

Cross-reactivity between latex and banana

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The first reported case of allergy to latex was a contact urticaria.¹ In 1987, Axelsson et al.² reported the first case of an anaphylactic reaction to latex. The diagnosis of this allergy and its management are now well-known. These reactions, related generally to an allergy to natural latex from *Hevea brasiliensis*, occur mainly in nurses who become sensitized through exposure to surgical gloves.³⁻⁵

In the course of the investigation of a nurse with allergic reactions to latex gloves, we discovered an allergy to banana. This association has not been previously reported and appears to be due to a sensitivity to cross-reacting antigens.

A 44-year-old nurse, working since 1979 in a surgical care unit, had a history of allergic rhinitis after exposure to grass pollen and angioedema induced by banana intake. Oral challenge with banana performed

in 1977 induced angioedema. In 1981, 15 minutes after anesthetic induction for ovarian tumor surgery, she manifested bronchospasm followed by hypotension. The following year, she was operated on again and developed similar manifestations during surgery. Skin tests done in 1980 and 1981 with general anesthetics used during anesthesia were negative.

The diagnosis of allergy to latex gloves was suspected in 1988 when the patient reported a history of urticaria induced by surgical gloves, and allergy to general anesthetics, latex, and banana was reevaluated. Skin prick tests with latex extract (1/2, wt/vol) and banana extract (1/10, wt/vol) (Stallergenes, Fresnes, France) were positive. Skin tests with general anesthetics were negative. Specific serum IgE to latex was present (RAST, grade 3). No specific IgE to ethylene oxide was detected.

As illustrated in Fig. 1, the banana extracts inhibited the binding of latex-specific IgE to solid-phase latex. This inhibition was dose dependent, the regression coefficient r being equal to 0.97 ($p < 0.001$). To assess the specificity of the latex RAST inhibition by banana, we first performed latex RAST inhibition with the common allergens *Dermatophagoides pteronyssinus*, grass pollen, and cat dander. Then, we tried to

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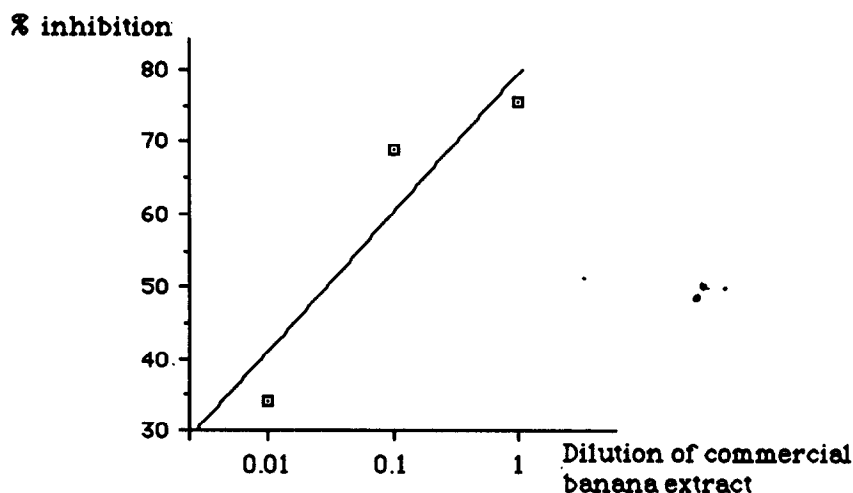


FIG. 1. RAST inhibition of latex RAST by banana extract.

inhibit RAST responses to common allergens with banana. In all these cases, no inhibition was observed.

The two episodes of hypotension during surgery in this patient were very puzzling until the patient reported urticaria while she was wearing latex gloves. This draws attention to the importance of latex testing in patients with peroperative anaphylactic shock and negative skin tests to anesthetic drugs, especially muscle relaxants. Another mechanism through which latex gloves could elicit anaphylactic reactions is an allergy to ethylene oxide used for sterilization of the gloves. The latter mechanism is unlikely in this patient because the RAST to ethylene oxide was negative.

Our patient had a history of angioedema induced by banana intake. RAST inhibition was performed in an attempt to establish an immunochemical basis for the skin cross-reactivity observed between banana and latex. In our RAST system, the extract of banana inhibited the binding of latex in a dose-dependent

manner. We demonstrated that the latex RAST was not inhibited by several common inhalant allergens and vice versa. This association between allergy to latex and banana may be related to the presence of a common but unknown allergic component in latex and banana.

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Comparison of the ACAREX test with monoclonal antibodies for the quantification of mite allergens

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Recently, Le Mao et al.¹ compared the results of quantitative measurements of guanine content and assays of *Dp* allergens in 22 house-dust samples. A significant correlation was demonstrated between the guanine content and relative *Dp* potency. A simple semiquantitative colorimetric test for guanine is now commercially available (ACAREX test Werner & Mertz, GmbH, Mainz, Germany).^{2,3} We decided to compare the results of this test and results obtained with ELISA, an established methodology for measuring mite allergen. One hundred seventy-seven

Abbreviation used

Dp: *Dermatophagoides pteronyssinus*

house-dust samples were collected by vacuuming 177 different mattresses (2 min/m² of surface area) with a vacuum cleaner fitted with new disposable paper bags. Samples were stored at 4° C until processing. All samples were collected between October 1987 and April 1988.

All ACAREX tests were performed by the same investigator before ELISA to avoid biasing the colorimetric reading. In this test, the quantity of guanine present is estimated from the color of guanine-azodye formed by an aromatic diazonium compound in the presence of guanine. In compliance with the manufacturer's instructions, one metered spoonful of fine house dust was mixed with one bag of the alkaline-alcohol extraction liquid. The test strip impregnated

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