

Cross-reactivity between cypress pollen and peach: a report of seven cases

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Seven patients with cypress allergy demonstrated oral allergy syndrome, urticaria or Quincke edema immediately following peach intake.

Immunological investigations demonstrated for all patients sera strips at

Cypress and peach cross-reactivity.

45 kDa, which were partially or completely inhibited by preincubation of these sera with peach extracts radioallergosorbent test (RAST) – inhibition also demonstrated 87 to 95% inhibition of the patients' sera RAST to *Juniperus* extracts by peach extracts. Thus, cypress pollens and peach share common epitopes, which have a 45 kDa molecular weight.

The prevalence of cypress allergy has steadily increased over the past few decades (1). However, in contrast to allergy to other trees or weeds, no cross-reactivity between cypress pollen and a food allergen has been reported to date.

Within a 1-year period, we encountered seven such cases. All had winter pollinosis related to cypress allergy. After eating a peach, they reported lip pruritus and edema (three cases), giant urticaria (three cases) or Quincke's edema (one case). Skin tests to aeroallergens were positive to cypress pollens in all instances. In three cases, this was the sole positive skin test. In the other four cases, we found an associated sensitivity to house dust mites or grass pollens. All patients had negative skin prick tests to a commercially available peach extract

(Stallergènes S.A., Antony, France) but demonstrated positive scratch test to both white and yellow native extracts.

Preparation of peach allergenic extracts: peaches were peeled, and then crushed. Pulp and juice were centrifuged. Juice was then filtered then frozen at -20°C . Preparation of Cupressaceae extracts from *Juniperus ashei* (Stallergènes S.A.) (2).

Electrophoresis was performed on a polyacrylamide gelose. Allergenic extracts were diluted in TRIS buffer then heated at 100°C for 5 min. The amount of settled proteins was equal to $2.3\text{ }\mu\text{g}$ for peach extract and $1\text{ }\mu\text{g}$ for *Juniperus* extract. Following migration, the gelose was either stained by silver nitrate or electrically transferred on a nitrocellulose membrane for 1 h. After rinsing and saturation of the membrane, the latter was incubated for a duration of 2 h with a rabbit anti-IgE IgG solution, then with a conjugated rabbit anti-IgG alkaline phosphatase solution. The membrane was then developed with a chemoluminescent substrate.

Patients' sera were mixed to peach juice. *Juniperus*-specific IgE were then measured using VIDAS Biomerieux (Lyon, France). Percentage of inhibition was computed compared to a control test performed with the same sera mixed, under comparable conditions, to PBS buffer. Radioallergosorbent test (RAST) inhibition was also performed after preincubation with grass pollen extracts to dismiss a possible cross-reactivity between grass pollen and peach (3).

Strips could be demonstrated for serum 1 at 10 and 20 kDa using the reduced extract, for serum 2 and 10 and 45 kDa, for sera 3, 4 and 7 at 45 and 80 kDa, for serum 5 a large strip between 20 and 30 kDa and for serum 6 a large strip between 7 and 20 kDa (Fig. 1).

Figure 2 shows the immunoprints obtained using *Juniperus* extracts preincubated (PI) or not incubated (NI) with

peach extracts. Serum 5 and 6 have not been tested because volume was not sufficient. All immunoprints demonstrated strips at 45 kDa partly or completely inhibited following preincubation with peach extracts.

The RAST-inhibition technique demonstrated an 87 to 95% inhibition of specific reaction of patients' IgE to *Juniperus* extracts by peach extracts. This inhibition was not affected by preincubation with grass pollen extracts.

Thus, sera of patients with cypress allergy have specificity towards peach allergens. Because both allergenic extracts include a 45 kDa-allergen, it should be the shared allergen (4). *Pru p 1* is a 9-kDa peach allergen, but several higher molecular weight proteins could be involved in such cross reactions with fruits from the Rosaceae family (peach, apricot, apple, cherry and plum).

In conclusion, this case series demonstrated a clinical cross-reactivity or 'co-recognition' (5) between cypress and peach allergens. It should be known from allergist working in the Mediterranean countries but also in Japan, California, Texas and Mexico where Taxaceae and *Juniperus* pollens should behave in like manner.

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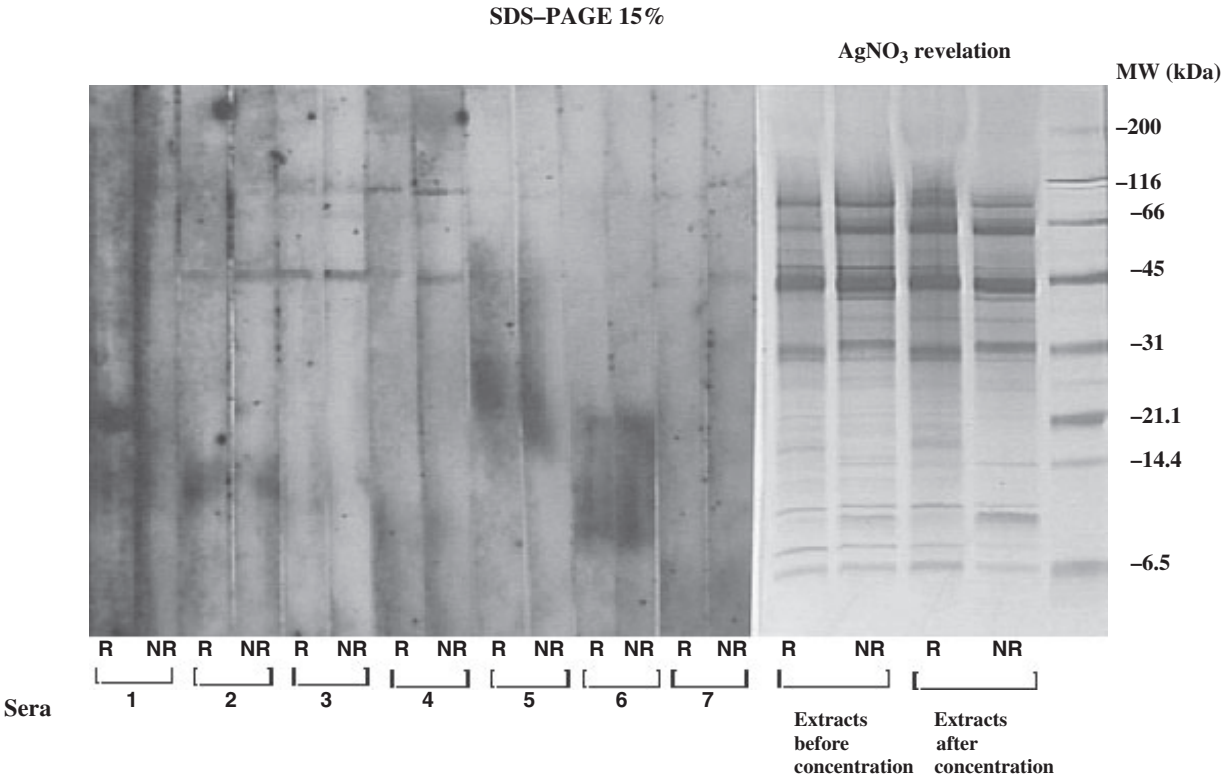
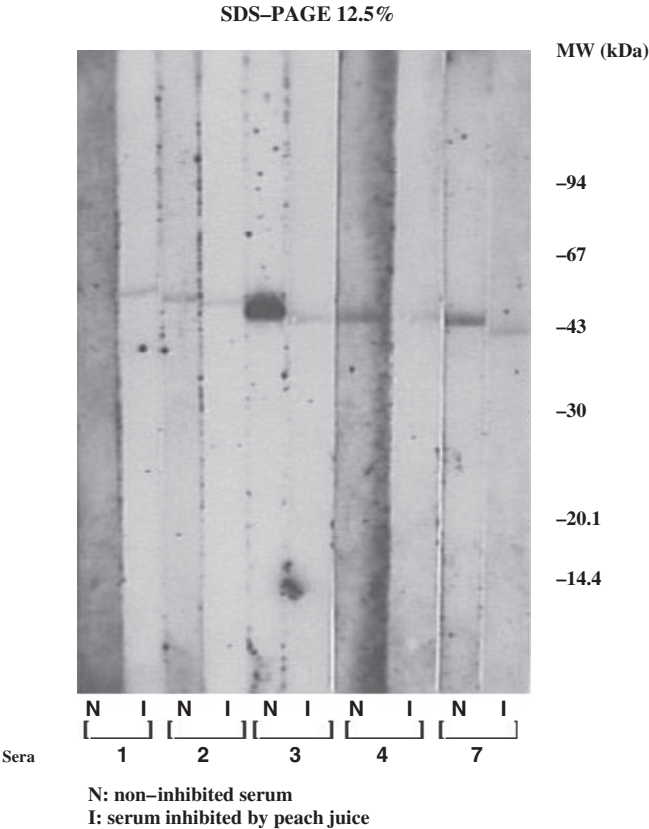


Figure 1. Immunoprints of peach juice.



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Figure 2. Immunoprints of *Juniperus* extracts following serum-inhibition with peach juice.