

## Allergy to anis

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**Key words:** aniseed; licorice; occupational asthma;  
occupational rhinitis.

● OCCUPATIONAL exposure to organic dust of vegetal origin such as that of green coffee bean or wheat flour has often been reported to cause allergic respiratory symptoms (1). We report a case of occupational rhinitis and asthma in an anis liqueur factory worker who handled several different plants.

A 32-year-old nonsmoking man with no personal history of atopy was studied in our department. During the previous 4 years,

### Occupational asthma and rhinitis to licorice (*Glycyrrhiza glabra*) in a liqueur factory.

he had been suffering from nasal congestion, sneezing, cough, and moderate dyspnea. These symptoms appeared at his workplace, an anis liqueur factory, when he handled several plants used in manufacturing anisette. These plants were licorice (*Glycyrrhiza glabra* [Leguminosae]), mace (shell of nutmeg, *Myristica fragrans* [Myristicaceae]), coriander (*Coriandrum sativum* [Umbelliferae]), iris root (Germanic iris [Iridiaceae]), cinnamon (*Canellal Cinnamomum* [Laureaceae]), orange blossom flower (*Citrus sinensis* [Rutaceae]), and two kinds of aniseed, matalahuga aniseed (*Pimpinella anisum* [Umbelliferae]) and star-shaped aniseed (*Anisum stellatum* [Magnoliaceae]). He reported that he developed more symptoms when handling the licorice plant, improving during

weekends and holiday periods. The patient had held this job for the previous 8 years. He could drink anis liqueur and eat licorice stick without any clinical symptoms.

At the time of the study, the clinical examination and chest radiography of the patient were normal. The hemogram showed 5500/ml leukocytes with 11.4% eosinophils.

Skin prick tests (SPT) were performed with plant extracts prepared by IPI Laboratory (International Pharmaceutical Immunology SA, Spain), as well as with a standard selection of common aeroallergens (ALK-Abelló SA, Madrid, Spain). Histamine phosphate at 10 mg/ml and normal saline at 0.9% were used as positive and negative skin test controls, respectively (Table 1). The same tests were performed on

six atopic, unexposed patients who acted as controls.

Total IgE was measured by the RAST FEIA CAP System (Pharmacia Diagnostics AB, Uppsala, Sweden), according to the manufacturer's instructions. Specific IgE to plants was determined with RAST by ASAC Pharmaceutical International AIE, Alicante, Spain, except for mace (over 0.35 UI/ml is considered to be a positive result). Specific IgE was also determined by the FEIA CAP System (Pharmacia) to common aeroallergens that proved to be positive in the SPT, as well as for mace.

Table 1 shows SPT and specific IgE results in the patient. The total IgE was 685 kU/l. Although skin tests with the most common aeroallergens were positive for several pollens and rabbit fur (Table 1), the

Table 1. Skin tests and specific IgE results

| Allergen                      | Concentration of plant extracts (w/v) | Wheal (mm) | Specific IgE (kU/ml)* |
|-------------------------------|---------------------------------------|------------|-----------------------|
| Plant extracts                |                                       |            |                       |
| Licorice                      | 7.5%                                  | 16         | 29.7                  |
| Mace                          | 7.5%                                  | 8          | <0.35                 |
| Matalahuga aniseed            | 10%                                   | 6          | 2.8                   |
| Coriander                     | 7.5%                                  | 5          | 2.6                   |
| Iris root                     | 10%                                   | 5          | 7.5                   |
| Star-shaped aniseed           | 10%                                   | –          | <0.35                 |
| Cinnamon                      | 7.5%                                  | –          | <0.35                 |
| Orange blossom flower         | 7.5%                                  | –          | <0.35                 |
| Positive common aeroallergens |                                       |            |                       |
| <i>Lolium perenne</i>         |                                       | 14         | 2.47                  |
| <i>Plantago lanceolata</i>    |                                       | 5          | 1.15                  |
| <i>Fraxinus excelsior</i>     |                                       | 13         | 0.94                  |
| Rabbit fur                    |                                       | 19         | 3.9                   |
| Histamine                     |                                       | 6          |                       |
| Saline                        |                                       | –          |                       |

–: negative.

\*1 kU/ml=1 UI/ml.

patient showed no respiratory symptoms during their pollination season and had no contact with rabbits.

SPT with plant extracts were all negative in the control subjects.

Most of the plants used in the production of anis liqueur are considered spices. The patient had developed IgE-mediated sensitization to five of the eight plants which he handled habitually, belonging to the following botanic families: Leguminosae (licorice), Myristicaceae (mace), Umbelliferae (coriander, matalahuga anisette), and Iridaceae (iris root). It may be noted that a previous report described occupational asthma due to different, botanically unrelated spices, finding, through ELISA inhibition analysis, a partial cross-reactivity between several of them (2).

The patient suffered from rhinitis and asthma at his workplace due to the inhalation of airborne dust particles of the previously mentioned plants. However, the symptoms appeared mainly while he was handling licorice. Additionally, SPT and RAST values for licorice were significantly higher than for the other spices, all this suggesting licorice as the main source of the respiratory symptoms of the patient. He refused any challenge studies in the laboratory. Previous reports have described occupational rhinitis and/or asthma to coriander (2, 3) and aniseed (4), as well as to other Umbelliferae (5) and spices belonging to other botanic families such as mace (2). However, to our knowledge, this is the first case of occupational rhinitis and asthma due to licorice. This diagnosis stems from the clinical history of the patient and is supported by both *in vivo* and *in vitro* evidence of specific antilicorice IgE antibodies.

As in other cases of food-induced asthma, the patient showed oral tolerance to these foods (6).

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## Latex allergy in a glove plant

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**Key words:** allergy; atopy; latex allergy.

● THERE are not sufficient data on the prevalence of latex allergy in rubber industry workers. We aimed to find out the rate of latex allergy in latex glove factory workers.

In this study, 155 workers in one (Elsan) of the two factories which manufacture surgical gloves in Turkey were examined (the administrators of the other factory

refused to allow us to examine their employees). Employees worked in three shifts. All the employees in the factory agreed to participate in the study. The factory produces 140 000

**Surgical glove plant employees are not at high risk of latex allergy.**

gloves a day. Glove dies are first dipped into a coagulation tank of calcium nitrate, and then they are taken out and immersed in a tank containing latex mixture. Next they undergo a drying operation and then are washed in a hot water tank of 165°F to remove the coagulant agent. After washing, they are dried in a furnace of 195°F, and then immersed in a liquid mixture of cornstarch and water. They are dried again after being taken out. Then the gloves are taken out of the dies, inflated with air, and packaged. Most of the employees worked at taking gloves out of dies, inflating them, and packaging them.

All employees were first asked questions which were modified from National Heart, Lung, and Blood Institute questionnaires. Then past medical histories were taken of allergic rhinitis, allergic conjunctivitis, urticaria, and asthma symptoms. Living conditions, diseases other than allergic disorders, and smoking habits were ascertained. All employees underwent prick tests with common aeroallergens and latex extract. For this purpose, Soluprick® SQ (ALK-Abelló A/S, Denmark) latex extract and Alyostal lyophilized IR-W® aeroallergen extracts (Stallergènes SA, Fresnes Cedex, France) were used. Employees who had symptoms underwent spirometric examination. Out of 155 workers, 32 were men and 123 were women aged 16–58 years (average 33.2 years). The length of employment for workers varied between 6 months and 10 years (average 4.3 years). All the workers lived in towns and villages near the factory.

Out of 155 employees, 21 had symptoms suggesting allergic diseases. Two of these