

Case report

Allergy to the ornamental indoor green plant *Tradescantia* (*Albifloxia*)

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We report on a 32-year-old atopic female office employee with a moderate tree pollinosis who also suffered from indoor-related perennial rhinoconjunctivitis. Once when she repotted her two ornamental nonflowering green plants of the genus *Tradescantia* (synonym: *Albifloxia*; family Commelinaceae), she immediately experienced itching of the face, throat, and conjunctiva; swelling of the lips; and dyspnea and wheezing. Skin prick tests with the leaves of *Tradescantia* (*T. albifloxia* and *T. fluminensis*) (*Ta* and *Tf*) were strongly positive as was the specific IgE to *Ta* leaves extract. On RAST inhibition studies, no cross-reactivity was found between *Ta* and *Ficus benjamina* (weeping fig), a nonflowering green plant, which produces, in its milky sap, an important respiratory allergen. Green plants should be considered potential indoor allergens and tested in plant-keepers referred for allergologic investigation.

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Since the descriptions of Axelsson et al. (1–3) it is well known that the nonflowering green plant *Ficus benjamina* (*Fb*, weeping fig) is an important occupational and indoor respiratory allergen which should be included in the standard test panel (4–7). The allergen is located in the plant sap, the so-called latex, which, after evaporation, binds to dust particles on the leaf surface (8). Upon contact, they emanate from the leaves, thus mimicking allergy to house-dust components (9).

We describe a patient with a hitherto undescribed allergy to a nonflowering green plant of the genus *Tradescantia* (synonym: *Albifloxia*) (*T. fluminensis* and *T. albifloxia*) (*Tf*; *Ta*), an ornamental plant with green or white-stiped leaves.

Case report

A 32-year-old, nonsmoking female office employee (M.E.) had had slight symptoms of hay fever during the last three spring seasons (February–May). She had also suffered from perennial rhinoconjunctivitis for the last 2 years, mainly occurring at home. Once when she repotted her two ornamental plants, one with green leaves and one with white-striped leaves (Fig. 1) (she did not know the names

of the plants), she immediately experienced itching of the face, throat, and conjunctiva; swelling of the lips; and dyspnea and wheezing.

Material and methods

Skin prick tests (SPT)

SPT were performed with commercial extracts in glycerol (Alyostal, Stallergènes Laboratoires, France) of routine inhalants in the volar side of the forearm.

The SPT with native *Tf* and *Ta* leaves were performed by the prick-prick technique (10). Glycerol diluent was used as negative control and histamine (10 mg/ml) as positive control. A wheal ≥ 3 mm in the presence of a negative response to the glycerol control was scored as positive (+), a wheal ≥ 5 –10 mm as ++, and a wheal ≥ 10 –15 mm as +++. Five healthy nonatopic subjects were used as control for the SPT with the leaves.

Specific IgE

Extracts of *Ta* leaves 1 : 2 w/v were coupled (5 and 50 μ l per disk, respectively) to cyanogen bromide-



Fig. 1. *Tradescantia albiflora* (top) with white-striped leaves and *T. fluminensis* with green leaves (synonym: *Albiflora*) belong to Commelinaceae family.

activated disks (11). IgE antibodies to *Ta* were measured by the Phadezym RAST method (Pharmacia), and the results were given in PRU/ml (Phadebas RAST units).

Negative controls (normal serum and high IgE serum, i.e., 1000 kU/l) and three sera, positive to aubergine (16.2 PRU/ml), carrot (12.9 PRU/ml), and spinach (5.6 PRU/ml), were also tested.

RAST inhibition

RAST inhibition was used to analyze any cross-reactivity between *Ta* and *F. benjamina* (*Fb*) in the patient's serum (M.E.) and a serum positive (6.6 PRU/ml, RAST class 3) to *Fb*. The percentage of inhibition as compared to a saline control was calculated.

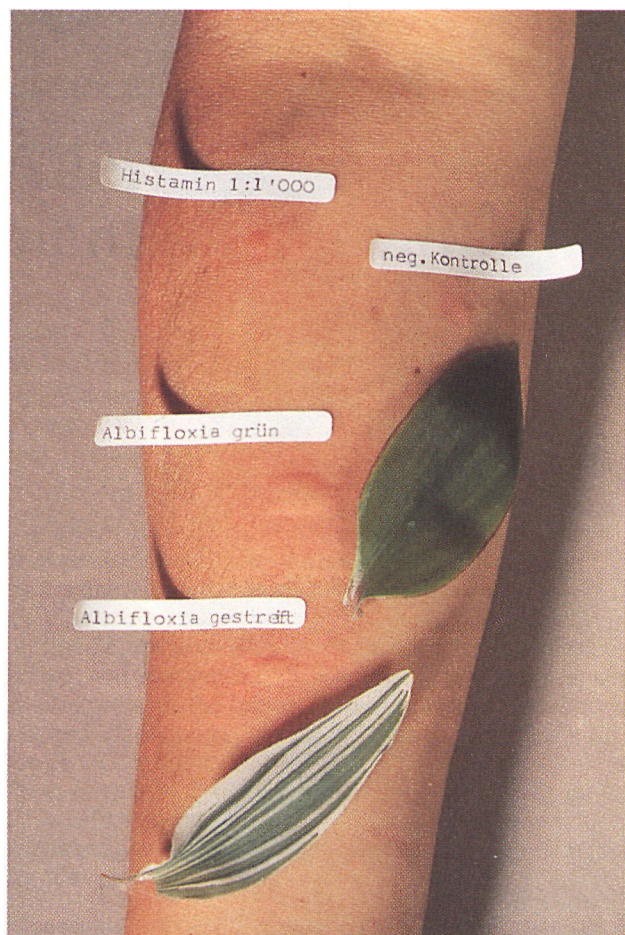


Fig. 2. Positive prick-prick tests with leaves of *T. albifloxia* and *T. fluminensis*.

Results

The routine SPT were positive for alder, ash, hazel, birch, and mugwort pollen; the house-dust mites *Dermatophagoides pteronyssinus* and *D. farinae*; and *Penicillium*. The SPT with the leaves of *Tf* and *Ta* were strongly positive (+++) with wheal diameters of 13 mm and 12 mm, respectively (Fig. 2). The SPT with *Tf* and *Ta* were negative in all control subjects.

The RAST results to *Ta* were class 3 (6.3 and 10.6 PRU/ml to the respective batch coupled with either 5 or 50 µl).

In the RAST-inhibition experiments, *Fb* extract diluted 1/100 resulted in complete (>80%) inhibition of the *Fb*-positive RAST of the *Fb*-allergic patient, while extract of *Ta* undiluted gave no significant inhibition (<20%). Similarly, when the positive RAST to *Ta* of patient M.E. was tested, the *Ta* extract diluted 1/10 gave approximately 50% inhibition, while the extract of *Fb* undiluted did not give any significant (<20%) inhibition.

After removal of the *Ta* and *Tf* plants from her home, and application of house-dust mite avoidance

measures, the patient became free of rhinitis symptoms outside the tree pollen seasons. Only once at her office, in which there was still a *Ta* plant, she had a relapse with rhinoconjunctivitis and mild urticaria after direct contact with the leaves.

Discussion

Pollen of decorative plants can cause IgE-mediated allergic respiratory symptoms, mainly by occupational exposure in floriculturists, gardeners, and florists, but seldom by handling or smelling of flowers in the home (12–15). Axelsson et al. (1) showed that *F. benjamina* (*Fb*), a nonflowering green plant, can also induce occupational allergy in subjects with a high degree of exposure (1, 2). The allergens of *Fb* are located in the milky sap contained in the leaves and in the twigs (8). Later, we learned that also a low degree of exposure to *Fb* at home or at workplaces can induce allergy symptoms, not only in persons with a pre-existent atopic disease but also in nonatopic subjects (4, 6, 7). In the present paper, we demonstrated that another nonflowering green plant caused perennial respiratory allergy in a patient with clear-cut atopy from indoor contact.

The plant could be identified as *Tradescantia* (synonym: *Albifloxia*), belonging to the Commelinaceae family, an ornamental plant which is widely distributed. By means of the positive RAST to the *Ta* extract, we demonstrated the IgE-mediated nature of the positive SPT reactions with the leaves of *Ta* and *Tf*. Moreover, after removal of the green plants, the patient ceased to suffer from indoor-related rhinoconjunctivitis. RAST-inhibition studies showed no indication of cross-reactivity between *Ta* and *Fb*. In conclusion, not only *Fb*, but also other green plants, such as *Tradescantia*, should be considered potential indoor allergens (6, 9) and tested in patients referred for allergologic investigations.

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