Indian J.Sci.Res. 12 (2): 189-192, 2017 ISSN: 0976-2876 (Print)
ISSN: 2250-0138(Online)

DIFFERENT TYPES OF AERO-ALLERGENS CAUSING VARIOUS ALLERGY IN DISTRICT DURG

PRATIKSHA PANDEY[1]

Department of Botany, Bhilai Mahila Mahavidyalaya, Bhilai, Chhattisgarh, India

ABSTRACT

Aero-allergens like pollen, dust particles, fungal spores, dander, and many others biopollutents play important role in allergic disorders particularly asthma, rhinitis. The prevalence of various type of allergy among the population has been increasing rapidly. The role of allergens varies with environmental conditions, nature of allergens and degree of exposure. Increase carbon dioxide concentration and increased temperature are also responsible for pollen production and the allergen content of pollen grains. Climates change also influences the concentrations of airborne allergens. Following fungal spore were obtained from atmosphere e.g. *Aspergillus, Fusarium,, Candida, Cladosporium, Curvularia* and pollen allergy caused by from species of *Chenopodium, Eucalyptus, Brassica, Parthenium,* were mainly responsible for allergy in district Durg. The present study was aimed to assess the prevalence of fungal, pollens and dust allergens by skin test in allergenic patients in District Durg (C.G.)

KEYWORDS: Allergens, pollens, Environmental conditions.

Aerobiological study deals with multidisciplinary accounts of microorganisms, pollen flora, dust particles and their dispersion, and their impact on plants, animals and human beings. All these aero-particles are found in close environment of human beings and their role vary with the environmental conditions such as climate factors and degree of exposure. These aero-flora play significant role in the development of the sensitization & triggering of many allergies, asthmatic attack in man & animal both (Gill *et.al,* 2016). Similarly pollen particles are another risk factor for allergy . Most airborne pollens are shed from plants, released in huge amount and produce allergic problems such as allergic rhinitis and high fever.

Conventional studies on air fungal flora, population counts, identification isolation & pure culture, were studied by many workers from time to time i.e. Gilman 1959, Barnett H L 1960. Agrawal and Shivpuri 1974, Agashe SN and Vinay P 1980, Kennedy & Smith 1995, Tilak 1998, Pugalmaran and Vittal 1999, Begum and Ahmed 2002, Similarly different pollen-flora found in atmosphere and in relation to climatic conditions, seasonal prevalence, were studied by many workers, i.e. Nair P K K 1966, Verma and Sonvey 2014, Swane and Giri 2010. The present work has been undertaken to assess the distribution pattern of Airborne flora and Air fungal flora in different seasons of Bhilai township.

MATERIALS AND METHODS

For the study of aero-mycoflora, five different study sites were selected around the township. Sterilized petri-plate containing Rose Bengal Agar, P.D.A. media were exposed for 10 minutes at regular intervals in different seasons at various places with replicate form. The exposed plates were incubated at 25 ±1˚c for five to ten days for the growth of mycelia colonies. Fungal colonies were counted, isolated and obtained pure form of culture. Identification were confirmed with the help of literature.

Prevalence of pollen spores was determined by Rotorod air sampler. The sampling strips containing jelly was exposed in various season for 10-15 minutes for regular intervals in different places.

Each cellophane stripe is brought to the Laboratory, and identification was done for further investigation, e.g. number of pollen spores, isolation, identification ,fixation by glycerin jelly method by Earthman modified Nair P K K 1966 was prepared. The data of Skin prick test was collected in health centre Bhilai.

RESULTS AND DISCUSSION

In the present study 1756 individuals were recorded from three health centres, in which 950 male & 800 female patients were recorded during a year. Out of 160 patients the skin prick tests were

[1]**Corresponding author**

performed. It has been observed that in 160 positive patients, the pollen sensitive patients were maximum as compared to fungal allergens. Patients are usually more sensitive, and are affected with skin problems, reddish eyes, asthma & allergic rhinitis. Results show that there is no dependence on gender on allergen types and it needs more studies.

Table 1.2 shows the different pollen allergens found in Bhilai. It was maximum in pollen of *Parthenium hystrophorus, Brassica compestris, Cenchrus ciliaris, Mangifea indica, Cassia simea, Lantana camera.* In fungal flora it was observed. Also confirmed that the spp. of *Phoma A. flams, A. niger* & *Curvularia* were the most allergic fungal species in nasobranchial allergy Raja *et al* 1985.

From these studies one can clearly observe the variation in allergens causing various types of allergies e.g. skin irritation, naso-bronchial allergy etc. and the fungal population is directly correlated with the climatic variations, industrialization, environmental pollution and change in style pattern. Our findings show that ***Curvularia*** and ***Parthenium*** were recorded for maximum number during observation period. It was also recorded that from April to June, maximum fungal growth was observed, and pollen concentration followed from March to October. This month's segments also coffined by central India Aerobiological Survey in Mumbai, Bhavnager & Raipur cities.

CONCLUSION

High number of patients were suffering from asthma, rhinitis and skin problems throughout the year, whereas low number suffer in summer, As explanation offering this may be due to fungal spp. and pollen flora, both omnipresent in nature, wind-velocity and vegetation of the province. It is strongly recommended to carry a further study from time to time for better outcome.

ACKNOWLEDGEMENT

The author was thankful to department of Ent, department of dermatology, general OPD of Jawaharlal Nehru research centre Bhilai for their guidance and supporting for data collection.

Description of Patients who Visited the Three Health Centre of Bhilai

Total No. of Individuals	Males%	Female%
1750	950	800

Different types of Pollen & their Sensitivity Percentage of Bhilai Town Ship

S. No.	Name of Plants & their pollen grains	No. of Individuals	% of Sensitive Person
1	***Ageratum conzoides* L.**	19	11.87%
2	***Amarantus spinosus* L.**	30	18.75%
3	***Argemone maxicana* Linn.**	29	18.12%
4	***Aspnodelus tenuifolius* Cav.**	23	14.37%
5	***Bougainvillia glabra***	12	7.5%
6	***Brassica compestris* Linn.**	52	50%
7	***Canabis Sativa* L.**	18	11.25%
8	***Carica papya* L.**	25	15.62%
9	***Cassia fistula* L.**	58	36.25%
10	***Cassia siamea* Lam.**	60	37.5%
11	***Cenchrus ciliaris* L.**	74	46.25%
12	***Chenopodium albumL.***	20	12.50%
13	***Cynodon dacyolon L.***	39	24.37%
14	***Cyperus irria* Rottb.**	21	13.12%
15	***Cyperus klinga***	20	12.5%
16	***Dicanthium annulatum***	12	7.5%

17	***Eucalyptus lanceolatus* L.Herit.**	41	32.53%
18	***Hibiscus rosasinensis* L.**	49	30.62%
19	***Holoptelea sp.***	17	10.62%
20	***Imperata cylindrical* L.**	30	25.62%
21	***Ipomea fistulosa* L.**	21	13.12%
22	***Lantana camara* Linn.**	69	43.12%
23	***Mangifera indica* L.**	72	45%
24	***Moras alba* L.**	21	13.125%
25	***Parthenium hysterophorus* Linn**	89	55.62%
26	***Paspalum distichum* Retz.**	21	13.12%
27	***Perata cylendrica***	41	25.62%
28	***Pinus spp.***	47	29.37%
29	***Poa annua***	75	46.37%
30	***Prosopis juniflora* (SW.) DC.**	23	14.37%
31	***Thevatia peruviana* Pers.**	52	32.5%
32	***Xanthium strumarium* Roxb.**	71	44.37%

Different Types of Fungal species their Sensitivity in Bhilai Town ship

S. No.	Name of Fungi	No. of Individuals	% of Sensitive Person
1.	***Aspergillus niger***	72	45%
2.	***Aspergillus flavus***	81	50.62%
3.	***Aspergillus usfus***	80	50%
4.	***Aspergillus famigatas***	71	44.37%
5.	***Mucor recemosus***	62	38.75%
6.	***Rhizopus stolonifer***	16	10%
7.	***Rhizopus monilifer***	12	7.5%
8.	***Fusarium solanai***	50	31.25%
9.	***Candida tropicalis***	62	38.75%
10.	***Chaetomium spp.***	57	35.62%
11.	***Chrysosporium spp.***	56	35%
12.	***Microsporam spp.***	52	32.5%
13.	***Curvularia spp.***	85	70.83%
14.	***Phoma spp.***	78	48.75%

REFERENCES

Agashe S.N. and Vinay P., 1980. Aerobiological studies of Banglore. Part II, Spore research V-VI Ed, 185- 193.

Agrawal and Shivpuri, 1974. Fungal spore their role in respiratory allergy. Adv In Pollen Res, 118-128.

Barnett H.L., 1960. Illustrated genera of imperfecti fungi, 2nd edition. Minneapolis, Minnesota; Burgess Publishing Co.

Begum J. and Ahmed K., 2006. Aeromycological study of fish; meat and vegetable market. Nature Envir and Pollu. Tech, 305-307.

Gilman J.C., 1959. Manual of Soil Fungi. The Iowa State College press Ames, Iowa, 1945.

Kennedy A.C. and Smith K.L., 1995. Soil microbial diversity and the sustainability of agricultural soils Microbial Pollution Dynamics, **170**(1):75-86.

Nair P.K.K., 1966. Essential of Palynology Today and Tomorrow's printers and Pub New Delhi.

Raja R.I., Reddy P.S., Majula J., Madhuri, Rao J., Jain S.N., Murty K.J.R., 1985. Allergens in microbial allergy as determined by skin testing, Lung India, **3**(4):167-170.

Sawane A. and Giri S., 2010. Airborne culturable Fungi in hospital environment of Nagpur (Maharashtra) Ind. J. of Aerobi., **23**(2):80-85.

Tilak, 1998. Aerobiology (Biology of airborne organism), Satyajeet Prakashan Pune.

Verma S.K. and Sonvey N., 2014. Pollen allergy in India Global J. of Bio Sci. and Biotech Rew. Article 221-224.