

J. C. MOYANO, M. ALVAREZ, J. L. FONSECA, J. BELLIDO
FRANCISCO JAVIER MUÑOZ BELLIDO
Plaza de la Reina
No. 1-3, 4^aB
37001 Salamanca
Spain

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Occupational hypersensitivity to sesame seeds

A PART from flour allergens as inducers of baker's asthma (1), other antigens have been reported to be sensitizers in the baking industry. To our knowledge, only one case of occupational sensitization to sesame has been reported (2), although anaphylactic reactions after ingestion have been described (3). We report a second case of occupational asthma induced by sesame.

The patient was a nonatopic, nonsmoking baker. For 5 years, he had had ocular itching, rhinitis, and dyspnea while working. He was previously diagnosed as allergic to wheat flour. Being out of work at the

time of the study, he was symptomless and used no medication, and the spirometric values were normal.

The crushed sesame seeds were extracted (20% w/v) for 8 h while shaking, centrifuged for 15 min at 4000 g, sterilized by filtration, and tested in 10 atopies as a control. Histamine release was carried out by a fluorometric method. Eight 10-fold dilutions of the allergen were tested.

SDS-PAGE of sesame extract prepared under different conditions was performed in 16% acrylamide minigels. Specific IgE detection by immunoblotting was performed by a diffusion method (4).

Skin prick tests to pollens, danders, mites, and α -amylase were negative, but wheat flour induced a 6 $\times$ 4 mm and rye a 9 $\times$ 5 mm wheal. Sesame induced a 20 $\times$ 16 mm wheal with numerous pseudopods. Histamine release was positive to sesame (higher than 40%) up to the last dilution tested. Neither positive skin tests nor histamine release was obtained in controls.

SDS-PAGE of the sesame extract revealed the presence of a principal component of 14 kDa, composed of two chains, as shown by 2-mercaptoethanol (2-ME) treatment (Fig. 1). Immunoblotting detected that this protein was the main IgE-binding component. Reduction with 2-ME showed that most of the specific IgE was directed to the unreduced molecule, only weak recognition of the heavy chain of the protein remaining (data not shown).

The patient experienced a 32% fall in PEF values 4 days after starting work after a prolonged absence, and he again needed salbutamol. He noticed that the symptoms were not induced by flour, but appeared while he was working in the place where

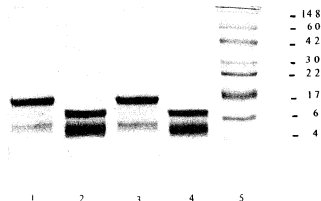


FIGURE 1 SDS-PAGE of 20% extract of sesame seeds. Lanes 1 and 3: sample buffer without reducing agent; lanes 2 and 4: sample buffer with 2-mercaptoethanol; lanes 1 and 2: samples boiled in buffer for 5 min; lanes 3 and 4: sample at room temperature; lane 5: standards.

sesame was used. When he handled sesame for 10 min, rhinitis and urticaria in both hands appeared. The FEV₁ fell 9% below the initial normal value with spontaneous recovery in 20 min. In spite of the fact that it remained normal for 3 h, dyspnea and a drop of 44% of the PEF value appeared 5 h later, so that he needed 400 µg of salbutamol.

■ The extract of sesame had a simple composition, with a single molecule accounting for most of the protein content. Histamine release, skin tests, and immunoblotting left no doubt about the allergenic properties of this extract.

This patient was initially diagnosed as flour allergic due to the clearly work-related symptoms, the return to normality when absent from work, and the presence of positive skin tests to flour. Only the fact that he noticed the appearance of dyspnea while working at the place where the seeds were used led us to suspect that sesame was the cause of his occupational hypersensitivity. We believe that other workers using sesame seeds can also be sensitized to this allergen. This fact is especially important, since our patient now tolerates perfectly the

work in the bakery by simply avoiding the area where sesame is used.

E. ALDAY, G. CURIEL, M. J. LOPEZ-GIL, D. CARREÑO
DR IGNACIO MONEO
Centro de Investigación Clínica
Sinesio Delgado 10
28029 Madrid
Spain
Tel. 34.1.3140807 ext 245
Fax. 34.1.7336614

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