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## Pollen Allergy: A Pharmacological Insight

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### Review Article

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#### ABSTRACT

Pollen comprise of pollen grains, which are male gametophytes in coarse powder form of plants. These micro gametophytes will produce male gametes by moving from the androecium to the gynoecium. These pollen grains comprises of sporopollenin on the surface and takes the shape of a hard coat. This layer protects the gametophytes during the movement process. As the pollen reaches the surface of a compatible pistil (gynoecium), a pollen tube starts germinating which transfers the sperm to the ovule (female gametophyte). While the movement of the pollens, it may reach human body and can cause different forms of allergy based on the sensitivity of the host.

#### INTRODUCTION

The microscopic, round, oval grains produced by plants are called pollen grains. Plant use pollen to reproduce from a different flower [1-7]. However, a few species of plants uses pollen from its own flowers for fertilization. For cross pollinated plants the pollen grains must be transferred from certain flowering plants. The transport agents are generally insects. However, another common mode of transfer is wind transfer. This is the major cause of allergy [3,7-15].

Allergy can be defined as a damaging immune response by the body to a substance, especially a particular food, pollen, fur, or dust, to which it has become hypersensitive [16-23]. The causative agent of allergy is termed as allergens. Pollen is also a most common type of allergen [24-31]. There are many plants, trees and even weeds which produces pollen during their sexual reproduction. The pollens are generally male gametes and their job is to fertilize female gametophytes [3,7,9,32-39].

#### CONTEXT

- Each individual plant can produce more than a million pollen grains in a single day. The weeds are the major source of pollen allergy causing seasonal rhinitis or Rhinosinusitis, sinusitis and dermatitis. The allergic response depends upon the correlation between onset of symptoms and pollination time [3,40-48].
- The common symptoms of pollen allergy are sneezing, runny nose, stuffy nose, itchy throat or inside of ears, hives, swollen eyelids, itchy eyes and coughing, wheezing and trouble breathing etc. [49-57].
- Now, due to global warming, the pollen season have also started earlier and last longer as well. However, the increased concentrations of pollen in air will lead to allergenic reactions in people who did not experience them before. It is also suggested that an early exposure to allergens can lead to a lifelong susceptibility to allergies [58-69].

- The most common pollens are either airborne or Northern Hemisphere grass, tree and weed pollen. The improved pasture grasses are having much more allergenic potential than the common Australian native grasses. Few exotic trees planted for showing autumn colours also much more allergenic than Australian trees [70-77].
- Now, if we take a look on why pollen causes allergies in the first place, it could be said that pollen is benign and our immune system treats it like a foreign body. Hence, the release of antibodies takes place to attack the small microscopic pollen particles. Neurotransmitter histamine gets also released which leads to the entrance of more immune booster cells to the blood stream. Finally leads to itching, sneezing, runny nose & inflammation [7,78-85].
- Now climate change is lengthening the pollen season and claiming new victims. The increased level of carbon dioxide in the air has made spring come earlier and is also changing pollen release patterns [85-93].
- Rhinitis is often regarded as a trivial problem, but it could also affect the peoples lives, which are evident from the studies. It may cause disturbance in sleep, daytime concentration impairment and the ability to carry out tasks [18,94-99].

## CONCLUSION

Here, it is evident that pollen allergy is one of the most dangerous form of natural allergy. The only way to avoid pollen allergy is to be cautious during particular seasons. A few initiatives can be taken to stop the pollens to enter the house [100].

- The windows and doors should be closed to avoid the pollens in the peak season.
- Instead of using any sort of window fans or attic fans, air condition should be used.
- While driving the car windows should be up.
- The clothing and bedding are to be hanged in the dryer rather than to be hanged.
- The pets who are having fur should be avoided in the house as their fur could stock up pollen grains.

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