

late) before starting the maintenance dose (deferioxamine mesylate, 50 mg/kg per day 5 days a week).

Skin testing with deferioxamine mesylate is complicated because the specific determinants are not yet well defined and standardized tests have not been established. Results of intradermal tests with full-strength deferioxamine mesylate have been shown to be falsely positive in healthy individuals.^{4,6} We used lower concentrations of deferioxamine mesylate (1/100 to 1/100,000 dilutions) to find a nonirritating dose, which would be useful in the diagnosis. Indeed, using lower concentrations for skin testing allowed us to confirm the diagnosis in 2 of the 3 patients. Based on this, we assume that although positive results using low dilutions should be considered valid, a negative skin test result in a patient with a suspected anaphylactoid reaction should be interpreted with caution, and in the face of a clinical history of an anaphylactic reaction, desensitization should be considered.

In conclusion, these cases highlight the utility of low concentrations of deferioxamine mesylate for skin testing in the evaluation of patients with suspected anaphylactic reactions to deferioxamine mesylate. When an alternative therapy is not available for patients with intolerance to deferioxamine mesylate, a rapid intravenous desensitization procedure is safe and efficacious.

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OCCUPATIONAL ASTHMA TO FRESH SEA LAVENDER AND CROSS-REACTIVITY TO SWEET VERNAL GRASS POLLEN

Limonium sinuatum (statice or sea lavender) is one of the most common ornamental plants used for flower arrangements as dried flowers. It is an herbaceous, perennial plant of the Plumbaginaceae family. It is picked when the flowers are well colored, tied in small bunches, and hung upside down until dry. Dust from this dried plant has been described as a cause of occupational asthma,¹ but no case of IgE-mediated bronchial asthma to the newly gathered plant has been reported. *Anthoxanthum odoratum*, also known as sweet vernal grass, holy grass, or vanilla grass, belongs to the Poaceae family. The leaves of *A odoratum* can be woven into baskets and used in potpourri because of the vanillalike smell achieved after being cut and dried. *L sinuatum* and *A odoratum* are unrelated except for the common use as dried flowers and leaves, respectively.

The patient was a 42-year-old nonsmoking woman with no history of atopic disorders. As the owner of a greenhouse and floral shop, she has been handling, cutting, binding, and selling fresh flowers for 20 years. For the past 7 months she noticed nasal obstruction with itching, water discharge, and anosmia accompanied by ocular pruritus and palpebral edema. Symptoms of wheezing dyspnea appeared while working with fresh *L sinuatum* flowers. Symptoms improved outdoors. On physical examination, 1 nasal polyp was present in the right nasal cavity. Basal spirometry findings were within the reference range. Results of nonspecific bronchial challenge testing with methacholine were borderline positive, with a provocation concentration that caused a decrease in forced expiratory volume in 1 second of 20% of 25 mg/mL. Her total serum IgE level was 144 kU/L (reference range, <100 kU/L). Results of skin prick tests with common aeroallergens were positive only to pollen from *A odoratum*, and serum specific IgE to *A odoratum* (Phadia CAP System, Phadia AB, Uppsala, Sweden) was mildly positive (0.89 kU/L) but negative to *Lolium perenne* and cross-reactive carbohydrate determinants. Results of prick-prick tests² with white and yellow flowers of *L sinuatum* were positive (12 × 7 and 18 × 11 mm, respectively) but with violet flowers and stems were negative. In response to skin testing with *L sinuatum* extracts from white, yellow, and violet flowers

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(prepared and diluted in physiologic saline solution with glycerin [50% vol/vol] at a final concentration of 10 mg/mL), the patient exhibited positive responses (20×11 -mm wheal and erythema with pseudopods, 12×7 mm, and 6×6 mm, respectively). Serum specific IgE concentration was measured using the enzyme allergosorbent test with *Limonium* sample extract solutions (10 mg/mL) in cyanogen bromide-activated paper discs, and values of 4.9, 2.8, and 0.7 kU/L were obtained against white, yellow, and violet flowers, respectively. Sera from 10 atopic individuals allergic to pollens from *L perenne* and *A odoratum* were used as controls, but no specific IgE (skin prick tests and enzyme allergosorbent tests) against any type of *L sinuatum* was detected. Finally, a specific bronchial challenge test was performed using the *L sinuatum* white flower extract aerosolized using a pressurized nebulizer (De Vilbiss 646; De Vilbiss, Somerset, Pennsylvania) with a fitted output of 0.3 mL/min. A positive response with 21% reduction in forced expiratory volume in 1 second was found 10 minutes after challenge with 0.5 mg/mL of *L sinuatum* white extract.

An immunologic study was designed to identify the occupational source of allergens and the possible explanation for the positive result against *A odoratum* pollen in a patient with no seasonal symptoms. An IgE immunoblot of *A odoratum* pollen after sodium dodecyl sulfate–polyacrylamide gel electrophoresis revealed several protein components able to bind *A odoratum* specific IgE, which was inhibited by preincubation with *L sinuatum* extract, suggesting cross-reactive epitopes between them (Fig 1). However, the *L sinuatum* extract did not produce IgE binding inhibition on the appeared bands when *Dermatophagoides pteronyssinus* extract was incubated with a serum pool

from *D pteronyssinus*–allergic patients, ruling out nonspecific inhibition due to enzymatic activity.

Occupational and nonoccupational allergy to decorative indoor flowers is increasingly reported.^{1,3–8} Dried flowers that crumble easily could generate dust particles, and sensitization may be achieved by inhalation of these particles.¹ Pollen can be released while gathering flowers and can accumulate on the floor and walls of greenhouses and flower shops.^{3,4,8} However, the possible existence of cross-reactivity between flowers and common allergens has been scarcely investigated. This patient manifested allergy symptoms when exposed to *L sinuatum* flower and showed a positive skin test reaction to pollen from the taxonomically unrelated *A odoratum*, but no symptoms appeared away from work or during pollinosis season. Results of inhibition assays using *L sinuatum* flower as inhibitor suggest the possible role of this flower in a supposedly previously nonexistent or unrecognized allergy to this grass pollen. In this patient, the presence of cross-reactive epitopes between *A odoratum* and *L sinuatum* could favor a future nonoccupational respiratory allergy.

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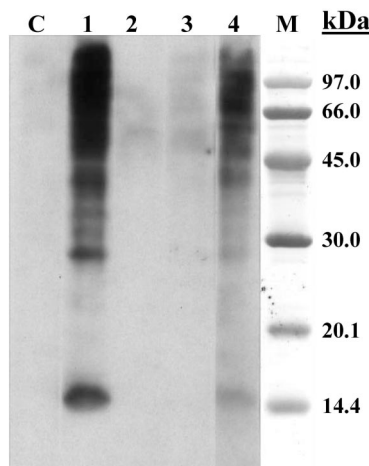


Figure 1. Sodium dodecyl sulfate–polyacrylamide gel electrophoresis immunoblotting inhibition. *Anthoxanthum odoratum* pollen extract as solid phase. Lane C shows control serum (pool of sera from nonatopic individuals); lane 1, patient serum; lane 2, patient serum previously incubated with *A odoratum* pollen extract (2 mg/mL); lane 3, patient serum previously incubated with *Limonium sinuatum* flower extract (2 mg/mL); lane 4, patient serum previously incubated with lamb extract (negative control); lane M, molecular mass marker.

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