

Stallergènes Laboratory, Fresnes, France) for routine inhalants. SPT with native plant leaves and pollen were performed by the prick-prick technique. The RAST disk with extracts from plant samples was prepared as previously described (4).

SPT were positive for the main pollen allergens, corresponding to the history of seasonal pollinosis: birch (+), alder (+), ash (+), hazel (+), mugwort (+), grass (+), and rye (+). Sensitization to wild silk (+) was confirmed. Perennial allergens were positive for dog epithelium (+), but CAP results reached only 0.55 kU/l (class 1). Specific IgE for house-dust mites could not be detected. These results contrasted with house-dust samples collected at the patient's home. Scratch tests were clearly positive (mattress ++, bedcover ++).

Samples of the indoor plant in question were tested and resulted in strongly positive reactions (pollen + + + +, leaves ++). The presence of specific IgE for spathe flower was confirmed by RAST (pollen: 4.8 kU/l, class 3; leaves: 1.1 kU/l, class 2).

■ The indoor plant suspected of causing the patient's allergic reaction was identified as a spathe flower of the species *S. floribundum*, family Araceae. Thirty-six species of *Spathiphyllum* are known, and they are native to tropical South America (M. Buzgo, Institute for Systematical Botany, University of Zurich, Switzerland). The plant has longish, dark-green leaves and characteristic prominent white blossoms.

Previous reports of allergic reactions to the Araceae family include cases of contact dermatitis to *Philodendron* (5). One case of type I allergy was reported in an occupational setting. A patient working with botanic components developed respiratory symptoms due to sensitization to *S. wallisii* (6). We are not aware of previous reports of indoor allergy to the Araceae family or of allergic reactions to the species *S. floribundum*.

■ The spathe flower is a very common indoor plant in Switzerland. A major wholesale trader covering 25% of the market in the Zurich area sold 10694 specimens in 1994 alone. *S. floribundum* must therefore be considered a possible source of indoor allergen in cases of perennial allergic symptoms.

Key words: allergy; Araceae; hypersensitivity; indoor; perennial; plant; *Spathiphyllum*.

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Chickpea-induced anaphylaxis

ANAPHYLACTIC reactions due to consumption of foods are common. In this report, a case of systemic reactions to chickpea (*Cicer arietinum*) (Bengal gram) is presented and the presence of specific IgE to its proteins is demonstrated. In various forms, chickpea is an omnipresent ingredient of the diet of most Asian communities all over the world.

■ An 8-year-old girl, a perennial asthmatic for 3 years, was admitted to the hospital with severe wheezing and urticaria. Retrospective analysis after treatment revealed that she had consumed a chickpea preparation 1 h before the incident. Earlier, inhalation of chickpea flour or its vapors while it was being cooked had resulted in a severe wheezing attack. External application of chickpea paste as an infant, as generally practiced in Indian families, had resulted in urticaria.

IgE-binding proteins in chickpea analyzed by SDS-PAGE and immunoblotting.

■ Defatted (with diethyl ether in a Soxhlet apparatus) and desiccated flour of chickpea and a few other legumes was used to prepare sterile glycerinated extracts (2.2 mg/ml) for skin tests. House-dust mite, pollens, and fungi extracts (E. Merck) were also used for skin tests. The provocation test was conducted in a double-blind manner (1). The proteins of chickpea extract were resolved with SDS-PAGE and transferred electrophoretically to nitrocellulose paper (2), and the IgE-binding components were detected with the patient's and control

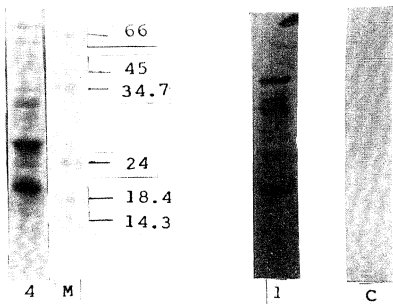


FIGURE 1 SDS-PAGE (12.5%) of chickpea extract (lane 4) and molecular weight markers (lane M), stained with Coomassie brilliant blue, and immunoblots of chickpea-sensitive patient (lane 1) and control (lane C) sera. IgE binding detected with horseradish peroxidase-conjugated antihuman IgE.

sera and enzyme-labeled anti-IgE. Microtiter plates were coated with 500 ng/100 μ l chickpea extract for ELISA. Atopic patients without food allergies, those with allergies to foods including legumes other than chickpea, and nonatopic volunteers served as controls. Each group had at least 10 patients.

■ The skin scratch test with chickpea revealed a wheal size of 15 mm with several pseudopodia. On ingestion of 1 g of the test sample during the double-blind, placebo-controlled food challenge, there was reduction in the patient's pulse rate, BP, PFR (40%), and FEV₁ (25%), accompanied by wheezing. SDS-PAGE revealed 21 protein bands of 10–70 kDa molecular weight. IgE binding was seen with multiple bands on immunoblots (Fig. 1). ELISA was 3+ for the patient. The skin test, provocation, immunoblot, and ELISA were negative for controls.

■ In a survey, we had noted that 6% of the patients (sample population: 1400) were allergic to one or more foods. More than one-third of these patients were allergic to chickpea. Legumes have been found to contain various allergens in earlier studies. The major allergens from peanut, *Ara h I* (63.5 kDa) and *Ara h II* (17 kDa), and protein from soybean showing IgE binding were found to lie in the range 10–70 kDa (3, 4). IgE binding to more than one protein indicates that, like other legumes, chickpea contains various allergens. A correlation was seen

between history and *in vivo* and *in vitro* test results.

In conclusion, this is one of the first reported cases of anaphylaxis after ingestion of chickpea in which IgE binding with protein was demonstrated.

Key words: anaphylaxis; chickpea allergen; immunoblots.

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