

Allergenicity of the nan-gai nut

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Key words: cross-sensitivity; food allergy statement; nan-gai nut; novel food.

● THE nan-gai nut (*Canarium indicum*) may soon be marketed in Europe. It is already available in France from specialist food shops. Is there a risk of cross-allergenicity in subjects with allergies to other nuts?

To investigate this risk, we selected 20 sera with positive RAST (≥ 2) to peanut, hazelnut, pistachio, or cashew nut (five of each). A RAST inhibition test with a solution of nan-gai nut (0.25 g/ml) was carried out by the method already described (1). The significant inhibition level was 30%.

No significant inhibition was found against peanut. Inhibition was observed in one case out of five for hazel and cashew nuts and in all five cases for pistachio nut (Table 1). There was no relationship with the level of specific IgE.

The study by Andersson et al. has already drawn attention to *in vitro* cross-reactivity between the nan-gai nut and the pollen of Gramineae or Betulaceae (grass, birch, and mugwort pollens) (2).

The leukocyte histamine-release test was positive for nan-gai nut in four out of six pollen-sensitized patients. This study points to a risk of cross-allergenicity between nan-gai nuts and pistachio.

In subjects displaying multiple sensitivity to pollens or in subjects sensitized to pistachio, the theoretical risk of cross-allergenicity with nan-gai nut is particularly high. It will be necessary to exercise care with it as soon as it is marketed.

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Adverse reactions to sculptured nails

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Key words: allergic contact dermatitis; cross-reactivity; (meth)acrylates; nail cosmetics; sculptured nails.

● ARTIFICIAL nails are widely used in cosmetics. Unlike press-on nails, sculptured nails are not preformed, but molded onto the natural nail plate. There are two types of sculptured nails, both of which are acrylate based (1). The first type is composed of either methyl methacrylate monomer or of longer chain methacrylate esters combined

with a polymethyl-methacrylate polymer. When the monomer liquid is mixed with the polymer powder, a polymerization reaction occurs in ordinary daylight (1). The second type consists of the same components, but the polymerization reaction takes place by the “photobonding technique” with the person's hands placed under UV radiation (2). The bonding is similar to the restorative dental bonding commonly used by many dentists worldwide. We report on two cases of allergic contact dermatitis from photobonded acrylic sculptured nails.

A new source of (meth)acrylates for allergic contact dermatitis.

Table 1. Inhibition of RAST to various nuts using 0.25 g/ml solution of nan-gai nuts and serum of 20 patients sensitized to one of following: pistachio nut, peanut, hazelnut, or cashew nut

Patient no.	RAST to pistachio nut (kU/l)	Inhibition (%)	Patient no.	RAST to peanut (kU/l)	Inhibition (%)	Patient no.	RAST to hazelnut (kU/l)	Inhibition (%)	Patient no.	RAST to cashew nut (kU/l)	Inhibition (%)
1	17.2	38	6	2.2	3	11	8.4	46	16	5.7	36
2	4.4	70	7	2.3	19	12	3	13	17	38.9	6
3	5.7	38	8	12.6	8	13	4.3	5	18	1.5	11
4	3.7	35	9	10.8	0	14	60.3	25	19	6.7	20
5	2.7	58	10	12.9	11	15	12.4	7	20	3	16

Case 1. A 26-year-old woman had been applying artificial nails for 3 years when she developed dermatitis of her nail folds and fingertips. We performed patch tests with the DKG (German Contact Allergy Group) standard series, a series of (meth)acrylates and common additives, and the patient's own substances (nail set). All allergens except for the nail set were purchased from Chemotechnique Diagnostics, Sweden, and Hermal, Germany. Patch testing showed delayed hypersensitivity reactions to methylmethacrylate (MMA), 2-hydroxyethyl methacrylate (2-HEMA), ethylenglycol dimethacrylate (EGDMA), and 2-hydroxypropyl methacrylate (2-HPMA) (all tested at 2% pet.), and also to the patient's nail hardener, nail liquid, and nail gel (all tested at 0.1% and 1% pet.) at readings on days 2, 3, and 7. Material safety data sheets (MSDS) indicated that the nail hardener and the nail gel contained 2-HEMA and the nail liquid 2-HPMA.

Case 2. A 52-year-old manicurist developed dermatitis affecting her fingertips, nail folds, and eyelids. The manicurist noticed that the airborne powder formed after filing the clients' artificial nails irritated her face and neck. The patient gave positive patch test reactions to MMA, 2-HEMA, EGDMA, and 2-HPMA. The MSDS indicated that the patient's nail liquid, the nail strengthener, and the UV-cured gel contained 2-HEMA, 2-HPMA, and EGDMA.

(Meth)acrylates are well-known contact allergens and irritants in dentistry, orthopedic surgery, and the printing and cosmetic industry (1–3). In both of our patients, diagnosis of allergic contact dermatitis induced by acrylic sculptured nails was confirmed by patch testing that revealed delayed-type hypersensitivity to MMA, EGDMA, 2-HEMA, and

2-HPMA. However, the MSDS of the patients' nail sets did not list MMA and EGDMA. Therefore, the source of sensitization to MMA and EGDMA remains unknown. Both of our patients had used different nail sets in previous years, which might have contained MMA or EGDMA. Although they were not listed in the MSDS, we cannot rule out that the nail sets contained traces of MMA or EGDMA. A discrepancy between the composition of the product listed in the MSDS and the results of gas chromatography/mass spectrometry analysis has been demonstrated frequently (4). It may be speculated that delayed-type hypersensitivity to MMA and EGDMA is based on cross-reactivity rather than concomitant sensitization. Cross-reactivity patterns between (meth)acrylates are still a matter of debate (5).

It has been shown that acrylic-based nail products may cause a wide range of adverse reactions, among them paraesthesia, which seems to be a special clinical feature of adverse reactions to (meth)acrylates (2). Unsuspected dermatitis of the eyelids, face, or any other part of the body can also be caused by airborne polymethacrylate dusts not yet polymerized, or by exposure to organic vapors (5). One of our patients (case 2) presented with both facial and fingertip dermatitis.

Delayed-type hypersensitivity to (meth)acrylates is induced by the mono(meth)acrylates, whereas the polymer is considered to be a weak sensitizer. However, contact with the monomer may occur before polymerization, or some monomer may remain unpolymerized, especially with self-curing resins.

In a recent study in dental laboratory technicians, it was demonstrated that

most of them were unaware of the high risk of sensitization by (meth)acrylates (6). In the MSDS of our patients' nail sets, most components were labeled "harmless when properly used." However, none of our patients were aware of any sensitizing capacity of sculptured acrylic nails. Since nail cosmetics containing mono(meth)acrylates are strong sensitizers, both the manicurists and their customers should be aware of the sensitizing capacity of these compounds.

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