of the important environmental bioparticle causing dermatitis, respiratory and cardiac diseases along with allergic manifestation in human beings. Therefore survey on airborne fungi has been conducted in Patoda.

Material and Method

Patoda city is situated in in Beed district in Maharashtra state. Patoda has a tropical dry climate with average temperature ranging between 20^0 to 40^0 C. Continuously sampling was carried out by electrically operated continuous Tilak Air Sampler in the Vegetable and Fruit Market area.

Collection of Data

Tilak air sampler is continuously running in the Vegetable and Fruit Market. The cello tape was fixed over the rotating drum of Tilak Air Sampler. The spore catches of air sampling on loaded tape coated with petroleum jelly were collected weekly. The loaded tape on the rotating drum was cut into 14 equal pieces, each of 4.2 cm in length and mounted on separate slides. These slides were labeled with date, day and night and mounted in method jelly.

Scanning

Loaded tape on each slide was divided into six equal divisions by marking it over cover slip with a pointed ball pen. Each division representing two hours air sampling. Scanning of slides was carried out under the binocular research microscope using 10X X 45 x magnification, as per the procedure mentioned by (Tilak and Kulkarni, 1970). The identification of fungal spore type was made on the basis of size, shape septation of spores using standard keys and available authentic literature. Statistical Analysis

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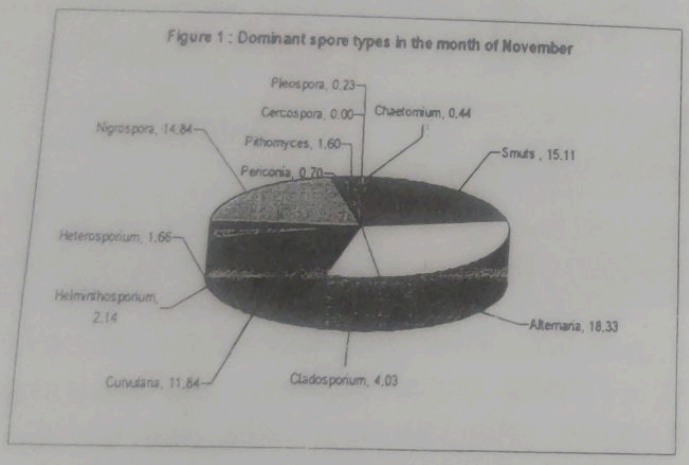
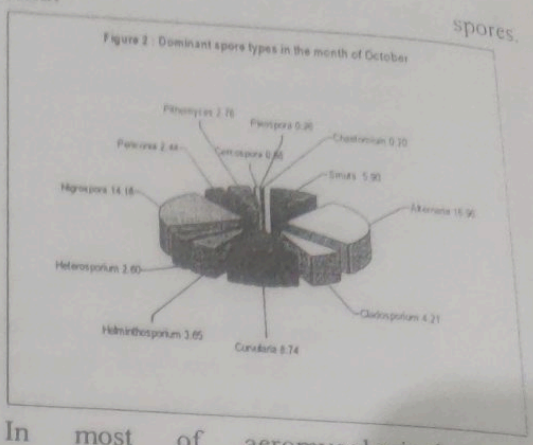
The total spores counted per day. The counted spores were multiplied by conversion factor 14 of Tilak Air Sampler.

Result and Discussion

Total 53 spores of different fungal spores were noted in November month. The abundant spores observed in November month were *Alternaria* (398860), *Nigrospora* (323008), *Curvularia* (257544), *Smut spores* (328692), *Cladosporium* (87612), *Chaetomium* (9604), *Helminthosporium* (46648), *Pithomyces* (34888), , *Pleospora* (4900), *Heterosporium* (36064), *Periconia* (15288). The Figure 1 revealed dominant spores found in November month.



In the month of October, Total 59 different spores were observed. The abundant spores found in October were *Alternaria (167384), Nigrospora* (139944), *Curvularia* (86240),*Smut spores* (58212), *Cladosporium* (*41552), Chaetomium* (1960), *Helminthosporium* (36064), *Heterosporium* (25676), *Periconia* (24108) *Pithomyces* (27244), , *Pleospora* (2548), *Cercospora* (6664). The dominant spores types found in the month of October are shown in figure 2. And most were Alternaria, Nigrospora and smut spores.



In most of aeromycological survey, *Cladosporium* was as one of the most abundant aerospora reported all over world (oliveira et al., 2007). The abundance of *Cladosporium* throughout the year may be attributed to the structural features of the spores such as small size, thin exine and smooth wall which favour and facilitate the transport of airborne spores.

A variation in the temperature, humidity, rainfall and wind was noted during the investigation period. *Cladosporium* species lives as sporophyte or parasite on many kinds of plants. Dry spores produced in excessive quantities can be transported over wide areas and during rainy season its concentration was low (Ebner et al., 1989). During rainy seasons ascospores count were high even on some rainless days. This is because of high incidence of ascospores was taken as indication of possible time of spore liberation.

In European countries, *Alternaria* varies between 20,000 -30000 spores/year (Oliveira et al., 2007) to more than 200,000, only exceeding the levels of 300000 spores quoted for the north – western Iberian Peninsula in some areas (Mediavilla et al., 1997). In several Italian cities, high quantities of *Cladosporium* and *Alternaria* are found from May to October, reaching their maximum levels in September (Zanca, 2003). However, in areas at lower latitudes where precipitation and humidity are limiting factors, but not

before and after summer (Manoharachary et al., 2005).

The month wise percentage contribution of each spore group to the total airspora revealed Deuteromycotina as highest, followedby Basidiomycotina, Ascomycotina and lowest was Zygomycotina.

The diurnal periodicity studies shows that *Chaetomium* and *Basidiospores* belongs to night spora group. The peak observed between 22 to 24 hrs in case of *Chaetomium* and 18 to 20, 22 to 24 hrs peak in case of Basidiospore. Patil (1985), while studying its circadian periodicity has showed that the *Chaetomium* was maximum at night. Hence, he was placed them " night spora" group. He was also reported 6.14 % basidiospores to be maximum in wet season. Thus, it belongs to "wet spora" group. Mishra and Kamal (1971) reported *Chaetomium globosum* during winter only.

CONCLUSION

Aerobiological studies are very important in relation to disease forecasting, so it must be carried out continuously year round in order to study transport of plant pathogenic spores type from place to place and their ultimate role in inciting plant diseases. Pathogenic spores like *Chaetomium, Alternaria, Cuvularia, and Helminthosporium* were observed in sufficiently high concentrations which were responsible for deterioration of library books, manuals, thesis and research articles etc.

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