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Quantitative and Qualitative Analytical Study of Aero-Mycoflora Over Some Edible Fruit Plants

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Abstract: *Aerobiology has always been a great interest for the researchers. An aerobiological research is not confined to quantitative estimation of air particles but has been extended to the impact of aerobiology in crop plants. It was observed that very little work has been done on edible fruit yielding plants in Maharashtra. Therefore, the work was undertaken to study only aeromycoflora over some important edible fruit yielding plants such as Mango, Sapota, Fig, Guava, Citrus, Pomegranate etc. The work was carried out during the period 2019-2020 at Udgir, Dist-Latur (Maharashtra) by using Tilak's Continuous Air-sampler. The present study focussed on quantitative and qualitative analysis of the Air-spora, which revealed 55 types of fungal spores of which 3 belongs to Phcomycetes, 9 to Ascomycetes, 3 to Basidomycetes and 40 to Deuteromycetes. Spores belonging to Deuteromycetes contributed in highest percentage (66.13%) and Phycomycetes lowest (04.36%), Ascomycetes contributed (14.91%) and Basidomycetes (5.85%.) Simultaneously we have also tried to record the incidence of some diseases on these plants. It is hoped that, this information would be of immense use for the farmers in crop management and in protecting these edible fruit plants from the atmospheric fungi.*

Keywords: Aero-Mycoflora

I. INTRODUCTION

Aerobiology is an interdisciplinary science which deals with the study of biological components like pollen grains, fragments of fungal spores, hyphal fragments bacteria, viruses, algae, lichens, plant seeds and other propagules, protozoa, minute insects and insect parts etc. in the atmosphere. The aerobiological studies are mainly concerned with the interrelationships between the biological components in the atmosphere, sources of biological components, their release in the atmosphere, their deposition and impact on health of plants and animals including human beings. The present investigation deals with the quantitative and qualitative study of Aero-Mycoflora over some important edible fruit yielding plants such as Mango, Sapota, Fig, Guava, Citrus, Pomegranate and Custard apple on the edges of field. All these plants were cultivated together at Udgir Dist-Latur (Maharashtra).In recent years, the aerobiological studies assuming a great importance in forecasting crop disease.

II. MATERIALS AND METHODS

The present work was carried out during the year 2019-2020 by using Tilak's Air-Sampler which gives continuous data of air-sampling for 8 days. The slides were prepared and scanning was done regularly. Temperature, relative humidity and rain fall was regularly recorded.

III. COMPOSITION OF THE CATCHES

The air-spora showed various fungi from the groups of Phycomycetes, Ascomycetes, Deuteromycetes and Basidiomycetes. Actually 60 biocomponents were caught of which 55 were fungal spores and 5 other types. However, our intention was to study only fungal spora. Of these 55 fungal spore types, Phycomycetes were 3 (4.36%), Ascomycetes 9(14.91%), basidiomycetes 3(5.85%) and 40 of Deuteromycetes (66.13%).During the year 2001-2002 the total number of spore catches was 90412/m^3 of air, of these Deuteromycotina was the dominant group (56238/m^3 of air), followed by Ascomycotina (17030/m^3 of air), Basidiomycotina (5292/m^3 of air) and the lowest was Phycomycotina (3948/m^3 of air).Among fungal spore, Acaulopage contributed lowest 154/m^3 (0.18%).Albugo and Rhizopus from Phycomycetes group were abundantly found. The occurrence of Albugo was surprising. Probably might be due to the

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presence of appropriate hosts available in the fields. Rhizopus was found abundant due to the humid conditions.From the group Ascomycotina, Hysterium was found dominating contributing 2352/m^3 of air and Leptosphaeria contributing lowest 714/m^3 of air. Didymosphaeria ,Hypoxylon and Sporormia were also common. The Basidiomycotina group revealed Uredospores, Teleutospores and smut spores.

Deuteromycotina contributed highest number to the total air-spora. Cladosporium was dominant 6146/m^3 of air followed by Alternaria, Curvularia, Helminthosporium, Nigrospora etc the lowest was contributed by Peyronellae 168/m^3.

IV. DISCUSSION AND CONCLUSION

During the investigation period we could record some diseases on these plants. Such as powdery mildew by Oidiummangiferae, malformation by Fusariummoniliformae onmango, Citrus canker on citrus, Leaf spot by Pestalotiaetc. This observations clearly indicates the correlation between the fungi occurring in the atmosphere and incidence of diseases.

Thus by forecasting the diseases, the economically important edible fruit plants can be protected from the attack of different fungi which enables in increasing the yield and quality of edible fruits. So that the farmers would not be put to the loss.

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