

Allergic reaction caused by a new hidden food, broad bean flour

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Vicia faba.

We regard hidden food as those that are not specified in the labels or are referred with an unknown name for the consumer (1, 2). There are different kinds of presliced bread that include legumes (broad bean flour or *Vicia faba*) as additive, in some cases not specified on the label. We present the case of an allergic reaction after eating Hacendado® (Productos Alimenticios La Familia S.A., Valencia, Spain) presliced bread, probably caused by broad bean proteins, which apparently were not declared on the label of the bread.

A 25-year-old woman showed retrosternal and pharyngeal oppression and itching in tongue and pharynx 5 min after eating a sandwich made of Hacendado® presliced bread. The symptoms disappeared spontaneously in 8–10 h. The same reaction took place after eating other presliced bread, Panrico® (Panrico S.L.U., Barcelona, Spain), with broad bean declared on its label. She was allergic to legumes (chick-peas, lentils, peas and kidney beans) from the age of 8 and diagnosed of rhinoconjunctivitis to grass and dog dander since 20-years old. She had never eaten peanuts and bitter vetch.

Broad bean present in presliced bread as cause of type-I reaction in an atopic patient.

However, tolerated rye and wheat bread and soy.

Skin prick test (SPT) responses to common inhalant and commercial food allergens were only positive to grass and olive pollen, dog dander and legumes. Prick by prick with Hacendado® and Panrico® presliced breads were positive (8 × 4 and 6 × 3 respectively). Skin prick test response to 5% (w/v) broad bean extract (ALK-Abelló, SA. Madrid, Spain) was positive (16 × 15) too. Oral provocation with two broad beans caused the symptoms referred and mild uvula angioedema.

Total IgE was 11 kU/l. Specific IgE determinations (ImmunoCAP, Phadia, Sweden) were positive for lentils (7.34 kU/l), chick-peas (6.87 kU/l), peanut (0.58 kU/l), bitter vetch (7.64 kU/l), *Lolium perenne* (0.92 kU/l) and negative for soy and kidney bean. Sodiumdodecyl sulphate–polyacrylamide gel electrophoresis and IgE-immunoblotting with broad bean extract and Hacendado®, Panrico® and Bimbo® (Bimbo S.A.U., Barcelona, Spain) bread extracts revealed IgE-binding bands at 12–17 kDa, in all extracts, 28 kDa in broad bean extract,

50 kDa in all extracts except Hacendado® bread extract and > 50 kDa in all extracts (Fig. 1). Preincubation of serum from the patient with the broad bean extract resulted in complete inhibition of IgE-binding to presliced extract proteins. These results demonstrate the existence of common allergenic structures between broad bean and commercial presliced breads, probably caused by the presence of broad bean flour (including Hacendado® bread, with no broad bean flour declared on the label).

Peanut and soy are considered the legumes most frequently involved in human food allergy in Anglo-Saxon countries and Japan. However, in Spain with a typical Mediterranean diet, lentils are implied in 78% of children allergic to legumes, chick-peas in 72%, peas in 36% and peanuts in 36% (3, 4). There is another legume, broad bean from which allergy has not been reported. It is a dicotyledonous plant belonging to Fabales order and *Papilionaceae* family that adapts to any kind of soil, favoured by coastal climates and moderated temperatures. They are consumed ripe or

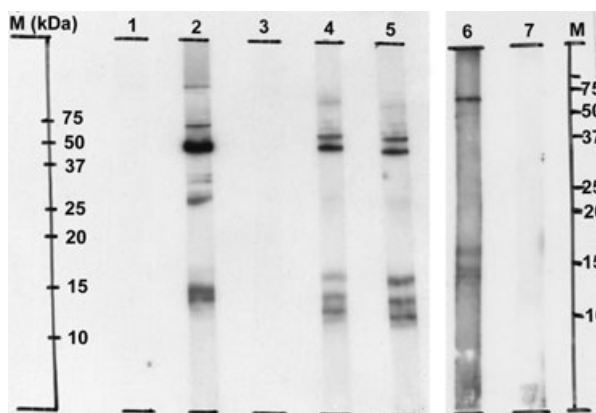


Figure 1. IgE-immunoblotting. 1, Broad bean extract + buffer. 2, Broad bean extract + patient's serum. 3, Bimbo® bread extract + buffer. 4, Bimbo® bread extract + patient's serum. 5, Panrico® bread extract + patient's serum. 6, Hacendado® bread extract + patient's serum. 7, Hacendado® bread extract + buffer. Molecular weight in kDa of prestained protein markers, run in parallel, are indicated on the left and on the right.

cooked and lately we can find it as flour in some kind of breads and soups.

Bernhisel-Broadbent discovered that most of their 41 legume-allergic patients were allergic to only one legume (5). However, in Spain the majority of the patients have symptoms with more than one legume (median three legumes) (6) and, in contrast, white bean, green bean and soy are well tolerated by children allergic to legumes.

In conclusion, we have demonstrated the existence of allergens from broad beans in a slice of bread that caused a type-I reaction in a legume-allergic patient. It should be recommended an extensive labelling of commercial foods to avoid unexpected reactions in susceptible allergic patients.

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