CHAPTER - VII
SUMMARY

1. Aerobiological studies were conducted for a period of two consecutive years starting from 1\textsuperscript{st} June'08 to 31\textsuperscript{st} May'09 and from 1\textsuperscript{st} June'09 to 31\textsuperscript{st} May'10.

2. Three rice fields were selected throughout the Kamrup District. Aerobiological survey had made over three sampling sites using two samplers viz. Andersen Sampler (three stage) and Burkard Personal Sampler. To study aeromycoflora both the samplers were used while to study pollen grains only Burkard Personal Sampler was used. Both the samplers showed respective limitations. Andersen sampler gave result upto species level while Burkard Sampler identified fungal spores upto genus level only. The spore densities obtained by two samplers also differ. Fungal spores of some genus missed by Andersen Sampler and some spores of other genus were missed by Burkard Sampler. This might be due to differences in operational principles of the two types of equipments.

3. It was observed that air was loaded with fungal spores and pollen grains all round the year.

4. Analysis of airborne fungal spores revealed that, a total of 45 spore types belonging to 29 genera were recorded. Out of which 3 belonged to Zygomycotina, 10 to Ascomycotina, 2 to Basidiomycotina and 30 to Deuteromycotina. A number of sterile colonies/ hyphal fragments was also observed.
5. During study period it was found that the dominant fungal spore types belonged to Deuteromycotina, while Ascomycotina and Zygomycotina ranked second and third respectively followed by Basidiomycotina.

6. Based on various periods of rice cultivation, during harvesting period maximum fungal spore types was observed while minimum number of spore was trapped during sowing period. Monthly variation showed maximum catch during November and minimum catch in the month of July.

7. Investigation revealed that by using Andersen Sampler, maximum number of fungal spores was recorded over Rice Field in Jalukbari while by using Burkard Personal sampler maximum number of fungal spore was recorded over Rice Field in Sonapur. But both the samplers recorded minimum number of fungal spores over Rice Field in Madanpur.

8. During study period, it was observed that among the fungal types identified, *Cladosporium* was of the highest incidence occurring throughout the investigation period in all the sites. It was followed by *Aspergillus* and *Curvularia*.

9. During survey period, many phytopathogenic fungal types were observed which contributed major fraction of total fungal flora. Some phytopathogenic fungal types recorded over rice fields were *Alternaria, Curvularia, Drechslera, Epicoccum, Fusarium, Helminthosporium, Nigrospora* and *Pyricularia*.
10. In present investigation, many species whose allergenicity have been proved were isolated. These were *Alternaria*, *Aspergillus*, *Cladosporium*, *Curvularia* and *Drechslera*.

11. ANOVA for trapped fungi was carried out. *Apophysomyces elegans*, *Cladosporium sphaerospermum*, *Curvularia pallescens* and *Nigrospora* sp. were found to be significant by using Andersen sampler while by using Burkard sampler *Monodictys* sp. *Mucor/ Rhizopus*, *Pestalotia* sp., *Pithomyces* sp., *Pyricularia* sp. and *Ulocladium* sp. were significant.

12. Statistical analysis showed that rainfall seemed to be the only climatic factors having significant negative correlation with monthly total fungal count.

13. Based on the two years monitoring of airborne fungi, a fungal calendar over rice field was prepared.

14. During study period a flowering calendar was prepared which included 119 species belonging to 51 families.

15. Analysis of airborne pollen grains revealed 33 pollen types from the three sampling sites. Among them, 2 belonged to Pteridophytes, 1 to Gymnosperms, 3 to Monocotyledons and 27 types were that of Dicotyledons.

16. A total of 26 families were identified. Among them, 2 families belonged to Pteridophytes, 1 to Gymnosperms and rest belonged to Angiosperms of which 2 were Monocotyledons and 21 were Dicotyledons.
17. Maximum number of pollen grains were recorded during the month of March, April, May, October and November.

18. Pollen grains belonging to families of Poaceae, Asteraceae, Amaranthaceae/ Chenopodiaceae, Mimosaceae, Malvaceae were recorded throughout the year.

19. In the present study, pollen grains belonging to family Poaceae represented the highest percentage in the total pollen count. It was followed by Asteraceae and Amaranthaceae/ Chenopodiaceae respectively. Other dominant pollen types recorded were *Mimosa pudica* Linn., *Eucalyptus maculata* Hook, *Terminalia cuneata* Roth, Malvaceae, *Cassia sophera* Linn. and *Euphorbia hirta* Linn.

20. Based on habit, herbaceous pollen grains was dominating factor which was followed by pollen of trees.

21. In the composition of air pollen entomophilous pollen grains ranked the first in order of dominance in almost all the selected sampling sites.


23. Analysis of variance test resulted the significance of pollen grains of *Adiantum caudatum* Linn., *Eucalyptus maculata* Hook and *Pinus kesiya* Linn.
24. Statistical analysis showed that the Pearson's correlation coefficient between relative humidity with total number of pollen grains was significant. It showed a significant negative correlation.

25. Based on two years monitoring, a pollen calendar was prepared.

26. The present study revealed rich diversity of fungi as well as pollen grains over rice fields. The studies will be useful in establishing disease forecasting in crop plants and may be of immense use for medical practitioners and allergy clinicians.