

TABLE I. Prevalence of allergen-specific IgE against microbial components in patients with intrinsic atopic dermatitis

	IgE (kU/L)	SEA	SEB	SEC	SED	TSST-1	<i>C albicans</i>	<i>P ovale</i>
1	5	++						
2	137							+
3	25						+	+
4	39	++						
5	123							++
6	38							+
7	35							+
8	148					++		
9	137	++				++	+	
10	24		+					++
11	22						++	
12	26			+	+			

$P < .001$, χ^2 test. No allergen-specific IgE against microbial components was detectable in the sera of the 30 healthy individuals tested.

ty exclusively to microbial components, such as SEA, SEB, SEC, SED, *P ovale*, and *C albicans* (analogous to the allergic hyperreactivity to aeroallergens or food allergens in patients with extrinsic AD), might be an important trigger factor of the immune response. As an assumption, the allergic hyperreactivity to microbial components, together with the direct hyperstimulatory effect of the superantigens themselves and in combination with the lower level of antimicrobial defensins in the skin of patients with AD,⁵ might be potent enough to contribute to the typical pathognomic features of AD, even in the absence of other environmental allergens. Nevertheless, at present, the presence and relevance of these allergen-specific antibodies in the skin of patients with AD has not been proved sufficiently. If this were the case, the clinical effect of IgE antibodies to microbial antigens might derive from their capability to promote the itch-scratch cycle in these patients, which later contributes the release of mast cell-derived mediator, leading to intense pruritus and the typical skin lesions of AD.

Taken together, we conclude that the determination of allergen-specific IgE levels against microbial components in the peripheral blood is important to classify a subgroup of patients with AD in which the immune response might be predominated by a solely allergic hyperreactivity to microbial components. In this subgroup of patients with AD, the benefit of antimicrobial therapies seems to be the major strategy for effective allergen avoidance.

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Anaphylaxis to ingestion of hempseed (*Cannabis sativa*)

To the Editor:

Hemp (*Cannabis sativa*) is a tall annual herb of the family Cannabinaceae.¹ Marijuana is one variant that has a relatively high concentration of the psychoactive cannabinoid tetrahydrocannabinol (THC), whereas other variants contain little THC. Industrial hemp, low in THC, is used for manufacture of cloth, cosmetics, and other materials. Hempseed is the fruit of the plant, and a THC-free hulled form and its oil are being popularized as a food product with potential health benefits. We describe a case of anaphylaxis to this food.

A 44-year-old man with a history of seasonal allergic rhinitis, mild asthma, and occasional use of marijuana but no food allergies or prior anaphylaxis entered a restaurant that specializes in hempseed ingredients. He was, at one time, a fairly heavy marijuana pipe smoker and had inhaled the smoke of "many hundreds" of marijuana seeds. There was an exhaust fan blowing cooking fumes into the dining area, and shortly after entering the establishment, the subject noted ocular pruritus. He then ingested a meal of hempseed-crusted catfish, calamari, and other foods he routinely ingests. During the meal, urticaria developed on the scalp, axillae, and groin, and the patient went immediately to an emergency department where generalized urticaria, facial angioedema, dyspnea, and dysphonia were observed. Symptoms resolved with epinephrine and antihistamines. No other diners were ill.

Skin prick testing was performed with fresh extracts of the raw ingredients of the meal obtained from the restaurant. Results for the potentially causal foods revealed the

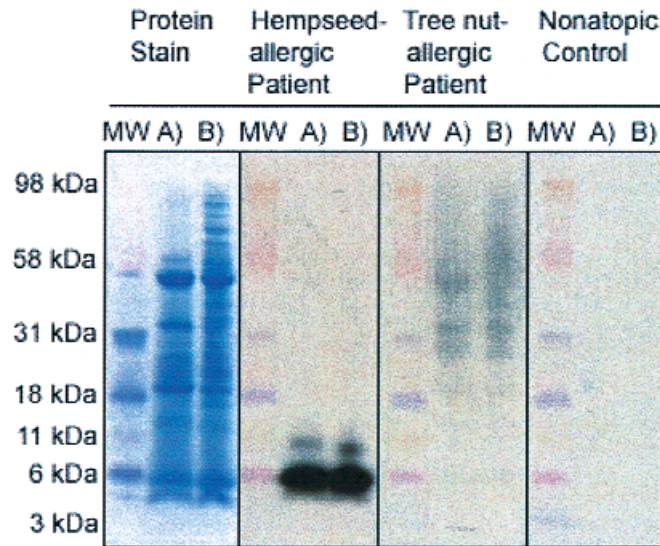


FIG 1. SDS-PAGE analysis for hemp seed protein. Protein extraction and gel electrophoresis were performed as previously published.² Shown is the Coomassie blue stain for total protein analysis, as well as immunolabeling with sera from the patient allergic to hempseed, a patient with cashew nut allergy, and nonatopic control sera for roasted unhulled (A) and raw hulled (B) hempseed. Molecular weight (MW) standards are shown in lanes 1, 4, 7, and 10.

following: hempseed, mean wheal diameter of 5 mm and mean flare diameter of 20 mm; calamari, mean wheal diameter of 2 mm and mean flare diameter of 4 mm. The patient tolerated a physician-supervised oral challenge to calamari. Oral challenge with hempseed was not undertaken because both the treating physician and the patient believed the risk was unwarranted on the basis of the convincing history of a severe reaction with no alternative explanations and a strong positive skin test response. Serum was obtained for further evaluation (with informed consent and approval from the institutional review board). Immunoblotting revealed IgE binding to a 6-kd protein in extract of raw hulled and roasted unhulled hempseed used in his meal and provided by the restaurant (Fig 1).² The patient had not, to his knowledge, previously ingested hemp. Against medical advice, he subsequently smoked marijuana with no adverse effect.

To the best of our knowledge, we believe this to be the first case of anaphylaxis to ingested hempseed. Several allergenic properties of *Cannabis sativa* have been previously reported. The pollen from this weed might induce respiratory allergies,³ and inhalation of marijuana during smoking⁴ or injection has caused acute allergic reactions.⁵ Although this patient did not undergo a confirmatory oral challenge to hempseed, the positive skin test and immunoblot results and the symptoms, severity, and timing of the episode strongly implicate hempseed as the cause. He also routinely tolerated seeds, such as sesame, mustard, and poppy. The ocular symptoms when the subject was exposed to the cooking fumes might have been an early sign of his allergic potential. It is tempting to speculate that previous exposure to marijuana seeds by means of inhalation was sensitizing.

There appears to be an increase in allergy to seeds (eg, sesame, mustard, and sunflower), tree nuts (eg, cashew and walnut), and beans (eg, peanut), all attributable particularly to IgE antibody directed to seed storage proteins in these foods that are stable to cooking and intrinsically allergenic.⁶ This report indicates that the seed from the hemp plant might also be allergenic when ingested and might become an issue as this seed is popularized as a health food. Further studies would be needed to characterize the allergenic component or components in hempseed.

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