A REVIEW ON ALLERGENIC EXTRACTS

YOGENDRA PAL*, RASHMI SAXENA PAL

Asstt.Prof,Pharmacydeptt,PSIT,Kanpur. Email: dd yogendra16@gmail.com

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Abstract
Allergy, also known as hypersensitivity is defined as the immunological response of body as a response to an allergen, better called as an antigen. There is a number of causative factors behind allergy. Sometimes the allergy results into a disease and sometimes it is usually the effects caused by certain mixed causes and reasons. Allergenic extracts are derived from the root sources and they are being used nowadays for the diagnostic purposes of allergy. The allergens vary in their potency and are termed as major and minor extracts. This review deals with the study of various allergenic extracts, such as pollen, fungi, dust, insects, food, latex, drugs and other miscellaneous types. An attempt has been made to study the various types of allergens and their root causes.

Key word: Allergy, allergens, allergenic extracts, drug allergy

INTRODUCTION

Allergenic extracts are basically the substances which are used in the identification and the cure of allergic diseases. These extracts are the concentrated solutions or suspensions of allergens. Allergies, also known as allergic diseases, are a number of conditions caused by hypersensitivity of the immune system to something in the environment that usually causes little problem in most people. These diseases include hay fever, food allergies, atopic dermatitis, allergic asthma, and anaphylaxis. Symptoms may include red eyes, an itchy rash, runny nose, shortness of breath, or swelling. Food intolerances and food poisoning are separate conditions. The present review deals with the various aspects of allergens viz. its various types, examples, and preparations.

Common symptoms

<table>
<thead>
<tr>
<th>S.No</th>
<th>Affected organ</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Nose</td>
<td>swelling of the nasal mucosa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(allergic rhinitis) running nose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sneezing</td>
</tr>
<tr>
<td>2.</td>
<td>Sinuses</td>
<td>allergic sinusitis</td>
</tr>
<tr>
<td>3.</td>
<td>Eyes</td>
<td>redness and itching of the conjunctiva</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(allergic conjunctivitis, watery eyes)</td>
</tr>
<tr>
<td>4.</td>
<td>Airways</td>
<td>Sneezing, coughing, bronchoconstriction, wheezing and dyspnea, sometimes outright attacks of asthma, in severe cases the airway constricts due to swelling known as laryngeal edema</td>
</tr>
<tr>
<td>5.</td>
<td>Ear</td>
<td>feeling of fullness, possibly pain, and impaired hearing due to the lack of eustachian tube drainage</td>
</tr>
<tr>
<td>6.</td>
<td>Skin</td>
<td>rashes, such as eczema and hives (urticaria)</td>
</tr>
<tr>
<td>7.</td>
<td>Gastro intestinal tract</td>
<td>abdominal pain, bloating, vomiting, diarrhoea</td>
</tr>
</tbody>
</table>

Sneezing, Nasal congestion

Runny nose

Watery eyes

Itchy throat and eyes

Wheezing

Pollen can also aggravate asthma symptoms, including increased coughing and wheezing. Some of the plants producing such allergic pollens from which diagnostic extracts are prepared are listed as follows:

- Alfalfa, barley, canarygrass, dandelion, eucalyptus, hazelnut, juniper, mustard, palm, ryegrass, worm seed etc.
- Fungal extract: Airborne fungal spores occur widely and often in far greater concentrations than pollen grains. Immunoglobulin E-specific antigens (allergens) on airborne fungal spores induce type I hypersensitivity (allergic) respiratory reactions in sensitized atopic subjects, causing rhinitis and/or asthma. The prevalence of respiratory allergy to fungi is imprecisely known but is estimated at 20 to 30% of atopic (allergy-predisposed) individuals or up to 6% of the general population. Diagnosis and immunotherapy of allergy to fungi requires well-characterized or standardized extracts that contain the relevant allergen(s) of the appropriate fungus. Production of standardized extracts is difficult since fungal extracts are complex mixtures and a variety of fungi are allergenic. Particularly, some allergens from the genera Alternaria, Aspergillus, and Cladosporium are now thoroughly characterized, and allergens from several other genera, including some basidiomycetes, have also been purified. The availability of these extracts will facilitate definitive studies of fungal allergy prevalence and immunotherapy.

Types of allergens

- Animal
- Dust Mites
- Egg Allergy Diet
- Lactose Intolerance
- Milk Allergy Diet
- Peanut Allergy Diet
- Shellfish Allergy Diet
- Soy Allergy Diet
- Tree Nut Allergy Diet
- Wheat Allergy Diet
- Insect Stings
- Latex
- Mold
- Pollen
- Poison Ivy/Poison Oak

Types of allergenic extracts

- Pollen extract: Pollen is a fine yellowish powder that is transported from plant to plant by the wind, by birds, by insects or by other animals. The spread of pollen helps to fertilize plants — and can mean misery for seasonal allergy. Following are the symptoms of this type of allergy.
Insect source as per the insect anatomy serves for the seasonal allergies. As the trees start to bloom and the pollen gets airborne, allergy sufferers begin their annual ritual of sniffing and sneezing.

**Dust extracts:** It comes second after pollen, in terms of causing allergy.

Dust allergies also make it difficult to breathe and may trigger asthma symptoms, such as wheezing, coughing, tightness in the chest and shortness of breath. Dust also makes some people itchy. People with dust allergies often suffer the most inside their own homes or in other people’s homes. Oddly enough, their symptoms often worsen during or immediately after vacuuming, sweeping and dusting. The process of cleaning can stir up dust particles, making them easier to inhale.

**Dust Allergy Symptoms**
- Sneezing
- Runny or stuffy nose
- Red, itchy or teary eyes
- Wheezing, coughing, tightness in the chest and shortness of breath
- Itching

**Dust Allergy Triggers**

- Household dust
- Animal dander
- Pest and insect droppings
- Bacterial, fungal and viral spores
- Molds
- Pets
- Fiberglass
- Water-based and structural adhesives
- Wool
- Mites
- Bacteria

**Food allergy:** Food allergy is an immune-based disease that has become a serious health concern in the United States. A recent study estimates that food allergy affects 5% of children under the age of 5 years and 4% of teens and adults, and its prevalence appears to be on the increase. A group of the eight major allergenic foods is often referred to as the Big-8 and comprises milk, eggs, fish, crustacean shellfish, tree nuts, peanuts, wheat and soybean. These foods account for about 90% of all food allergies in the United States and must be declared on any processed food according to the USA food allergen labeling act (FALCPA). In addition labeling of the Big-8 is mandatory according to EU, Canadian, Japanese and Australian/New Zealand regulations, all of which follow Codex Alimentarius recommendations. Allergic consumers may accidentally encounter problem foods as several of the Big-8 (e.g. eggs, milk, wheat, and soybean) are often used in processed products and can be "hidden". Various symptoms of food allergy are asthma, rhinitis, headache, urticaria. The various types of food causing allergy are listed as follows:

- Apricot, berries, cow milk, gelatin, fig, yeast, chicken, honey, egg white, papaya, radish, turnip etc.

**Seasonal Allergies**

Spring Allergies: Spring is the time of year that we normally think of when it comes to seasonal allergies. As the trees start to bloom and the pollen gets airborne, allergy sufferers begin their annual ritual of sniffing and sneezing.

**Insect allergen extracts:** Insect source as per the insect anatomy serves for the preparation of insect allergen extract. The insect allergy occurs due to either bite, sting, inhalation of insect parts mainly of the order—hymenoptera. For insects that are cause of inhalant allergy, that are cause of inhalant allergy, the whole body may serve as a suitable source material. Respirable emanations from caddis fly, midge and cockroach species are established sources of potent aeroallergen. For biting insects, the optimal allergens source may be the salivary glands. Direct recovery of saliva from fleas and mosquitoes has been possible in the labs but these processes have not yet been developed for commercial distribution. Some examples of allergic insect extracts are as follows:

- Dust mites
- Cockroaches
- Mold
- Pollen
- Pet hair, fur or feathers

**Food Allergens**

- Milk
- Eggs
- Soy
- Fish
- Shellfish
- Tree nuts
- Peanut
- Wheat

**Seasonal Allergies**

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- Dust ant, black ant, house fly, wasp, yellow jacket
- Bee, hornet, fire ant, honey bee, moth, mites, mosquitoes, fruit fly, cockroach, caddis fly etc.

**Pet Allergies**

Allergy to proteins and glycoproteins from animal sources is an important public health problem affecting both children and adults. Pet allergy is an immune-mediated disease that has become a serious health concern in the United States. A recent study estimates that food allergy affects 5% of children under the age of 5 years and 4% of teens and adults, and its prevalence appears to be on the increase. A group of the eight major allergenic foods is often referred to as the Big-8 and comprises milk, eggs, fish, crustacean shellfish, tree nuts, peanuts, wheat and soybean. These foods account for about 90% of all food allergies in the United States and must be declared on any processed food according to the USA food allergen labeling act (FALCPA). In addition labeling of the Big-8 is mandatory according to EU, Canadian, Japanese and Australian/New Zealand regulations, all of which follow Codex Alimentarius recommendations. Allergic consumers may accidentally encounter problem foods as several of the Big-8 (e.g. eggs, milk, wheat, and soybean) are often used in processed products and can be "hidden". Various symptoms of food allergy are asthma, rhinitis, headache, urticaria. The various types of food causing allergy are listed as follows:

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drugs are more likely to produce allergic reactions than others. The examples of such drugs are:

- Antibiotics, such as Penicillins, Aspirin and other NSAIDs like Ibuprofen, Anticonvulsants, drugs related to Monoclonal antibody therapy, Chemotherapy etc. Patch tests help to confirm the etiology of the cutaneous adverse drug reactions involving delayed hypersensitivity mechanisms. A study showed that 30% of patients showed positive result for clindamycin. P-phenylenediamine provokes cross-allergy, making people allergic to other substances which contain para-substituted amino compounds. The adverse health effects associated with the use of henna containing PPD (black henna) include acute allergic contact dermatitis, eczema, chemical burn, acute renal failure, acute and severe angioneurotic edema, abdominal pain and vomiting.

**Miscellaneous inhalant extracts**

Besides above sources, there are number of other miscellaneous substances causing allergies such as food, cosmetics, drugs as following. Hairs from various sources such as human, camel, cat, rabbit fur, wool. Bird feathers such as from chicken, pigeon, duck, etc. Algae, gumacacia, jute, silk, tobacco etc.

**Preparation of Allergenic extracts**

Various stages are there in the preparation of allergenic extracts such as follows: Grindind, defatting, extraction and standardization. Strict aseptic conditions are kept in mind and the sterility testing is done for all types of microbes.

**CONCLUSION**

The allergens and allergenic extracts are treated as crude drugs. The chemical nature of allergens appears to be diversified. They exist in nature in the form of variant and complex form. They have not yet been correctly identified. A number of allergenic extracts are used for the diagnosis purpose of allergy by employing various tests. They are normally used in the form of aqueous or glycerinated products using normal saline or glycerine as diluent. The base used is glycerine or saline water as they remain stable in them. Aqueous solutions are also made from them. There is no definite treatment for various types of allergies, only precautionary measures are available. It is essential to diagnose the root cause of the allergy and to fight it in a specific required manner.

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