DISCUSSION
The results obtained in the present study are discussed in the light of available literature from India and wherever necessary the studies from abroad have been referred.

Three different types of spore traps were used in the present study. The aeroscope and vertical cylinder spore traps were used for day-to-day sampling and the rotorod sampler for short period sampling. The aeroscope caught the particles efficiently above the size range of 40 μm and vertical cylinders below the range of 35 μm. No remarkable qualitative differences were noted in the data obtained with these two spore traps. However, quantitatively cylinder spore trap gave slightly higher catch than the aeroscope. Though both traps are simple to install and operate, the scanning of cylinders is more convenient because of the spore deposition on the limited exposed area (trap surface) and thus time can be conserved. Because of this advantage the cylinder spore traps may be recommended for use in routine aerobiological surveys.

The identification of pollen/spore caught on the trap surfaces is a major requirement for the naming and preparation of pollen and spore calendars. The pollen reference slides prepared both by staining and acetolysis methods and fungus spore reference slides prepared from colonies developed through
Plate exposures and from infected and infested plant material greatly helped in the comparative study and identification of pollen and spores caught on the trap surfaces.

Flowering phenology:

In temperate countries there are three clear-cut seasons for tree (spring), grass (early summer) and weed (late summer) pollens (Gregory, 1960); winter is relatively pollen free and occasional overlap in the seasons do occur (Ogden and Lewis, 1960). In tropics such a demarkation of pollen seasons is not seen and overlapping in the seasons is very common because of prolonged flowering seasons (Naranjo, 1958). This may be attributed to richness in the plant species, pronounced spatial and temporal variations in the climate, which does not reach the extremity on either side. As reported from most of the regions of India the atmosphere of Tirupati is also never free of airborne pollen and some plant or other will be in flowering in all seasons. Unlike in temperate countries, two flowering seasons could be discerned. Majority of the grasses and weeds flowering during July-late March and trees during early March-late May. The occurrence of such two seasons in flowering is also true of other cities in India: Jaipur (Kasliwal et al., 1959), Delhi (Shivpuri et al., 1960; Singh and Shivpuri, 1971), Bhopal (Tripathi et al., 1978), Visakhapatnam and Annapolli.
Pollination productivity:

With the exception of grasses, other species such as *Acacia* and *Lepisanthes* among trees and *Cynodon dactylon* and *Cupressus* among weeds, which topped the list in terms of their pollen productivity, did not contribute much to the pollen strikingly, probably because they are entomophilous and sporadic/sporae in their distribution. Though *Cupressus* is common around the trapping site, the obstruction caused by its thick, long leaves might have interfered with the free dissemination of pollen as was noted in the case of *Phoenix* by Janaki Bai and Subba Reddi (1982). On the other hand, *C. spurius* and *Prosopis* which are listed as moderate and low pollen producers respectively have contributed much to the strikingly high number next to the grass pollen in second and third positions respectively. The abundance of these plants around the trapping site and round the year flowering favored the free dissemination of pollen.

Janaki Bai and Subba Reddi (1982) attempted to distinguish the important contributor to the strikingly high number among the stenopelalous group (*Amaranthaceae*–*Chenopodiaceae*) basing on pollen productivity data coupled with their distribution data. A similar attempt
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is made in the present study to distinguish the important contributors among Poaceae and Amaranth-Chenopodiaceae. *Zea* and *Sorghum* might be considered important among Poaceae because of their high pollen productivity, extensive distribution in the surrounding areas. It is also notable that the peak quantities of atmospheric pollen of grasses was noted generally during peak bloom of these two species. *Amaranthus* species might be considered important among Amaranth-Chenopodiaceae group because of their high pollen productivity and are most common in distribution relative to other species. However, the knowledge of pollen productivity of some more species under each group would have thrown more light on this aspect. A comparison of pollen productivity of similar species reported by many investigators (Table 26) showed distinct variations. For example, the pollen production of *Aegrisoma mexicana* is 2650 (Nair and Rastogi, 1963), 8008 (Janaki Bai and Subba Reddi, 1982) and 5700 (present study); production of *Cocos nucifera* is 10590 (Reddi, 1982), 10620 (Janaki Bai and Subba Reddi, 1982), 8256 (Mandal and Chanda, 1981) and 13400 (present study), that of *Cassia angustifolia* is 680 (Janaki Bai and Subba Reddi, 1982), 790 (Reddi, 1982) and 1276 (present study) so on, and these differences can be attributed to the environmental factors and lack of uniform methodology.
Composition, contribution and seasonal variations:

The pollen grains, fungus spores and other biological material caught in the present study indicated that the air-spora at Tirupati is rich in quality as well quantity when compared to the catches of other places in India. Majority of fungus spores are common to all the places, however, only a few pollen types are recorded from all the stations.

Tree pollen outnumbered other two pollen groups (grass and weeds) contributing to 45% of the total catch. This is because trees are more abundant in the vicinity of the trap site, most of which flower for the major part of the year. Tree-pollen preponderance in the air-spora was also reported from Delhi (Lal and Shivpuri, 1962), Lucknow (Lakhanpal and Nair, 1958), Almora (Lakhanpal and Nair, 1960), Bhopal (Tripathi et al., 1977, 1978), Nagpur (Deshpande and Chitale, 1976), Visakhapatnam (Subba Reddi, 1970a, 1970b, Janaki Bai and Subba Reddi, 1982) and Meerut (Gaur, 1978). However, Mandal and Chanda (1979, 1981), Chanda and Sarkar (1972), Gaur and Kagan (1981), Subba Reddi (1970a) from Kalyani, Calcutta, Modinagar and Anakapalli respectively reported that grass/herbaceous pollen preponderance.

In the present study nemophilous pollen dominated the
catch. It is interesting to note that out of 35 pollen types identified 18 types were entomophiles and only 5 types belonged to anemophilous pollen, still anemophilous pollen was 14 times more abundant than entomophilous pollen. Many workers have reported the preponderance of anemophilous pollen over entomophilous (Singh and Shivpuri, 1966, 1971; Kasliwal et al., 1959; Deshpande and Chitlaly, 1976; Gaur, 1978; Subba Reddi, 1970a; Janaki Bai and Subba Reddi, 1982; Nauntiyal and Midua, 1978).

Pollen grains as an entity were caught throughout the year with two pronounced peaks, one during December-January and the other during August-September. Most of the workers (Delhi: Dua and Shivpuri (1962); Singh and Babu (1981), (1982); Almorad: Lekhanpal and Neair (1958); Jaipur: Singhvi et al., (1957); Nagpur: Deshpande and Chitlaly (1976); Ferozepur: Gaur (1978); Kozhikode: Gaur and Bharti (1981); Bhilwara: Singh (1982); Mysore: Malling (1966-67); Visakhapatnam: Subba Reddi (1970a) recorded two peaks and a few (Lucknow: Lekhanpal and Neair (1958), Vishnu-mittre and Khandelwal (1973); Allahabad: Nauntiyal and Midua (1978); Jaipur: Kasliwal et al., (1959); Guwahati: Barua and Chatia (1960); Mokpulii: Subba Reddi (1970a); Kozhikode: Gaur and Kesava (1981); Kalyani: Mandel and Chande (1979, 1981) recorded only a single peak. However, Janaki Bai and Subba Reddi from Visakhapatnam noted three peaks spreading over July-
September, November-December and February-March. Of these, two were in wet period and one in dry period and the highest quantity was recorded during July-September (peak in August).

Individually, grass pollen was the dominant type in the present study exhibiting two peaks; one in September and the other in December. Most of the workers recorded a similar grass-dominated pollen flora, but noted different peaks. Thus at Delhi: August and October (Shivpuri and Dua, 1962), July and October (Singh and Shivpuri, 1966), March-April and August-October (Singh and Babu, 1980b); at Visakhapatnam: August (Subba Reddi, 1970a); August and November (Janaki Bai and Subba Reddi, 1982); at Anakapalli: July (Subba Reddi, 1970a); at Lucknow: October (Vishnu-mittre and Khandelwal, 1973); at Kalyani: October (Mandal and Chanda, 1981); at Modinagar: September-October (Gaur and Bhati, 1980), October (Gaur and Kasana, 1981); at Meerut: September (Gaur, 1978); at Jaipur: September-October (Kasliwal et al., 1959) are the peak seasons. The variations among the various stations might be due the prevailing ecological conditions especially variation in rainfall which chiefly regulates grass growth.

Among tree pollen Casuarina is the dominant type. Gaur (1978), Subba Reddi (1970a) and Janaki Bai and Subba Reddi (1982) also recorded Casuarina as the dominant tree pollen type
from the air of Meerut and Visakhapatnam respectively. Holoptelea was the principal tree pollen of the air of Lucknow (Lakhanpal and Nair, 1958; Vishnu-mittre and Khandelwal, 1973). Quercus, at Almora (Lakhanpal and Nair, 1968); Prosopis at Delhi (Dua and Shivpuri, 1962); Myrtaceae, at Modinagar (Gaur and Kasa, 1981); Urticaceae, at Vellore (Nair, 1963); Anacardta, at Aurangabad (Tilak and Vishnu, 1978) and Araceae, at West Bengal and Shillong (Chanda, 1971; Chanda, Mandal and Lahiri, 1978 and Singh, 1981) are the dominant tree pollen types.

In the present study, Casuarina, a dominant tree pollen type exhibited a major peak in September and a minor peak in January. Similar trend in the seasonal running of the Casuarina pollen was reported at Visakhapatnam (Subba Reddi, 1970a; Janaki Bai and Subba Reddi, 1982) and Anakapalli (Subba Reddi, 1970a). On the contrary Gaur (1978) recorded a single peak falling in November-December in the atmosphere of Meerut.

Prosopis pollen occurred in peak quantities in two seasons during May and June and December and January. Other workers noted only a single peak (Dua and Shivpuri, 1962) from Delhi, Kaalival et al., (1959) from Jaipur.

Cyperaceae pollen did not exhibit any peak but were frequent during May-August at Tirupati. However, a marked peak was observed in August at Delhi (Dua and Shivpuri, 1962); during
June-July at Kalyani (Mandal and Chanda, 1981); during July-September at Lucknow (Vishnu-mittre and Khandelwal, 1973); in August at Visakhapatnam (Subba Reddi 1970a); during July-October (Janaki Bai and Subba Reddi, 1982); during August-September at Anakapalli (Subba Reddi, 1970a); during August-October at Medinagar and Meerut (Gaur and Bhati, 1980; Gaur and Kasana, 1981 and Gaur, 1978).

In the present study Amaranth-chenopod pollen exhibited a single peak during September-November. Most of the workers also noted a single peak but in different seasons, thus at Delhi: October (Dua and Shivpuri, 1962); at Visakhapatnam: September (Subba Reddi, 1970a; Janaki Bai and Subba Reddi, 1982); at Anakapalli: July-August (Subba Reddi, 1970a); at Kalyani: April-May (Mandal and Chanda, 1981); at Meerut: March-April (Gaur, 1978) and at Medinagar: October (Gaur and Kasana, 1981) were the peak months. By contrast Vishnu-mittre and Khandelwal (1973) from Lucknow and Gaur and Bhati (1980) from Medinagar noted two peaks. The former noted the peak during March-April and October and the latter during June and October.

Fungus spores were recorded throughout the year in low or high quantities and highest quantities were recorded during September-December. Barat and Ban (1963) during January-May from Calcutta, Barah and Chatiu (1966) during November from

In the present study Microspora was the dominant type. Rajan et al., (1952) from Kanpur, Wadhwani (1979) from Lucknow recorded 'Aspergilli' as the dominant type. Barat and Das (1963) recorded Cladosporium and 'Aspergilli' as the dominant types in the atmosphere of Calcutta. Mukherji et al., (1968) from Delhi, Subba Reddi (1970a) from Anarakapalli and Visakhapatnam, Janaki Bai and Subba Reddi (1981) from Visakhapatnam, Ramalingam (1971) from Mysore, Chitaley and Bajaj (1973, 1974, 1975) and Chitaley (1977) from Nagpur recorded Cladosporium as the dominant type. Vishnu-Mittre and Khandelwal (1969) from Lucknow, Agarwal et al., from Delhi and Gaur and Kasana (1981) from Modinagar recorded Alternaria as the dominant type. Tilak (1974) and Tilak and Srinivasulu (1967) from Aurangabad reported Curvularia as the dominant type.
Nair (1963) from Vellore recorded the large quantities of *Mucor*. Tilak (1974) from Parbhani recorded *Helminthosporium* and Bhati and Gaur (1979) from Modinagar noted *Thielaviopsis* as the dominant types.


*Alternaria* spores were more frequent during May-September, in the present study. Kalra and Dumbrey (1957) during September and November from Poona, Agarwal et al. (1969) during September, October and May from Delhi, Subba Reddi (1970a) during May at Visakhapatnam and during March at Anakapalli, Ramalingam (1971) during May-September and November-January from Mysore, Vishnu-mittre and Khandelwal (1973) during May from Lucknow, Bhati and Gaur (1979) during May and Gaur and Kasana (1981) during April from Modinagar reported the
peak season. Janaki Bai and Subba Reddi (1981) recorded no such seasonal maxima of *Alternaria* spores from the atmosphere of Visakhapatnam.

*Cladosporium* and *Aspergilli* spores were caught irregularly with less distinct seasonal periodicity. Agarwal *et al.* (1969) recorded the peak quantities of *Cladosporium* during October-November from Delhi atmosphere. Ramalingam (1971) from Mysore reported the high quantities of *Cladosporium* during July-September and November-December and *Aspergilli* during March-June. Vishnu-mittre and Khandelwal (1973) noted the peak quantities of *Aspergilli* in the month December and *Cladosporium* in March from the Lucknow atmosphere. Subba Reddi (1970a) recorded peak quantities of *Cladosporium* in the month January at Anakapalli and in February at Visakhapatnam. Janaki Bai and Subba Reddi (1981) observed the peak of *Cladosporium* in February and that of *Aspergilli* during November-December in the air of Visakhapatnam. Bhati and Gaur (1979) caught high quantities of *Cladosporium* in December and Gaur and Kasana (1981) in March from Hodinagar atmosphere.

In the present study *Curvularia* spores during September-October, Uredospores during September-November and Smut spores during November-December were caught in large quantities. Agarwal *et al.*, (1969) recorded *Curvularia* during October-
November and Smut spores during October in peak quantities, from the air of Delhi. Subba Reddi (1970a) recorded *Curvularia* in August at Anakapalli and in November at Visakhapatnam, Uredospores during February-March at Anakapalli and in January at Visakhapatnam and Smut spores (Chlamydosporae) during February at Anakapalli in peak quantities. Janaki Bai and Subba Reddi (1981) recorded *Curvularia* in large quantities during August-December and Uredospores during December-April, and also reported the irregular pattern of smut spores from the Visakhapatnam atmosphere. Vishnu-mitra and Khandelwal (1973) noted the *Curvularia* in August, Uredospores during March-April and Smut spores in April in large quantities in the air of Lucknow. Kair and Dumbrey (1957) recorded large quantities of rust spores during September-November from the air of Poona. Bhat and Gaur (1979) observed peak quantities of *Curvularia* in April, rust spores in May and smut spores in April from Modinagar. Gaur and Kamana (1980) also from the same town noted the peak of *Curvularia* in October and that of smut spores in March.

A variety of biological material of plant and animal origin which may be considered as hazards to sensitive patients were caught throughout the year with less distinct seasonal variations except algal filaments which exhibited peak during May-April. Nair (1963) recorded the season of algal filaments
during April and June from the air of Vellore. Mittal et al. (1974) recorded that algal filaments were frequent in March, September and October in the atmosphere of Delhi. Gaur and Kesava (1981) noted no distinct pattern from Hodinagar.

**Day-to-day variations**

In the daily concentration of certain pollen types like grass, *Cassia*, *Prosopis*, *Tamarindus* etc., and a few fungus spore types exhibited a pattern of rises and falls in which rises increased up to a maximum before the middle of the season, thereafter decreased, these may be included under the compact category as noted by Hyde (1950), such a pattern was also noted by Subba Reddi (1970a) in pollen types like *Grass, Cassia, Phyllanthus*, *Amaranth-Chenopod, Phoenix, Cyperaceae, Strychnos* and *Podaena*. Some types like *Cyperaceae, Amaranth-Chenopodiaceae* and in a majority of fungus spores no such regularity was noted and several peaks were observed and these may be included under diffuse type as was noted by Subba Reddi (1970a) in the case of *Cocoa* pollen.

**Year-to-year and site-to-site variations**

The recorded variations in the airspore abundance and seasonal running in two consecutive years of the present study are attributable to meteorological differences such as temperature and rainfall (see Fig. 2). Such year-to-year
variations in the airmore was also observed by Dua and Shivpuri (1962), Sreeramulu and Ramalingam (1966), Subba Reddi (1970a), Vishnu-mittre and Khandelwal (1973), Gaur (1978), Janaki Bai and Subba Reddi (1981, 1982) and Mandal and Chandra (1981) from India and Hyde (1972) from U.S.A. to cite a few.

No major variations were noted in the seasonal running of airmore components at two adjacent sites (Dairy Farm and University Campus), may be due to similarities in the incidence of flora in these two sites and identical weather conditions acting on similar independent populations. However, the quantitative differences can be attributed to the availability of suitable vegetation, proximity and strength of source. It may be noted that rich water source was available at Dairy Farm permitting luxuriant growth of various weeds and grasses, and a lot of dead and decaying matter, cattle dung and hay was available throughout the year forming rich source for fungus. In contrast the University Campus is very dry and periodical weeding and other practices interfere with the growth of the source of the airmore. The relatively high catch of grass and weed pollen and fungus spores at Dairy Farm than at University Campus are no doubt as a result of complex inter-
action of physical, biological and ecological factors mentioned above. Such place-to-place differences were also noted by Subba Reddi (1970a), and Chanda (1973) from India and Hyde (1952a), Richards (1956), Hamilton (1959), Lacey (1961) and Davies et al. (1963) from U.K., Oghen (1957), Oghen and Lewis (1960), Morrow et al. (1964), Long and Kramer (1972) from U.S.A.

Circadian periodicities:

The circadian periodicities studied for twelve pollen species, nine of them (Zea, Sorghum, Cynodon, Cassava, Prosopis, Eucalyptus, Enterolobium, Albizzia and Acacia) exhibited forenoon pattern, two species (Calopis and Anaphyllum) showed midday pattern and the remaining exhibited (Azadirachta) early morning pattern. Grass pollen, epidermal hairs exhibited forenoon pattern, total pollen showed forenoon as well afternoon pattern. Alternaria, Niagospora exhibited midday pattern, total fungus spores, fungal hyphae exhibited afternoon pattern and algal filaments, insect scales showed night pattern. The periodicity patterns of some of pollen/spore and biological material noted in the present study was in agreement with patterns of earlier studies, whereas a few types disagreed with those patterns reported earlier, and the circadian periodicities of Azadirachta, Albizzia and Enterolobium pollen were recorded for the first time.
The forenoon pattern of *Casuarina* pollen in the present study is in agreement with the periodicity reported by Subba Reddi (1970a). The large quantities of *Zea* pollen reported in the present study at 0800 h was also observed by Ogden and Hayes (1969) and Jones and Newell (1946). Reddi (1982) observed bimodal patterns in the pollen release in *Cynodon*. However, airborne concentrations exhibited a single peak, but in the present study forenoon pattern was noted. The midday peaks of *Amaranthus* and *Celosia* in the present study is in agreement with the periodicity of Subba Reddi (1970a) who reported high quantities of *Amaranthus* Chenopod pollen between 1000-1200 h and disagrees with the afternoon pattern of Singh and Babu (1982a). In the present study forenoon pattern was noted for *Eucalyptus* pollen but Subba Reddi (1970a) noted early morning pattern for *Myrtaceae* pollen. The forenoon pattern of *Paspalum* in the present study disagrees with the midday pattern of Singh and Babu (1980a). The forenoon pattern of grass pollen is in agreement with the pattern of Subba Reddi (1970a). The total pollen exhibited forenoon as well afternoon pattern. The forenoon pattern was also reported by Subba Reddi (1970a), Singh and Babu (1980a), Hirst (1953) and Lacey (1962) noted the afternoon pattern.
The midday/afternoon pattern of *Alternaria* noted in the present study was also reported by Hirst (1953), Gregory and Sreeramulu (1958), Sreeramulu (1959), Sreeramulu and Ramalingam (1961a, 1966), Hamilton (1959), Meredith (1962), Pady and Kramer (1967) and Subba Reddi (1961). Micromyces which also exhibited midday/afternoon pattern in the present study is in agreement with previous studies made by Sreeramulu and Seshavataram (1959, 1962), Sreeramulu and Ramalingam (1963a), Meredith (1961) and Shency and Ramalingam (1975). The afternoon pattern of total fungus spores in the present study can be compared with the pattern reported by Sreeramulu (1961). The afternoon pattern of fungal hyphal fragments is in agreement with the pattern reported by Hamilton (1959), Sreeramulu (1961) and Pady and Kramer (1967). In the present study algal filaments exhibited night pattern whereas Hamilton (1959) reported afternoon pattern. Epidermal hairs exhibited forenoon pattern but Hamilton (1959) recorded afternoon pattern. The night peak of insect scales is in close agreement with the post-dusk pattern of Subba Reddi (1970a).

**Effect of weather:**

A definite correlation was observed between the incidence of pollen grains, fungus spores and biological material in the air and the prevailing weather conditions. Their incidence
and increase in the concentration could be related positively with temperature and negatively with relative humidity. Most of the pollen types were recorded in low quantities during the night when temperature will be at minimum and relative humidity at its maximum and such a correlation was also noted by Hyde and Williams (1945), Hirst (1953), Hamilton (1959), Sreeramulu and Ramalingam (1964), Ramalingam (1966-67) and Mandal and Chanda (1981). However, insect scales, setae, algal filaments and pollen of Acaciadra responded positively with the relative humidity and of course, negatively with temperature. Rain had a decided effect on the airspora. It may be noted from day-to-day incidence of various components of airspora that the numbers pronouncedly decreased during the rainy days. Hyde and Williams (1953), Hirst (1953), Sreeramulu and Ramalingam (1964) also observed the influence of rain on the airspora. However, Ascosporas, Kithyayces, Pleosporas etc., were caught in large quantities during the rainy season and such an effect of rain on fungus airspora was noted by Keith and Jones (1926), Hirst and Stedman (1963), Sreeramulu (1966), Tilak and Srinivasulu (1971), Tilak (1974) and Janaki Bai and Subba Reddi (1981) to name a few.

Clumping in "airborne fungus spores"

The clumping of spores forming a single dispersion unit
is of common occurrence in some fungus spore types such as \textit{Cledosporium}, smut spores, etc., and such an information would be valuable in estimating the infection units, dispersal distances, impaction etc. (Rama\textsuperscript{a}lingam, 1971). In the present study a greater proportion of the spores occurred in single units and spore types like \textit{Cledosporium}, 'Aspergilli', smut spores, \textit{Terula}, \textit{Euplospora} etc., occurred in aggregates of spores in higher percentage. Davies (1957) analysed the occurrence of clumping in \textit{Cledosporium} as 69.63\% in single units and the rest in aggregates of spores of 2 or more and estimated the average dispersion unit as 1.7 spores. Sree\textsuperscript{a}g\textsuperscript{a}nulu and Vittal (1972) estimated that number of smut spores in a clump varied from 5 to 8 at different hours in the day. \textsuperscript{a}m (1971) noted that \textit{Cledosporium}, smut spores, 'Aspergilli' and \textit{Rhizopus} spores occurred in highest frequency in single spore units. He also observed that 80\% of the fungal hyphal fragments occurred in single units, 9\% as groups of 2, 4\% as groups of 3 etc., while 66.5\% of \textit{Alternaria} spores were caught as single units, 12.5\% occurred as two spores and 0.8\% as three spored chains. Shency and Ramalingam (1976) observed that nearly 20\% of the airborne chlamydospores of smuts \textit{(Sphacelo\textsuperscript{a}thec\textsuperscript{a} sorghi)} occurred in clumps with 2-65, Gaur and Kasera (1981) noted that \textit{Cledosporium}, small round spores and smut spores disperse as a spore unit of more than
50 spores. In *Alternaria*, *Bipora*, *Epicecum* the dispersal unit is usually not more than 15 spores and *Curvuloria*, *Uromyces*, *Helminthosporium*, *Nigrospora* etc., generally occur as single individual units.

**Probable implication of airborne bioparticles at Tirupati as potential allergens:**

In an effort to focus attention on those flowering plants which are the proper concern of allergists Thommen (1931) proposed five postulates which can be applied to a plant before it is regarded as a probable cause of epidemic or widespread hay fever. These postulates are now duly modified by Hyde (1972) to cover all the airborne particles and they are as follows:

1. The pollen or the spore must contain an exitant of hay fever or asthma.

2. The spore must be produced in sufficiently large quantities.

3. The spores must be sufficiently buoyant to become airborne.

4. The plant species concerned must be widely and abundantly distributed, and

5. The patient must experience symptoms at a time or times when the spores concerned were present in large quantities in the air.
Due to lack of facilities the clinical studies were not carried out. However, basing on the results of clinical studies made at V.P. Chest Institute, Delhi; S.M.S. Medical College, Jaipur; K.G. Medical College, Lucknow and Base Institute, Calcutta and comprehensive studies made by Kasliwal et al. (1955), Kasliwal and Solomon (1956), Shivpuri and Dua (1963), Shivpuri and Singh (1965), Shergave et al. (1961), Shivpuri and Agarwal (1969), Agarwal and Shivpuri (1974), Agarwal, Singh and Shivpuri (1974), Meghatri and Singh (1971), Chand et al. (1978), Pand and Choudhri (1981) who have recorded and established a number of pollen and spores as aeroallergens and keeping in view of the Thommen's postulates the following pollen and spores caught in the present investigation have been considered as potential aeroallergens.

Pollen arines:

Grass, com rath-chenopod, comone, Phyllanthus, Ceanorina, Ricinus, Prosopis, Composite, Cocoa, Cassia.

Fungus spores:

Alternaria, helminthosporium, aspergilli, Curvularia, Cladosporium, Fusarium.

however, the allergenic potentiality of other types should
not be underestimated. A detailed clinical investigation of pollen/spores recorded in the present study is needed to determine the exact local aeroallergens.