SUMMARY

- Air monitoring was carried out by installing continuous Volumetric Tilak Air Sampler in Sunflower (Mahyco) field. Incidence of airborne microbial population over the sunflower at Rajuri (N) (Beed) was studied for two winter and two summer seasons in the year 2003 – 2004, 2004 – 2005 and 2003 and 2005 respectively.

- The daily record of temperature, relative humidity, rainfall and wind velocity was maintained.

- Airspora analysis revealed “74” components of which 3 belonged to Zygomycotina, 23 to Ascomycotina, 4 to Basidiomycotina, 39 to Deuteromycotina and 5 to other types.

- In the airspora composition as per the order of dominance, the highest percentage of contribution was that of Deuteromycotina (67.11 %, 71.28 % and 67.25 % and 70.91 %) to the total airspora followed by basidiomycotina (24.76 %, 14.88 % and 13.66 %, 15.09 %), Other types (5.46 %, 4.79 % and 8.82 %, 5.73 %), Ascomycotina (2.58 %, 6.88 % and 9.79 %, 6.91 %) and Zygomycotina (0.09 %, 2.17 % and 0.48 %, 1.35 %).

- *Alternaria* stood first in rank in the order of dominance among the total catches in all the seasons during the period of investigation. Its mean contribution to the total airspora was (16.93 %, 24.57 % and 10.85 %, 13.83 %) during two winter seasons and two summer seasons. It was followed by *Nigrospora* (16.54 %, 26.00 % and 10.85 %, 11.72 %), Uredospores (13.76 %, 10.46 % and 4.65 %, 4.47 %), *Curvularia* (11.03 %,
3.62 % and 6.98 %, 10.03 % ), Cladosporium ( 5.22%, 3.23 % and 16.76 %, 14.67 % ), Helminthosporium ( 2.01 %, 2.82 % and 9.50 %, 6.58 % ), Periconia ( 3.21 %, 1.35 % and 1.26 %, 3.04 % ), Hyphal fragments ( 1.93 %, 1.57% and 6.30 %, 2.95 % ) during two winter seasons and two summer seasons respectively ( Table – 1A and Table 1B ).

- In the present study, special emphasis was given to plant pathogens, which occurred in the atmosphere. Special attention was given to find out the source of the plant pathogenic fungal spores, their discharge and dispersion in the air, deposition over the plant surface and their subsequent impact on the host.

- Scelerospora, Rhizopus, Claviceps, Hypoxylon, Parodiella, Sordaria, Tramatosphaeria, Ganoderma, Botryodiplodia, Cordana, Lacellina, Chaetomella as pathogenic spore types appeared abundantly during two winter seasons and two summer seasons.

- Owing to the dry conditions during first and second summer seasons ( 14448 / m$^3$ and 16604/ m$^3$ of air ) prevalence of the total microbial spectrum was noticed less as compared to first and second winter seasons (376824/ and m$^3$ 349552/ m$^3$ of air ) when there was moderate range of temperature, relative humidity and occasional precipitation.

- Meteorological data was obtained throughout the period of investigation from Water and Land Management Institute ( WALMI ), Aurangabad.

- Meteorological parameters had profound effects on spore liberation and subsequently that affected the airspora composition qualitatively and
Concentration of many airborne fungal spores was found in the winter season (2003-2004).

The highest daily and monthly mean concentration observed for each category in consecutive two winter seasons (2003 – 2004 and 2004 – 2005) and two summer seasons (2003 and 2005) with their percentage contribution to the total aestival and seasonal variation in the concentration of different spore types has been discussed.

The present investigation has clearly brought out the correlation between the spore concentration in the atmosphere, meteorological factors and disease incidence in the field.

During the period of investigation in the winter and summer seasons, many allergenic pollen and fungal spore types were estimated for their percentage contribution. This information would be of great use for allergologists and medical practitioners in the etiology of respiratory allergy.

Such surveys would be further useful in formulating the disease forecasting system for sunflower crop in this region.