INTRODUCTION

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Palynology is one of the important branches of natural sciences concerning the spores and pollen as well as certain minute organisms and parts of organisms. The term spore is applied to various types of reproductive bodies of cryptogamic plants formed through sexual and asexual methods. The akinites, endospores, exospores, zoospores, zygospores and heterocysts of algae, uredospores, ascospores, basidiospores, conidiospores, Chlamydospores, aleuriospores, phialospores and radulospores of fungi and the pteridophytic spores are covered by the above term. The pollengrains are the male reproductive bodies of flowering plants.

Being a microscopical science the history of pollen and spore morphology is linked up closely with the invention and further advancement of the microscope itself. The great advances in the technology of the microscope have been paralleled in the science of palynology. With such increase in knowledge this science has widened its scope of interest, with the result that various aspects of palynological studies have been delimited under two main directions namely, basic palynology and applied palynology. Depending upon the various fields of applications of palynology, the applied palynology comprised of palynotaxonomy, Paleo-palynology, melittopalynology, pharmacopalynology, Aeropalynology etc.

The outdoor aerobiology dealing with dispersal of micro-organisms causing plant diseases, dispersion of pollen causing allergenic reactions on animals or human beings and seed dispersal form the extramural aerobiology. The study of contamination in a closed system like buildings, hospitals, caves, grain storage godowns and library buildings etc. form indoor or intramural aerobiology.

The present piece of work was started with an intention to study the pollen and spores in the atmosphere of Kolhapur City. For collecting samples six different sites having different atmospheric conditions such as the one from industrial area, slum area, near crop fields, market area and those having fresh, free air like University Campus were selected. The sampling was done for intramural as well as extramural studies. Daily sampling from these areas was done for a month and the pollen and spore contents of the air were recorded. Dr. Chaubal (1980) has done extramural studies of air-spora of Kolhapur City to some extent. Hence, the work was mainly concentrated on intramural studies. The air-spora of seed godown from Shahu Market Yard was found to be very rich in fungal spore content. As there is no such record of air spora of seed godown from Kolhapur City and being a Post Graduate Student of Mycology and Plant Pathology, further work was concentrated on this single site that is seed godown from Shahu

In the atmosphere, there are micro-organisms and other organic matters including pollen grains and spores. The study of pollen grains and spores in the air that is aeropalynology is of immense interest due to its applications in medicine, forestry, paleobotany and so on. The observations on the dispersal frequencies of pollen in the air have been found to help the problem of in-crossing and distance isolation of trees in forest seed plantation. In paleobotany a knowledge of atmospheric pollen is of use in the interpretation of fossil pollen grains found in recent and sub-recent sediments such as peat and lake deposits. Now it is well recognised that the principle cause of allergies like hay-fever, seasonal asthma are the pollen and spore contained in the air and hence the information regarding the pollen content of air is important to the medical allergists. The study also throws light on the mechanism of pollination and also helps one to understand the spreading of plant diseases, wind being one of the most important agents of dissemination of plant pathogens.

The term aerobiology came into use during 1930 as a collective term for studies in air spora like spores, pollen grains and other micro-organisms. As elaborated by Jocob (1951) it includes dispersion of insect populations, fungus spores, pollen, bacteria,, and viruses. Thus the airborne pollen and spores are studied both as a part of aerobiological studies and as a branch of palynology that is aeropalynology.

Market Yard, Kolhapur. The intramural aeropalynological studies of the above mentioned site forms the subject matter of this dissertation.

In the First Chapter a brief review of literature on Aeropalynogical studies in general and that from India, Maharashtra and Kolhapur has been discussed.

The Second Chapter gives a brief description of Kolhapur City and the site that is Shahu Market Yard area choosen for collecting the air spora. The methodology used for collecting the air spora is also described in the same chapter.

In the Third Chapter the monthwise data of air spora from seed godown for the period January to June 1992 is given in detail.

The Fourth Chapter includes the discussion of probable effects of the air spora on stored grains in seed godown.

The Summary of the work done is given in Chapter Fifth.

The reference cited are listed in the bibliography given at the end of the dissertation.