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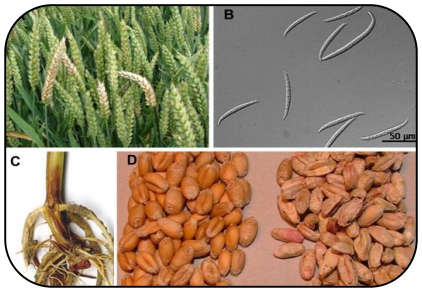
STUDY OF AIRSPORA ON WHEAT



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ABSTRACT

During the current study, the composition and components of aerospora of phycomycetes in sugarcane fields, spore capture slides were prepared, mounted and spore scanning was done regularly. F During the investigation period, only 54 types of fungal spores, hyphae fragments, insect scales and parts, pollen and slides for an unknown group of fungal spores were examined. Below is a list of spores caught and identified from the slide; Each group is sorted alphabetically.

KEYWORDS: *prepared, mounted and spore scanning, sugarcane fields.*

INTRODUCTION :

Aerobiology is an interdisciplinary science dealing with the study of biological factors such as pollen, fungal spores, bacteria of hyphae, bacteria, viruses, algae, lichens, plant seeds and other proliferations, protozoa, micro-insects and parts of environmental insects. Inorganic particles and gases that affect living things have recently been incorporated into the concept of aerobiology. Aerobiological studies are mainly concerned with the interrelationships between the biological components of the atmosphere, the sources of the biological components, their emissions into the atmosphere, their deposition and the effects on human and plant and animal health. Airborne infections and consequent diseases threaten plant life and productivity. Airborne diseases are still a challenge for mankind. It is clear from the literature that research on the external (external) environment for the detection of microorganisms has gained importance and usefulness many times over. Aero allergenic pollen, fungal spores and other biologically important particles found in the atmosphere affect human health. The detection and capture of important plant pathogenic aerial fungi in crop fields is ultimately useful in creating a good and efficient forecasting system.

The main motivation for the development of aerobiology as a scientific discipline is to understand the spread of human, animal and plant diseases in order to prevent it. Therefore, outdoor proliferation of pollen and fungal spores is the main area of application, while air ecology is secondary. The aerobiology of the Integrated Evaluation (VIEPI) project at the Indoor Particulate Exposure (VIEPI) project was a topic aimed at evaluating indoor air quality and workers 'performance of particulate matter (PM). The chemical and biological properties of PM were demonstrated and the demonstration of pollen and fungal spores sampled in indoor and outdoor workplaces to improve preventive and protective measures for occupational health was studied.

It is also clear from the literature that many workers have focused on the relationship between air fungi and phytopathological problems. In India, many workers like Cunningham (1873), Mehta (1952), Padmanabhan (1953), Ramalingam (1966), Sriramalu (1970), and Tilak (1970) did systematic and excellent aerobiological work in the field of wheat. Sorghum, millet, rice, sugarcane, cotton, banana, citrus and vegetables at various research centers. In Maharashtra, especially in Marathwada,

aerobiological work was done on a large scale by various workers at various centers like Tilak (1970), Nagpur (1973), Bhalke (1979), Chakra (1979). However, detailed studies on air spores at the Botanical Gardens are scarce in terms of seasonal conditions.

MATERIAL AND METHOD:

A continuous air sample of volumetric tilak is an electrically driven device consisting of a 10.4"x 10.4" x 8"sized cubicle tin box with an elevated round cap on a closed lid at the top. The sampler requires an electric power supply (AC-230V) and provides continuous air sampling for 7 days. The electric clock mounted in the instrument is synchronized with the drum. Air is absorbed through the vent tube at a rate of 5 liters / min or 0.17Ft3 / min. As the air enters, it hits the transparent cellotape of the rotating drum coated with a thin layer of petroleum jelly, thus trapping the biocomponents in the air.

The rotating drum completes a circle in 7 days, thus tracking a 7-day catch. Glycerin jelly was used to make cellotape. The cellotape was scanned by dividing it into 14 strips of the same size which were mounted on 14 separate clean glass slides. Cellotepe faces 0.5 cm protruding tube holes away from it. The disk rotates clockwise giving 7 days continuous trace. At the end of 7 days, the cellotape was divided into 14 equal parts as marked on the drum, each measuring 4.2 cm. in length. Each piece of cellotape obtained, accordingly, represents a sample area of 12 hours a day or night. The cellotape was placed on a slide of glycerine jelly for 12 hours.The air was absorbed by means of a small fan with 3 wings and fixed in a circular opening in the cover of the air sampler so that air could escape from the collection chamber creating a negative pressure. An exhaust area measuring 6 x 2.7cm was placed in the lid of the device.

This sample is modified from the spore clock model of Panzer's (1957) 24-hour slide spore collector, when compared with other spore traps, it was found that the rotorode sampler (Perkins 1957) is only suitable for spot sampling, although its collection efficiency is 85%. . With at least 45% storage efficiency, Hearst Trap (Hearst 1953) has disadvantages for capital costs, electricity needs, and culture and stuck splash scattered spores. With 0% storage efficiency, Panzer Slide Spore Collector (Panzer 1957) has low retention capacity and requires attention every 24 hours, while Tilak's continuous air sample has 5% collection efficiency, high holding capacity and is also economical. It also provides data for a week.

METHOD OF SAMPLING:

Sample collection efficiency was increased to 75% with the help of Tilak's Continuous Air Sampler. In the corresponding season wheat field were sampled at a constant height of 1µm above ground level. Air samples were taken at the rate of 5 liters / min. And transparent cellotape coated with petroleum jelly was replaced every 7 days for about 12 hours. Petroleum jelly was used as an adhesive on cellotape. The exposed cellotape was cut into 14 equal parts, each part representing a trace area of 12 hours, depending on the day or night. Pieces of cellotape were mounted on a glass slide as a glycerin jelly mount with the best optical properties for visual inspection. They were created as follows-

1. Gelatin – 40 gms
2. Glycerine – 120 ml
3. Distilled Water – 140 ml
4. Phenol Crystal – 0.5 gms
5.

Mix the required amount of glycerin and distilled water in a beaker and heat for 1-2 hours in a water bath. While heating this mixture, gelatin was added stirring slowly to prevent clamping. After complete dissolution of gelatin, phenol crystals were added as preservatives and metabolic inhibitors. This glycerin jelly was used to make permanent slides.

RESULT FINDINGS AND DISCUSSION:

The present investigation relates to the study of meteorology on wheat fields in Kandhar taluka of Nanded district Maharashtra. The study was investigated from November 2019 to June 2020. Trapped biomaterials were divided into different categories e.g. Spores of fungus, pieces of hyphae, parts of insects and scales, pollen and spores of unknown fungi.

1. The current inspection of the wheat field was carried out from 1 November 2019 to 28 February 2020. 56 different types of biological components were reported during the investigation period. Of these, 52 were found in the spore type of the fungus and 4 in other groups.
2. Out of the 52 types of spores, 2 belonged to the zygomycotin, 13 to the Ascomycotin, 2 to the basidiomycotin, and 35 to the deuteromycotina group. Deuteromycotin showed the highest contribution of 56.589%, followed by basidiomycota 19.022% other types 18.293%, Zygomycotina 4.212% and Ascomycotina 1.884%.
3. The aerospora is dominated by Negrospora, Smut spores, and Altemeria, while Cladosporium, Carvularia, Epicocom, Helminthosporium, Aspergillus, Euredosporus, Sclerospora (Osporus), Dictioarthriniumphytomae.
4. During the investigation period, it was found that spores of the Zygomycotina group contribute 4.52% to the total airspace. Ascomycotina contributes 1.93%, Basidiomycotina 16.23%, Deuteromycotina 53.56% and other types 24.24%.
5. The Ascomycotina group was characterized by 14 spore types. Out of these, spores of Leptosphere, Teicospora, Hysterium, Chetomium, Bitrimonospora, Melanospora and Spurmoria were reported in high numbers, contributing 0.583%, 0.371%, 0.306%, 0.211%, 0.084%, 0.073% and Total airspace, respectively
6. The group Basidiomycotina is represented by Smut spores and Uredospores. Smart Spores contributed 11.753% more than Uredospores 6.226%. There was a high concentration in smoke seeds due to smoke diseases occurring in and around wheat and groundnut fields. Smut spores and uredospores were found throughout the investigation period.
7. In this investigation, Emerisela, Lophiostoma, Valsaria, Maseria, Beltraniela, Pliospora and Brachisporium were first recorded in the environment of Kandahar region.
8. During the investigation period, other types such as hyphae fragments, pollen, unknown fungal spores and insect parts and scales were also reported. Of these, pollen was the largest contributor at 6.527%, followed by hyphae fragments at 6.113%, unknown fungus spores at 2.989% and insect scales and parts at 2.571% of the total airspace

CONCLUSION:

The present investigation will help us to understand the various biological components of air and their occurrence on soybean, vegetable and wheat fields in Kandhar taluka of Nanded district. It was found that different spore types are related to climate change field functioning, crop growth and disease incidence in soybean, vegetable and wheat fields during the investigation period. Aerial field studies on soybean, vegetable and wheat fields will help to create a disease prognosis mechanism that will lead to effective control of diseases. The prevalence of pathogenic spores in the present study will also be useful for farmers and cultivators, so that they can plan preventive measures.

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