
Case report

Currant allergy and the Rosaceae–grass pollen allergy syndrome: a case report

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Background: Despite the increasing use of currants in culinary recipes, currant allergy has rarely been reported.

Objectives: To study a case of currant allergy and to explore cross-reactivity between grass pollen and Rosaceae family fruit allergens.

Methods: Skin prick tests to pollen and skin prick-to-prick tests with currants and peach were performed. Specific IgE levels were determined using the CAP method. We prepared a protein extract of 0.1 mg/mL in phosphate-buffered saline using red currant in the presence of protease inhibitors. Immunoblot inhibition studies were performed to explore cross-reactivity between grass pollen and currant allergens.

Results: Skin prick test results were positive to *Dactylis*, arizonic, and olive pollens. Results of skin prick-to-prick tests with fresh red and black currants were negative and positive, respectively, to peach. The specific IgE level was 5.7 KU/L to red currant and 2.92 KU/L to peach (CAP). Western blot analysis with red currant extract revealed specific IgE protein bands of 37 and 26 kDa. Preincubation of sera with extracts from red currant and peach inhibited both IgE bands, and preincubation with *Dactylis* pollen inhibited the 37-kDa band only.

Conclusions: We report a case of allergy to grass pollen with an oral allergy syndrome involving several fruits from 2 different families of the Rosidae subclass confirmed by in vitro tests. Inhibition studies demonstrated cross-reactivity between different fruits (currant and raspberry) from the Rosidae subclass and were incomplete with grass pollen allergens.

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INTRODUCTION

The different pollens that predominate in each geographic area, together with the different dietary habits, affect the prevalence of different pollen sensitizations and, consequently, the prevalence of the distinct food sensitizations. Birch pollen associated with food allergy in northern Europe and in some areas of North America and Australia is common, but in the south, the more prevalent pollen, grass, yields to a different pollen-fruit syndrome: Rosaceae fruits and grass pollen. This syndrome mainly refers to species of the Rosaceae family. In this case, allergy to fruits from the Grossulariaceae family is reported, and cross-reactivity studies are presented. Despite their increasing use in culinary recipes, currant allergy has rarely been reported.

CASE REPORT

A 50-year-old-woman presented with pruritus and pharyngeal occupation with dysphagia while eating fresh red and black currant jam. She also related similar episodes with peach,

apricot, and nectarine (jam, juice, and fresh). She tolerated other fruits of the Rosaceae family (ie, raspberry, plum, apple, and pear). She was previously diagnosed as having rhinoconjunctivitis to grass and arizonic pollen.

Skin prick tests to arizonic, *Platanus*, olive, *Phleum*, *Dactylis*, *Parietaria*, *Artemisia*, *Plantago*, and *Chenopodium* pollens and skin prick-to-prick tests with currants and peach were performed. Specific IgE levels were determined using the CAP method (Pharmacia, Uppsala, Sweden). We prepared a protein extract of 0.1 mg/mL in phosphate-buffered saline using red currant in the presence of protease inhibitors. Immunoblot inhibition studies were performed to explore cross-reactivity between grass pollen and currant allergens (Fig 1).

Skin prick test results were negative to *Platanus*, *Parietaria*, *Artemisia*, *Plantago*, and *Chenopodium* pollens and positive to *Dactylis* (6 × 6 mm), arizonic (4 × 6 mm), and olive (3.6 × 5.7 mm) pollens. Skin prick-to-prick tests with fresh red and black currants were negative and positive, respectively, to peach. Specific IgE levels to red currant and peach were 5.7 and 2.92 KU/L, respectively (CAP). Western blot analysis with red currant extract revealed specific Ig E protein bands of 37 and 26 kDa. Preincubation of sera with extracts from red currant and

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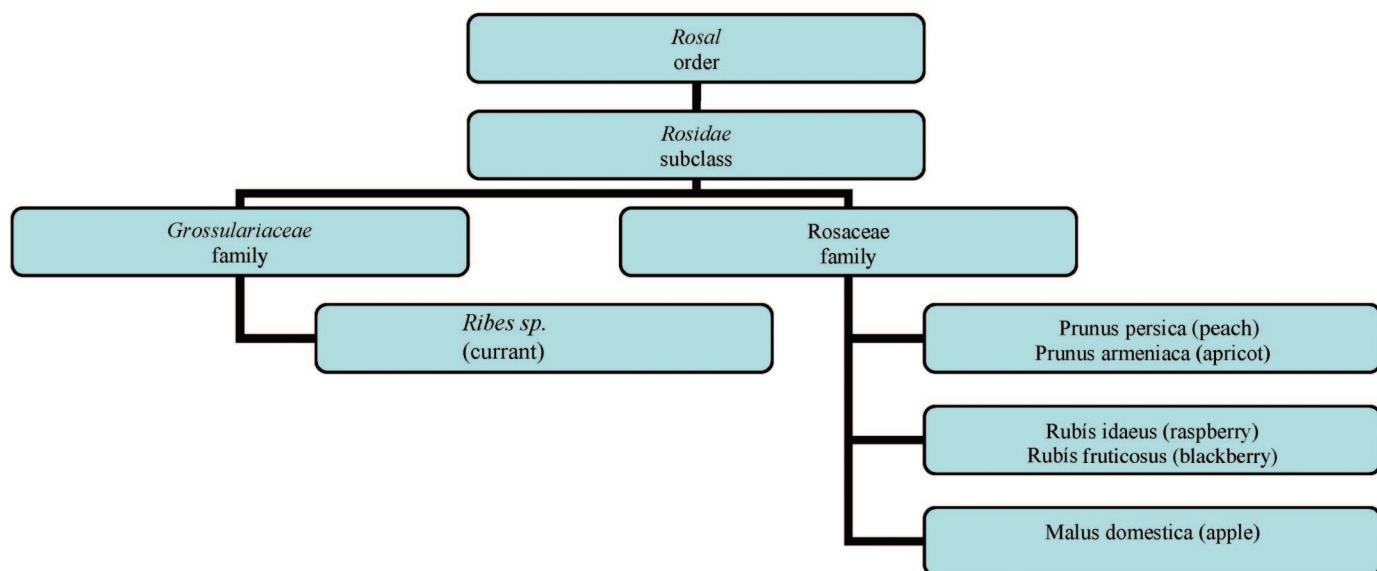


Figure 1. Taxonomic classification of the implicated fruits.

peach inhibited both IgE bands, and preincubation with *Dactylis* pollen inhibited the 37-kDa band only.

DISCUSSION

In the Mediterranean area, fruits of the Rosaceae family are the major cause of allergy to fruits. In the past few years, the consumption of berries and fruits of the related family Grossulariaceae and the Rosaceae family has in-

creased, especially as juice, desserts, and jams. The Rosaceae and Grossulariaceae families belong to the Rosidae subclass of the Rosales order (Fig 2). Currants are berries of the *Ribes* genus, in the Grossulariaceae family, which grow on bushes in many regions of the Northern Hemisphere. There are many species of currants, the most common ones being black currant (*Ribes nigrum*) and red currant (*Ribes rubrum*).

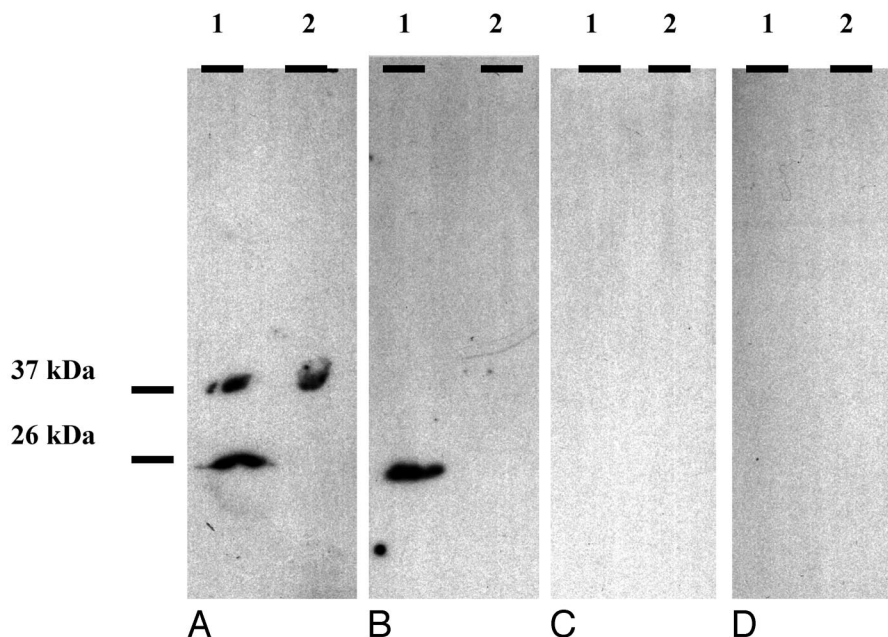


Figure 2. Immunoblot IgE cross-reactivity of currant, raspberry, and *Dactylis*. 1 indicates currant; 2, raspberry; A, without inhibition; B, inhibition $\times$ *Dactylis*; C, inhibition $\times$ raspberry; D, inhibition $\times$ currant.

Rosaceae family fruit allergy has been well documented, such as peach, apple,² cherry,³ and strawberry,⁴ but only 2 previous reports of anaphylaxis to red currant have been described. Kühl et al⁵ documented a case of anaphylaxis to red currant that lacked detectable IgE and exhibited specific IgA and IgM antibodies. Zollner et al⁶ reported another case of anaphylaxis to red currant with positive prick-to-prick test results but no specific serum IgE antibodies.

We describe a patient with an allergy to grass pollen who developed an oral allergy syndrome to several fruits from 2 different families of the Rosales order (currant, peach, apricot, and nectarine) confirmed by in vitro tests. Both families are included in the Rosidae subclass. Inhibition studies demonstrated cross-reactivity between different fruits (currant and raspberry) from the Rosidae subclass and were incomplete with grass pollen allergens.

After a primary sensitization to grass pollen, a subsequent IgE cross reaction with homologous proteins of fruits from the Grossulariaceae and Rosaceae families may occur. Further studies are needed to characterize the allergenic components in currants.

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