

# ORIGIN OF POLLEN ALLERGEN IN PLANT AND THEIR IMPACT ON HUMAN HEALTH

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## Abstract

Immunologists and allergists often exclusively and immediately “connect pollen with the release of allergens and development of allergic diseases. The effects of pollen allergies and their percentage are provided in a table. There is a large number of the pollen grain allergen are found in the many research but they bear to mange to find the taxonomic distribution on this type of allergen. The majority of the studies are conducted to the concerning date of expression and elicitation of symptoms that have allergies and they are mainly concentrated on the allergens of individuals. Future impact will declare the future impact of the different Pollen allergies in human health. The advantages of lipid in this research study is explained briefly to provide detail insight about the impact of allergies creates by grains of pollen in the health system of human being.

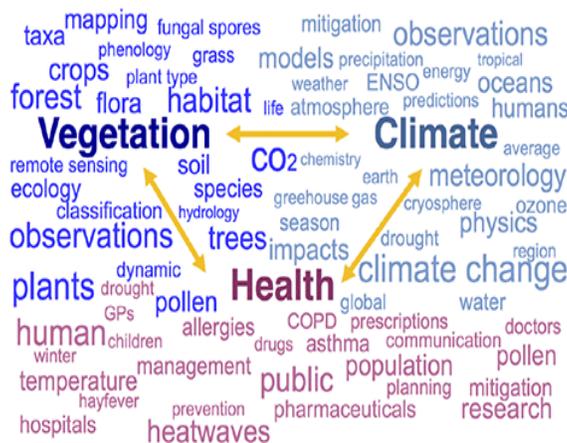
**Key words:** “Pollen allergies and pollen grains”, Literature survey, Prevention of allergies, “IgE blood test”, etc.

## Introduction

Immunologists and allergists often exclusively and immediately “connect pollen with the release of allergens and development of allergic diseases”. It is considered as the “most unfortunate” one because primarily every grains of pollen are considered as the first bear of “natural mission”. It is considered a natural mission and the function is unitarily adaptive to achieve the stigma that is receptive and deliver two nuclei (haploid) to the “recipient ovary in order to transmit the information of genetic” from the parent (male parent) to the offspring. Allergic diseases are also induced by Pollen grains and it is considered a real fact by the immunologist and the allergist. It provokes all the symptoms and it is unquestionably impacting the natural environments that had not been reckoned. Few names of pollen allergies are “Birch pollen allergies”, “Grass pollen allergies” and “Ragweed pollen allergies”.

## LR survey

According to D’Amato et al. 2020, the condition of natural exposure of the allergy depends on the bioavailability of protein liberation from the binding of internal sites within the carrier of binding sites of allergen [1].

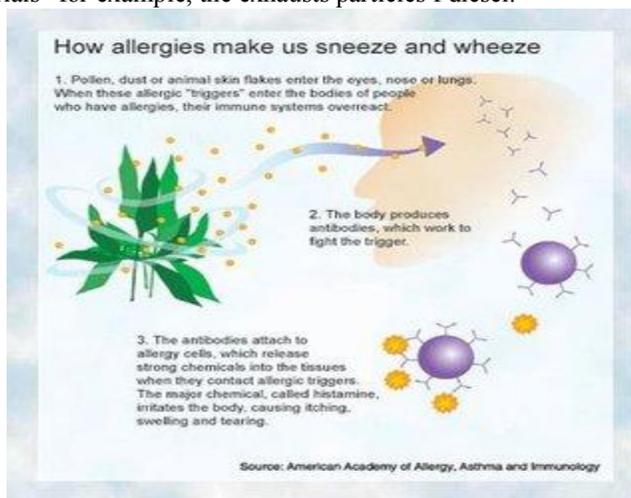


**Figure 1: Pollen allergies in human health**

(Sources: <https://oxfordre>)

According to Monge Ortega et al. 2020, scholars and the allergist know little about the “physiological function of the allergic proteins within the pollen grains even though some are identified by the defense proteins”. According to Ouyang et al. 2019, the author identified the impact of pollen allergies on the health of the human body and how in many parts stresses the situation of the plants. According to Zhang et al. 2019, the majority of the studies are conducted to the concerning date of expression and elicitation of symptoms that have allergies and they are mainly concentrated on the allergens of individuals [2]. According to Cristofori et al. 2018, the system of immune of the majority of individuals are not nor necessarily exposed to the pure manner of allergic symptoms but they are

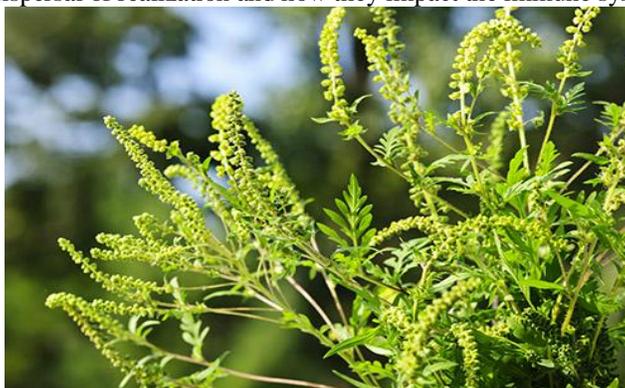
particularly in late forms, “either as pollen grains, their starch granules” or “they may become associated with exogenous particulates materials” for example, the exhausts particles of diesel.



**Figure 2: Pollen allergen factors**

(Sources: [https://www.researchgate.net/profile/Sakshi-Sharma-11/publication/350451431/figure/fig1/AS:1006310350913536@1616934492360/Occurrence-of-individuals-response-towards-allergies-Source-American-academy-of\\_Q320.jpg](https://www.researchgate.net/profile/Sakshi-Sharma-11/publication/350451431/figure/fig1/AS:1006310350913536@1616934492360/Occurrence-of-individuals-response-towards-allergies-Source-American-academy-of_Q320.jpg))

According to Kofler et al. 2018, he have understood the effects and impact of grains of pollen and the action on the body of human being. One has to consider the physiology of pollen in order to identify the specific proteins from the grains of pollen. According to Sedghy et al. 2018, the factors leading to the reduction of awareness of the proteins contained in the grains of the pollens, at the time the author has also identified the factors that are responsible for the enhancements of the dispersal of pollen grains over the vast area. According to Moghadam et al. 2019, realized the idea “Bet v I knockout tree” it is considered an interesting and important idea, but “a typical line of thought by humans” tends to create a critical overview about the ideas that “Bet V is the most favorable as a protein” in defense uses for the plants [3]. According to Damialis et al. 2019, the aim of the author was to provide a detailed analysis into the impact of grains of pollen, in the human body and also to make the reader identify the world of pollen allergies, and how well it has the physiology at the same time, the impact on human health is also identified by this author. According to Treudler et al. 2019, the environmental factors that trigger the enhancement of pollen grain over vast areas are determined by this author. According to Sarişahin et al. 2019, this scholar suggests the mediators that are responsible for the dispersal of realization and how they impact the immune system of innate.



**Figure 3: Pollen and your health**

(Sources: [https://www.cdc.gov/climateandhealth/images/ragweed-pollen\\_500x333.jpg](https://www.cdc.gov/climateandhealth/images/ragweed-pollen_500x333.jpg))

According to Leru et al. 2019, the review aims to facilitate the understanding of the problems based on the effects of pollen dispersal in the human body and this scholar has also provided a holistic viewpoint “far beyond the singular consequences of a specific problem”. According to Thibaudon et al. 2019, the pollen grains have developed the sacs of anther from mural specialty progenitor cells. According to Pinar et al. 2018, “they consist of cytoplasm, cell membrane,

nuclei, and the cell wall” [4]. According to Dudek et al, 2018, the components of the pollen wall id reflected as the “dual origin, the pectocelluosic intine” which are secreted by the covering of protoplast and the components that are metabolic resides. According to Kaplan et al. 2018, the covering of exine “is derived from the anther sac cavity-the tapetum”. According to Dulska-Jež et al. 2018, the pollen of cytoplasm , contains “cytoplasmic organelles, Golgi apparatus and mitochondria” at the same time, the endoplasmic reticulum is also continued by the pollen of cytoplasm [5]. According to Vaverková et al. 2018, unlike the plant cell, the grains of pollen, do not contain any substances like chloroplast and they are “consequently not able to conduct photosynthesis”. According to Winkler et al. 2019, the cell of animals in the cell of pollen grows “heterotrophic ally obtaining the energy sources exogenously by absorbing sugar and amino acids from the stigma”. According to Hall et al. 2020, the mature grains of pollen are dehydrated to minimum extent at the durations of dispersal from the stages of anthers. According to Vaidyanathan *et al.* 2020, once the grains of pollen are placed properly in the stigma or in the medium of artificial forms (“mucosal membranes”), “they swell due to absorption of water an almost passive mechanism” [6]. According to Fernández-González et al. 2020, has analyzed the continuous “turgor pressure inside the pollen increases enabling the tube of the pollen cell to elongate”.



**Figure 4: causes and symptoms of Pollen**  
(Sources: <https://miro.medium>)

The grains of pollen that are hydrated seem to develop as the tube of pollen with in a particular time period. According to Garrido et al. 2020, the interaction of stigma in pollen is influenced by the “excaudate on wet stigmata”. The advantages of lipid in this research study is explained briefly to provide detail insight about the impact of allergies creates by grains of pollen in the health system of human being. According to Rodríguez-Rajo et al. 2020, described the “pollen are multinucleate reproductive micro gametophytes of plants” [7]. The pollen of anemophilous that are dispersed by the agents of winds and after that they are transported by the agents of winds over vast areas and they are explained for focusing on the critical requirements of trienoic fatty acids foe the development of grains of pollen. According to Bethanis et al. 2020, has analyses the “mutant lines continuing <0.1% trienoic but unviable, male sterile pollen”. The next requirement for the “acids” that are unsaturated, for example, linolenic acids in the life cycle of plants that appears to “substrate of the octadecanoid pathway which produces signaling molecules as jasmonic acids”. According to Traidl-Hoffmann et al. 2020, in both wet and dry type of stigma and lipids that takes the form of major factors and components “of the exudates and the pollen coat” are considered for the major responsible of hydration in grains of pollen [8].



**Figure 5: Pollen and health sciences**  
(Sources: [https://www.niehs.nih.gov/health/assets/images/pollen\\_og.jpg](https://www.niehs.nih.gov/health/assets/images/pollen_og.jpg))

According to Martins et al. 2019, the “bidopsis mutants that are defective in long chain lipids” “the grains of pollen fail to hydrate on the pollen stigma”. According to Lazzare et al. 2018, the failures of certain mutants which are “defectives in long chain lipids”, “the grains of pollen fail to hydrate on the stigma”. According to Lazzaro et al. 2018, the fertilization of “ovules of flowering plants” when the grains of polln dehydrates. According to Hussain et al. 2020, the pollen coat is formed by germination and hydration of “female stigma”. According to Sarışahin et al. 2018, the “trinonic fatty acids are abundant in membranes of photosynthesis eukaryote”. According to Katelaris et al. 2018, the effects of pollen allergies and their percentage is provided in a table.

Effect	Percentage
Sneezing	23%
Skin Problem	40%
Itchy Nose	68%
Nasal Congestion	34%

**Table 1 : Effects of Pollen and their percentage**  
(Sources: self-made)

**Proposed work**

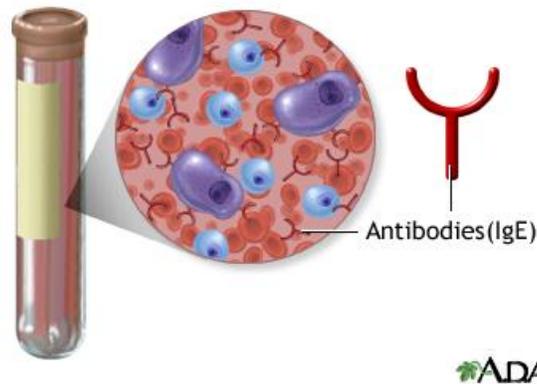
In the allergy research, the pollen grain allergic problem is the most traceable problem [9]. This type of problem mainly happens for the olen grains. There is a large number of the pollen grain allergen are found in the many research but they bear tomange to find the taxonomic distribution on this type of allergen.This allergy is mainly a type of “seasonal allergic rhinitis”. In every “summer and spring the plants released tiny pollen” from the flower of the plant to fertilize the other plant. Those are the main reason of this type of allergy [10]. The occurring symptoms of the pollen allergies are the runny mucus and nose production, itching in the eyes, nose, mount and in the ears, nasal congestion, sneezing watery eye and also the red eye and also the swelling around the both of the eyes. There is many techniques detecting the pollen allergies and also there is also some techniques of diagnose the pollen-allergy those are the skin-prick-test or the SPT, and specific “IgE blood test”.

**SPT test**

In this test “the doctor places a drop of the possible pollen allergen on the skin” of the patient then the doctorscrach that lace of the skin with the small needle through the drop of the pollen allergen [11]. If the patient has the allergy then the patient develops red eye, itching and the skin and also swelling within the 20 mite of the test. And who do not have this type of allergy they did not develop any of the above symptoms. Positive in SPT has the allergy in the pollen grain and the negative result confirms that the patient did not have the pollen grain allergy.

**IgE blood test**

The blood test measures the levels of allergy antibody, or IgE, produced when your blood is mixed with a series of allergens in a laboratory



**Figure 6: IgE blood test for pollen allergies**

(Sources: <https://ssl.adam.com>)

This may likewise be utilized in kids for those may not endure testing of skin. The primary care physician “will take a blood test” and supply it to a research center [12]. Then, at that point, they measure how much “antibodies your blood produces to assault the allergens”. “This test is called Specific IgE (sIgE) Blood Testing”. This is also like the skin test if the positive result is found, it means that the person has an allergy and the negative result shows the person does not have the allergy.

**Prevention from the Pollen grain allergy**

- There is no specific plan of actions to reduce the allergy that's why there is some prevention can help to reduce the effect of the pollen grains those are,
- Reduce the outdoor activity in the pollen grain season by this u can easily manage to inhale lesser amounts of pollen.
- Keep the window and the door closed in pollen grain season and also increase the use of the central air conditioner in the house to reduce the number inhale of the pollen allergen.
- Before starting of the pollen season taking of the allergy medicine can prevent the allergy.
- Wearing of the mask in the pollen grain season can help reduce the allergy by the pollen grain and also educe the effect too.
- Wash in hot bedding, foamy water one time “per week”.
- Limit contact with your pets that invest a “lot of energy outside”.
- “Change and wash garments” that you wear during outside exercises.

These are the possible prevention from the pollen grain attack. Those can help to reduce the effect of the “pollen grain allergen” too. *[Referred to appendix 1]*

**Future impact**

This Part will declare the future impact of the different Pollen allergies in human health [13]. In Europe this allergy are spread in a huge amount. This allergen has a proper connection with the atmosphere. this is paid by the plant. For this reason it can easily mix with the atmosphere For this problem Pollen Grain is the most suitable solution for this disease. this approach can be used for the future development of the medical industry. According to the different survey and research paper the proper male part of a reproductive process of the plants and other trees can be helpful for this. On the other hand people can use masks and other necessary medical accessories during the outdoor time [14]. If the quantity of pollen in the ear increases in the future it can affect human health. This will create different type of sneezing, running nose and the condition type disease in human health. This can be the main reason for the allergic conjunctivitis. This can create asthma disease for humans. If the number of Pollen molecules Are increased in the air, it can suffocate the person. This can create situations like covid in future time. It has a huge impact on the medical industry. For this reason every person should be aware of this allergies. if The molecules of pollen Get inside of the human body, it can create different types of blood disease. If this type of energy is not treated properly then it has the power to weaken the total immune system of the human body [15]. These also affect the human respiratory system. The future impact allergen can turn into a huge disease. That's why everyone should know about this type of allergies and the safety precautions which can be applicable on this disease. Define type of respiratory infection can Orchid by this pollen. To avoid this type of disease everyone should practice proper good hygiene. After every visit from outdoor, every play clearly and face properly. This will block the

nozzle passage of humans. The effect of this type of allergen can be increased. can also Trigger the proper life threatening type reaction like anaphylaxis. Future generation can also be affected by this process [16]. allergy affected patients should treat well. This will help to increase the proper hygiene practice for the different type of medical organizations. Otherwise, the upcoming generation can also suffer from this type of problem. For that reason, everyone should be aware of these. *[Referred to appendix 2]*

This pollen has the proper power to affect the digestive system of humans for this reason everyone should Wear mask during the outside time. Different types of blood tests will be developed to observe the activity of pollen in the human body. This will help to recognize that affected person easily. On the other hand, advanced technology can be implemented to detect the Pollen in the human body [17]. This will help to increase the efficiency of risk mitigation techniques. It is also helpful for the future generation. The future impact of the advanced technology and the treatment process can cure the effect of pollen from human health [18]. Nowadays the medical industry and Technology are also developed to detect this type of allergies. *[Referred to appendix 3]*

### **Conclusion**

This study is based on the effects of pollen allergen over the human health. This study is mainly developed on the basis of secondary data analysis. In these study different factors of this allergen and their effects over the human lives, different tests and future effects of this allergen is discussed in this study. Secondary is collected for this study from various research journals, and scholarly articles. According to the reports and study this allergen can be reason for the itchy nose, screen problems, sneezing, and nasal congestion. Different percentage effect of pollen allergen over these diseases has been discussed in this study. This study also discussed about the different tests such as IgE test for blood, and SPT test. Studies states that this allergen can spread easily over environment, which can effect over the human health, for that pollen Grain is known as the most suitable treatment for pollen allergen.

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**Appendix**

**Appendix 1: Symptoms of Pollen allergies**



(Sources: <https://image.shutterstock>)

**Appendix 2: Future effects on climatic changes in respiratory process due to pollen allergies**

**Impact of climate changes on allergic diseases**

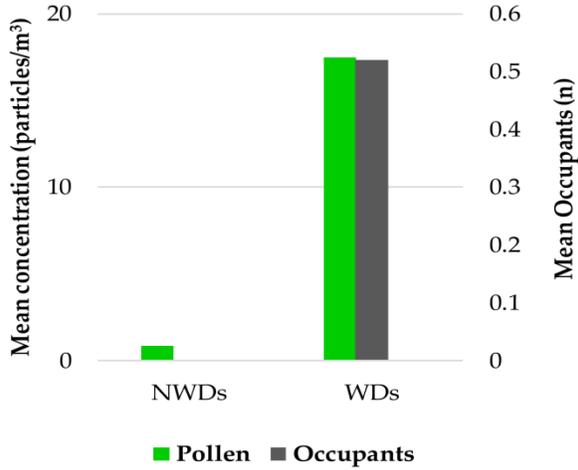
- Faster plant growth
- Longer growing pollen seasons
- Earlier pollen seasons
- Increases in both pollen quantity and allergenicity

*Beggs PJ. Impacts of climate change on aeroallergens: past and future. ClinExpAllergy 2004*  
*D'Amato G et al. Allergenic pollen and pollen allergy in Europe. Allergy 2007*

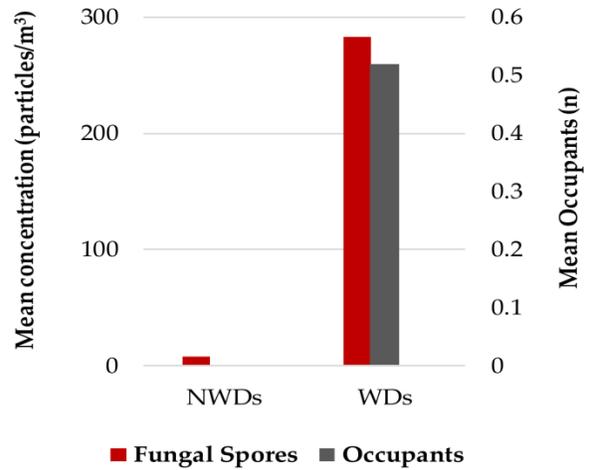
(Sources: <https://onlinelibrary.wiley>)

**Appendix 3: Pollen and fungal spore’s evaluations**

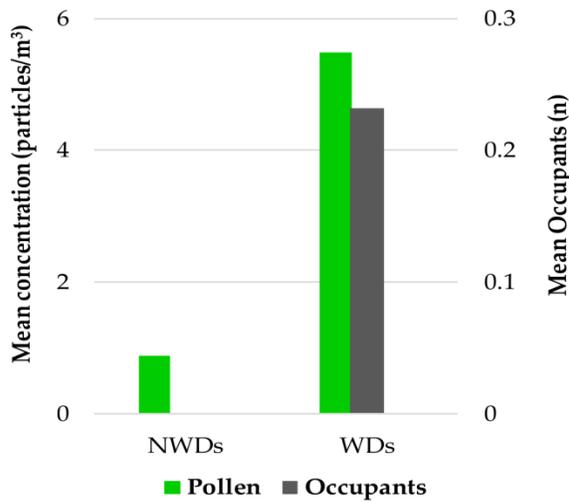
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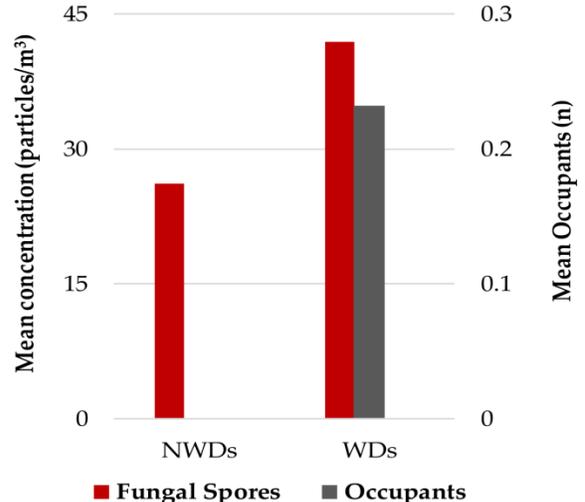
(a)



(b)



(c)



(d)

(Sources: <https://www.mdpi>)