

INTRODUCTION

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Aerobiology includes the study of dispersion of fungal spores, pollen, bacteria, viruses, molds and insect population, thus including all forms of living organisms which are borne aloft and transported partly or wholly by the atmosphere (Jacob 1951). It also deals with variety of problems related with air borne diseases and their causes.

Aerobiological studies are divided into two categories. The out door or extramural aerobiology is concerned with the survey of biological materials in open spaces like fields, forests. The indoor or intramural aerobiology is concerned with closed systems like buildings, hospitals, glass houses, libraries, godowns etc.

Majority of diseases of man are caused by bacteria and viruses. While those of plants are caused by fungi. The airborne pollen grains of different types of plants and spores of many fungi are allergic in nature and cause various kinds of metabolic disorders in man like skin diseases, asthma, nosobronchial allergy, hayfever etc.

Most of the plant pathogens which cause diseases are air borne. The damage caused is enormous and often these have far reaching social effects which are difficult to asses. The information about release and dissemination of such pathogens from aerobiological survey would ultimately ^{be} helpful in reducing the losses caused by them.

The application of aerobiology has emerged in relation to biodeterioration of materials in stores, equipments, paintings, libraries materials etc. The material inside such closed systems

and the biopollutants present inside interact with each other causing considerable damage to these substrates. The biodeterioration includes mildewing or rotting, chemical damage, staining and spoilage of materials. Hence, the analysis of composition, seasonal variations and the concentration of various types of biodeteriorating microorganisms in the indoor air, the microflora during packing, storage, transit, are gaining importance. Rajan et. al. (1952) introduced first such type of investigations in India. At present there are 18 (Delhi, Agra, Jaipur, Nagpur, Cuttak, Mysore, Lucknow, Meerut, Gorakhpur, Kanpur, Calcutta, Ludhiana, Modinagar, Bangalore, Waltair, Pune, Aurangabad, ^aHyderabad, Kolhapur) centres of Aerobiological research in India where both intramural as well as extramural studies are being carried out.

Considerable data has accumulated on aeroflora of various places in India connected with these centres of researches.

Kolhapur is the moderate city in Western part of Maharashtra. It enjoy's good rainfall from June to September (90 to 100"). In recent years the rains are prolonged to ^{the} end of November month. The average rainfall has also increased. Hence the weather remains damp for nearly six months. As the fungal growth is promoted in damp air, there is possibility of increase in the biopollutants in the atmosphere. According to the observation made by various workers the fungi, bacteria and actinomycetes are the major agents of biodeterioration.

The aeroflora of Kolhapur city has been studied by Kulkarni (1979), Patil (1980), Chaubal and Gadve (1979), Khilare (1993). They have recorded 172 biopollutants in the atmosphere of Kolhapur city.

As the earlier records from Kolhapur city are mainly on extramural studies except Patil (1980) and C.J.Khilare (1993) and because library is such a common place visited by number of peoples regularly, it was thought important to study the biopollutants inside the library building.

Barr. Balasaheb Khardekar Library of Shivaji University, Kolhapur was selected for collecting the data about biopollutants inside the library building. The library is situated in the University premises only. It is 32 years old library. It has books and other documents collection nearly 60 years old. It includes books, Journals, Periodicals, as well as some documents of historical importance which are useful for the research purposes. The library authorities are taking necessary care of these library materials. Still there is possibility of presence of biopollutants responsible for biodeterioration of library materials. To record the presence of any such biopollutants in the air inside library the air samples were collected weekly for a period of one year from October 1993 to July 1994. The dissertation is based on same observations.

The First Chapter describes in brief the work done on the intramural aerobiology from India.

The Chapter Second includes the information about the site ^a Barr. Balasaheb Khardekar Library of Shivaji University, Kolhapur and methodology used for collecting air samples.

The data collected is described in Chapter Third. It includes the monthwise record of biopollutants and the meteorological data during ^o ¹⁶ period of investigation.

The behaviour of biopollutants during different seasons of the year their probable effects on the library materials and the persons visiting the library frequently are discussed in Chapter Fourth. Also the data is compared with the earlier record from Kolhapur city.

The work done is summarised in Chapter Fifth. In the bibliography the references cited are listed.