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SUMMARY

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The survey of biopollutants inside Dr. Balasaheb Khardekar Library of Shivaji University was made from October 1993 to July 1994 with the help of Rotorod air sampler. The air samples were collected weekly (on every Friday) keeping the sampler 1-2 feet above ground for one hour from 4.00 to 5.00 p.m.

The observations made suggest that the air inside library building is not free of biopollutants in any of the month of investigation. The total number of biopollutants collected for the period of 10 months is 175845 .m³

Apart from the dust particles the biopollutants included fungal spores, fungal hyphae, insect parts and some fibres. Among them fungal spores were in dominance and they are referred to 36 genera. The highest concentration of biopollutants was observed in the month of January when they formed 45.568 per cent of the total aerospora. The concentration of biopollutants was minimum in the month of April forming 0.753 per cent of the total aerospora. Marked seasonal variations were observed in the concentration of biopollutants. The concentration of biopollutants was minimum during summer, increased during winter and was maximum during autumn.

The fungal spores contributing 99.478 per cent to the total aerospora are referable to Ascomycetes, Basidiomycetes and Deuteromycetes. The phycomycetes were totally absent during the 10 months of observation.

The ascomycetes contribute 1.057 percent to the total aerospora and are represented by eight genera. Among them Pleospora, Lophiostoma and Didymosphaeria though in lower concentration are nearly constantly occurring. Bagnisiella, Chaetomium, Hysterium, Massaria and Sordaria are inconsistently recorded.

The basidiomycetes represented by Smut and Uredospores form 3.050 percent of the total population. The smut spores are nearly constantly associated with the aerospora.

The Deuteromycetes are most variable and represented by 25 genera. They contribute 95.368 percent to the total aerospora. The spores of Cladosporium stood first with a concentrations of 86.908 per cent of the total population. The genera Aspergillus (0.096%), Alternaria (1.05%), Arthrinium (0.096%), Bispora (0.048%), Corynespora (0.032%), Curvularia (1.006%), Drechslera (0.207%), Exosporium (0.110%), Helminthosporium (0.369%), Nigrospora (1.398%), Pithomyces (0.679%), Spegazzinia (0.116%), Torula (0.358%) and Tetraploa (0.071%) though in lower concentration are constantly associated with the aerospora. The other genera are inconsistently occurring.

In general the aerospora is dominated by Deuteromycetes while the Basidiomycetes and Ascomycetes contribute very less to the total population. Deuteromycetes show two peaks in their abundance -(i) December-February and (ii) June-July. During the month of May they reach to the minimum. In other months they are well represented. Basidiomycetes ^{ea} reach to the maximum during the month of May. During October-November they are better represented while in the month of December to January they lower down being totally absent in the month of February. Ascomycetes are better represented in summer, their concentration is reduced during monsoon and during autumn they reach to the minimum.

The aerospora is dominated by genera Cladosporium, Alternaria, Arthrinium, Corynespora, Curvularia, Helminthosporium, Nigrospora, Torula, Pleospora, Smut spores, Drechslera, Pithomyces, Spegazzinia constantly associated with the aerospora.

Among these constant members of aerospora inside the library building of Shivaji University the genera Cladosporium, Alternaria, Epicoccum, Chaetomium, Fusarium, Sporidesmium and Torula are always associated with papers and books and are active cellulose decomposing fungi. They are pigment forming and stain the paper usually with yellow, brown and black spots. Their action is very slow and require several months for damage to be detected by ordinary means. The old paper samples collected from the library and wall scrappings show presence of Cladosporium mainly and Aspergillus, Penicillium and Torula. In all twelve new spore genera are recorded for the first time from Shivaji University Library Building.

The aerospora inside the library building was also studied by exposing culture plates containing Potato-Dextrose-Agar medium. In general Cladosporium, Aspergillus, Fusarium, Penicillium, Mucor colonies were in abundance while Alternaria, Torula colonies were less abundant.

The role of fungi from library dust and book collection as causative agent of allergic rhinitis and bronchial asthma is well documented. Cladosporium, Alternaria are common members of allergic fungi. In the present aerospora studies inside library building they form dominant genera. Hence nearly 100 persons visiting library were interviewed, 30% shows positive allergic reaction to these spores.

The concentration of indoor aeropollutants was more than that of outdoor air suggesting the source of aeropollutants from within the library building. The observation suggest necessity of proper care of the stored books.