Auckland Allergy Clinic

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Cosmetics Allergy

Vincent St Aubyn Crump - August 2004

A cosmetic is legally defined as a product that enhances appearance, aids in personal hygiene, and does not affect the structure or function of the skin. Therefore, cosmetic products contain no active drug ingredient. Sometimes the division of cosmetics and over-the-counter drugs is not always clear, for example the recent hair regrowth treatment, topical minoxidil (Regaine / Headway), which has been shown to cause allergic contact dermatitis of the scalp ***(1)***.

Cosmetics can be broadly divided into the following groups:

- Decorative products e.g. make-up
- Nail care products e.g. varnishes and removers
- Skin care products e.g. moisturizers
- Soaps & bath additives
- Shaving products e.g. foams, aftershave lotions
- Oral Hygiene products e.g. toothpaste & mouthwashes
- Hair Products e.g. shampoo, dyes & regrowth treatments
- Sun Protection products
- Feminine Hygiene products
- Fragrances e.g. perfumes & colognes
- Deodorants & Antiperspirants – Technically because they reduce or decrease sweating, which affect the function of the skin, they should be considered drugs

It can be seen, therefore, that cosmetics are an important part of our daily life. It is estimated that the average adult uses at least 7 different skin care products each day, so it's not surprising that reactions to these products are very common. Reactions can be seen after the first application or after years of use.

In New Zealand, like the rest of the developed world, there is a trend towards using "natural products", with the misconception that natural products are "healthier" and cause fewer reactions than artificial products. This myth is debunked when people are reminded that most allergens are "natural" proteins.

Cosmetics Legislations

Unlike drugs, cosmetics do not undergo governmental approval before marketing. The cosmetic industry is primarily self-regulated (by The Cosmetics, Toiletry, and Fragrance Association).

Cosmetics, Toiletry, and Fragrance Association (CTFA)

CTFA represents the industry's interests at the local, state, national, and international levels, promoting voluntary industry self-regulation and reasonable governmental requirements that support the health and safety of consumers.

CTFA has approximately 600 member companies. Active members are manufacturers and distributors of finished products. Associate members are suppliers of ingredients, raw materials, packaging, and other services used in the production and marketing of finished products, as well as consumer and trade publications.

CTFA also supports the Cosmetic Ingredient Review (CIR), a program it helped establish in 1976 which assesses the safety of ingredients used in cosmetics in an unbiased, independent forum with an expert panel comprised of world-renowned physicians and scientists.

Cosmetics Regulations in New Zealand

Cosmetics in New Zealand are only self-regulated by CTFA. The CTFA in NZ was formed in 1972 by a core group of cosmetics companies who were manufacturing their products in NZ at that time. In NZ there is a reasonable code of practice through the local CTFA. The problem arises where cosmetics are brought in from Asian countries where no similar requirements are applied. Some of these products can have undisclosed allergens, including peanuts.

What is even more worrying is the fact that there are at present no regulations in New Zealand that cover cosmetic ingredient labelling. In October 1991, the Cosmetic Ingredient Labelling Regulations were introduced in Australia. These regulations define the term “cosmetic product” and require that all ingredients be listed in descending order of concentration (although no naming convention is specified nor is there a minimum print size requirement apart from it being legible). This is a major step in helping consumers become aware of exactly what they are rubbing into their skin and putting in their hair. In New Zealand it is still possible to buy cosmetics with no proper labelling, with known allergens omitted from the label or with the term "hypoallergenic" used loosely on the label.

In USA a cosmetic can be removed from the market if the US Food and Drugs Administration (FDA) demonstrate that the cosmetic may be harmful to the consumer under customary conditions of use. The federal Food, Drug, and Cosmetic Act of 1938 with its colour additive amendment of 1960 and 1962 and the Fair Packaging & Labelling Act of 1966 are the two primary federal laws that regulate the cosmetic industry. The FDA and the Federal Trade Commission enforce these laws, and two industry-sponsored groups review the safety of cosmetic ingredients.

In the European Community (EC), cosmetic products are regulated by the council directive 76/768/EEC of 1976, which has been subsequently amended and adapted numerous times. The Commission of the European Communities to examine the scientific and technical issues concerning cosmetic regulations established a scientific committee on Cosmetology in 1977.

The new Dangerous Preparations Directive (DPD, 1999/45/EC) introduces a special labelling requirement for skin sensitizers in products that are regulated under this Directive. The packaging of products containing 0.1% of a sensitizer must bear the inscription “Contains ‘name of sensitizer’. May produce an allergic reaction.” The aim is to protect individuals already sensitized by providing information, which enables them to avoid products containing ingredients, which may elicit their allergy

In Japan cosmetics are regulated by the Pharmaceutical Affairs Law, which is implemented by the Ministry of Health & Welfare.

In New Zealand Product Safety Standards are regulations made under section 29 of the Fair Trading Act 1986. The purpose of these regulations is to prevent or reduce the risk of injury to any person. At the present time cosmetics are not included under the Product safety standard. From verbal communication with Medsafe & Consumer Affairs, there is no proposal for cosmetic labelling in New Zealand at this stage.

Misleading Terms

Manufacturers of cosmetics use various terms to sell their products to allergy-prone people. In NZ there are no standards that govern the use of these terms. Some of the terms misused include:

- **Hypoallergenic** usually means that the manufacturer believes that this product is less likely to cause an allergic reaction than others. There is no requirement to substantiate their claim.
- **Fragrance free or unscented** do not guarantee that the products do not contain chemicals. They simply imply that they have no perceptible odour.
- **Natural** implies that the ingredients are extracted directly from plants or animal products as opposed to being produced synthetically. There are an increasing number of ‘natural’ ingredients causing allergies.

What can legislation achieve?

In most western countries nickel is the most common contact allergen, and it is clearly related to body piercing. In 1991 Denmark implemented a statutory order calling for the reduction in exposure to nickel in nickel-plated items in close contact to the skin.

In a retrospective analysis, a comparison was made of the number of positive reactions to nickel seen in private practice of dermatology before and after this statutory order was implemented. The sensitivity fell from 20.81% pre-1991 to 16.7% in 1999.

A nationwide outbreak of alopecia in USA associated with the use of hair relaxing formulation (Arch Dermatol.200 Sep; 136(9): 1104-8)

Between 1994 and 1995 a nationwide outbreak of hair loss with scalp injuries involving tens of thousands of women (and some men) occurred following the marketing of a chemical hair-relaxing product. Most of those affected reported substantial hair loss, with a majority indicating growth of new hair that was abnormal in quantity & quality.

An epidemic of allergic contact dermatitis due to epilating (hair removal) products in France & Belgium
(Contact Dermatitis 2002 Aug; 47(2): 67-70)

Over a period of 19 months, 33 cases of acute allergic contact dermatitis from Veet epilating waxes were observed in France & Belgium.

The lesions started with the legs and spread to other parts of the body, especially face, and were sometimes so severe that hospitalization was required.

With proper cosmetic legislation (government approval before marketing & proper labelling) epidemics like those mentioned above can be prevented or quickly curtailed.

Prevalence of Cosmetic Allergy

Prevalence of Cosmetic allergy in the general population is unknown. This is because most mild reactions occurring at home following use of a single cosmetic product will be self-diagnosed & often self-treated with OTC medication. In my practice the majority of the cases of cosmetic allergy that I see come following multiple hair treatments at the same time (colouring, perming, shampooing & conditioning with some new & expensive product). Also, individuals who use several skin care products will have difficulty working out which one is the culprit.

Several studies suggest that about 10% of the adult USA & European population may suffer adverse reaction to cosmetics ***(2)***. Several patch test clinics show ~30% of their patients will have allergic contact dermatitis

In Belgium 36.3% of patients Patch tested for allergic contact dermatitis had an allergy to 1 or more cosmetic. What is even more worrying is that 48.6% of the children patch tested showed an allergic contact dermatitis and cosmetic was the number one cause ***(3)***.

In countries where reliable patch tests studies are done (Denmark, Singapore & USA), for 2 decades, the incidence of allergic contact dermatitis has been rising; two main reasons can be put forward: rising product consumption and a more exhaustive allergen research in patch testing.

In New Zealand Patch Testing is not practiced by all Specialists treating patients with dermatitis / eczema, therefore the “true” prevalence of cosmetic allergy in the community is even less reliable.

Problems associated with cosmetics and skin care products:

- Contact Urticaria & rarely contact Anaphylaxis
- Irritant Contact dermatitis
- Allergic Contact dermatitis
- Photosensitivity

Contact Urticaria & Anaphylaxis (Contact Urticaria Syndrome)

Contact urticaria reactions appear within minutes to about 1 hour after exposure of the urticariant (allergen) to the skin. The patient may complain of a local burning sensation, tingling, or itching. Swelling and redness may be seen (wheal and flare).

In some cases, this exposure may include the application of cosmetic products, especially to the face (cosmetic intolerance syndrome).

Cosmetic Intolerance Syndrome

This is a particularly difficult group of patients who complain of severe facial burning & discomfort with or without any obvious facial inflammation (redness, swelling etc). These individuals are no longer able to tolerate the use of any cosmetics. The cause of this entity is multifactorial, and includes:

- Irritant & Allergic contact dermatitis
- Contact Urticaria
- Photoallergic contact dermatitis
- Atopic Dermatitis
- Seborrhoeic dermatitis
- Rosacea
- Significant psychological disorder

Contact urticaria is caused by a number of cosmetic ingredients including fragrances, preservatives, and particularly ammonium persulfate in hair bleaches.

Systemic Anaphylactic reactions to hair dye have been reported. This is however a very rare cause of anaphylaxis. In the literature there are 2 good reports of fatality from anaphylaxis due to hair dye.

The death from Birmingham in 2001 was a 39 year-old asthmatic lady who had used the hair dye every two months, but the last time she developed an irritation of the scalp. She took some antihistamines, which alleviated the symptoms and

made the decision to change the brand of her hair dye. She died within an hour of applying the dye to her hair. The inquest was told that the product contained colourant and a separate developer (like all the other permanent dye systems), which must be mixed together. This company recommended that a small amount of the colourant should be tested on the arm 48 hours before being applied to the head. Six other leading companies in the industry recommend that users test the entire product including the developer.

Staging of CUS

Skin reactions only (Stage 1 & 2)

Stage 1 - Localized urticaria (redness & swelling), non-specific symptoms (tingling, itching & burning)
Stage 2 - Generalized urticaria

Extracutaneous reactions (Stage 3 & 4)

Stage 3 - Bronchial asthma (wheezing), Rhinitis (sneezing, runny, itchy nose), difficulty swallowing, nausea, vomiting, diarrhoea
Stage 4 - Anaphylactic shock

Contact dermatitis is simply inflammation that results from the interaction of skin and an external substance (even water) that comes in contact with it. It is an altered state of skin reactivity induced by exposure to an **external agent**. For the vast majority of people, these substances are harmless. “Eczema” and “dermatitis” are often used synonymously to denote a polymorphic pattern of inflammation of the skin. In all cases the lesions of contact dermatitis are primarily confined to the site of contact. Contact dermatitis can look - and itch - very much like eczema. It usually presents as a rash of tiny blisters, inflamed reddened skin, sometimes dry, or sometimes moist and oozing.

Contact dermatitis is produced through one of two major pathways: irritant or allergic.

Irritant contact dermatitis (ICD) and **allergic contact dermatitis** (ACD) are two of the most common dermatologic conditions in industrialized societies, with a prevalence of up to 10%. The two conditions are clinically indistinguishable and often both conditions co-exist. Many of the allergens causing ACD are also irritants.

Irritant contact dermatitis predominates, accounting for 80% of all cases of contact dermatitis. ICD is a non-immunologic skin reaction that does not involve immune system sensitization (previous exposure to the allergen). It can occur in all members of the population depending on the "irritancy" of the chemical, the duration of contact and individual susceptibility. Atopics (who invariably have dry skin) are more prone to irritant dermatitis. Water is one of the most common irritants; therefore atopics who do a lot of wet work will often get irritant hand dermatitis. Another reason atopics get irritant dermatitis is that the skin gets injured from chronic scratching, allowing the otherwise harmless

chemicals in cosmetics to enter the skin. The most common skin irritants include acids, alkalis, detergents, and solvents that disrupt the barrier function of the skin. Common cosmetics / skin care products causing skin irritation include:

- Bath soaps & shampoos
- Eye shadow & mascara
- Make-up removers,
- Antiperspirants,
- Permanent hair-waving solutions.
- Water present in cosmetics and skin care products is the most common irritant to very dry skin.

Irritant contact dermatitis is a risk factor for allergic contact dermatitis, as the penetration of contact allergens is enhanced when the skin barrier function is disturbed

Allergic contact dermatitis (ACD), on the other hand, is an immunologic skin reaction that occurs in a genetically predisposed individual. The allergic response occurs only when a person's immune system is sensitized to the allergen. The more contact the individual has with the allergen the greater the risk of sensitization. In sensitized individuals, allergic contact dermatitis appears or is exacerbated 24 to 96 hours after contact with the causative allergen. ACD is usually accompanied by intense itching. The edges of the lesions are usually well demarcated, but unlike irritant dermatitis it may propagate beyond the site of contact. This reaction is also known as delayed hypersensitivity reaction, since the rash usually develops more than 12 hours after contact with the allergen. The reaction usually peaks about 48 hours after exposure. The number of chemicals known to be capable of causing ACD is said to be near 3000 and constantly increasing.

Site of the skin reaction is usually the face especially around the eyes. In one study allergic contact dermatitis was found to be the cause in 74% of patients with eyelid dermatitis. In Saudi Arabia it is well known that men with dermatitis in the beard have an allergy to permanent hair dyes.

Common allergens in cosmetics and skin care products that cause contact dermatitis

Current reviews demonstrate that the most frequent allergenic groups causing cosmetic allergy are fragrances, preservatives, and paraphenylenediamine (PPD) found in permanent hair dyes.

Fragrance

The commonest allergen causing ACD is fragrance. More than 5000 different fragrances are used in cosmetics and skin care products. Seventy to eighty percent of fragrance allergy can be picked up by patch testing with Balsam of Peru and Fragrance Mix (which contains 8 common fragrances). Fragrance can also cause increased pigmentation of the affected skin, photodermatitis, or contact urticaria.

It is important to know that "unscented" does not mean "fragrance-free". Some unscented products might contain a fragrance to mask other chemical odours. To indicate that no fragrance is added to a product it must be marked "fragrance-free" or "without perfume".

In 1989, less than 10% of the patients patch tested in a multicentre project in Germany reacted to the fragrance mix (a mixture of 8 important fragrances). Between 1990 and 1994, a steady increase in the percentage of sensitizations diagnosed to more than 13% was noted ***(4)***.

Screening for Fragrance Allergy:

These are the fragrances tested in a standard patch test battery:

- Balsam of Peru
- Fragrance Mix:

1. Oak Moss
2. Cinnamic aldehyde
3. Cinnamic alcohol
4. Alpha amyl cinnamic alcohol
5. Geraniol
6. Hydroxycitronellal
7. Isoeugenol &
8. Eugenol

- Musk Ambrette and Moskene

In a worldwide multicenter investigation on fragrance contact dermatitis, reaction to fragrance mix occurred in 78% of patients patch tested

Balsam of Peru

Balsam of Peru (BP) is usually included in the standard screening patch-test series as an indicator of fragrance sensitivity. It is positive in 50% of cases of fragrance allergy. BP is a naturally occurring substance, obtained from fir trees. It is composed of many allergens including benzyl acetate, benzoyl alcohol, cinnamic acid, cinnamic alcohol, cinnamic aldehyde, eugenol, and isoeugenol.

Paraphenylenediamine (PPD) Hair dye Allergy

This is the most important dye used for permanent (oxidation) hair colouring and is the third most common ingredient after fragrances & preservatives that cause contact dermatitis from cosmetics. Permanent hair dyes are more sensitizing

compared to other types of hair dye.

In most cases the reaction to the dye is itching of the scalp and some redness, but nothing more. These individuals might just think they have a bit of dandruff. In more severe cases the hair dye may trigger scaly skin & pain. The distribution of the affected skin can vary and may not match the exact area to which the dye was applied. In more severe cases there can be swelling around the eyes and scaly skin on the ears, face & neck. Sensitization to hair dye may gradually develop with repeated exposure.

In some European countries, PPD was banned because it was thought to be too hazardous. The regulations of the EEC, however, have allowed up to 6% PPD in hair dyes.

In the consumer, PPD produces acute dermatitis that involves the scalp, eyelids, face, and hairline and may extend to include the neck & upper portion of the trunk, but may spread to involve the whole body. In the hairdresser the most common region affected is the hand, but other exposed areas like the arms & face may be affected. Once the dye becomes fully oxidized it is no longer allergenic; thus dyed hair does not cause dermatitis.

Other damage to the scalp skin can make one more sensitive than normal to hair dye and other chemicals.

Substances related to PPD which should be avoided in PPD-sensitized people

- Benzocaine (found in some haemorrhoid preparations) & procaine – local anaesthetics.
- Azo dyes: used in temporary & semi-permanent hair dyes, pen inks,
- Textiles dyes – especially dark clothing & clothing made of synthetic fiber like polyester or nylon
- Some foods & pharmaceuticals coloured with azo dyes
- Sulfa drugs
- Para-aminobenzoic acid (PABA) – found in sunscreens

Hair dye open skin sensitivity Test (“Dab test”) or Open Patch Test

In many countries there is legislation that requires hair dye products to carry a warning about conducting patch test prior to using the dye. This is a precaution to make sure the individual is not sensitized to the dye.

Allergies to PPD can develop, even though there was no reaction during previous use. For this reason, it is important to take the allergy test **48 hours ahead of every use**.

The test area used is either behind the ear or inside the arm at the elbow. A small amount of the “colour base” (or some companies recommend mixing the base with the developer first) is applied to the test area. Do not wash the test area. Wait 48 hours unless there is reddening, burning or other irritation. If there is no reaction on the unwashed patch test site

after 48 hours, then one can proceed to the full application.

Three dermatological departments in Italy, Great Britain & Poland, have validated this test. They considered it an effective method to detect delayed hypersensitivity (contact allergy) to hair dyes, and as such are useful in the secondary prevention of hair dye allergy. ***(5)***

Preservatives

Preservatives in cosmetics and skin care products are the second most common cause of skin reactions. Cosmetics that contain water must contain some preservative to prevent bacterial or fungal growth. Examples of cosmetics preservatives that cause allergy include:

- Parabens are the most commonly used preservatives in cosmetics
- Formaldehyde is an important sensitiser & is released by a number of biocides, it is mainly found in shampoos
- Imidazolidinyl urea (Germall 115)
- Quaternium-15 (Dowcill 200) is a formaldehyde releasing preservative found in many cosmetics including, eye makeup, foundations, shampoos, moisturizing lotions, sunscreens, body powders, and skin cleansers.
- Phenoxyethanol
- DMDM hydantoin (Glydant)

Cocamidopropyl Betaine (CAPB) was voted Contact Allergen of the year for 2004 by a committee of international experts. It is a non-ionic surfactant found primarily in rinse off cosmetics (shampoos, soaps, and bath gels). It is less irritating to the skin than older surfactants. For this reason patients may think that a less irritating product such as a baby shampoo is safer for the skin when it is more likely to cause allergic contact dermatitis.

A case was presented in the American Journal of Dermatology (Vol 15, No 1 (March), 2004: pp3-4) of a 37-year-old woman who presented with eyelid dermatitis that had been present for 5 months. She was instructed by her family doctor to apply baby shampoo to the eyelids daily (similar advice given in NZ as well). Patch testing revealed a + reaction to CAPB. CAPB was present in the baby shampoo she applied. Discontinuation of this product resulted in clearing of her allergic contact dermatitis.

CAPB is found in over 600 personal care products (according to FDA). The case of CAPB illustrates an important point regarding allergy to cosmetics. Because CAPB is “less irritating” than other surfactants, it may be preferred by consumers, manufacturers, and doctors. The fact that it is more allergenic came to light only after its widespread use.

The reported prevalence of allergic contact dermatitis (ACD) secondary to CAPB exposure ranges from 3.0 to 7.2% ***(6)***.

Lanoline or Wools alcohol

In North America lanoline was the fourth commonest cosmetic allergen (after fragrance, preservatives and PPD) causing contact dermatitis ***(7)***. It is felt that the prevalence of ACD to lanoline is decreasing because knowledge of its allergenicity has been known for a very long time.

It is a natural material obtained from the sebum of sheep. It is recovered from raw wool by solvent extraction. It is used in cosmetics because of its emollient, moisturizing, and emulsifying properties.

There are several allergens present in lanoline, and lanoline-sensitive patients can sometimes tolerate one lanoline preparation but not another.

Cosmetics containing lanoline include:

- Moisturizers, Hand creams, Protective creams
- Sunscreens
- Glossy lipsticks
- Makeup remover, Eye makeup
- Foundations, eye makeup
- Baby oils & diaper lotions
- Hair spray

Cosmetics with herbal ingredients

Virtually all-herbal remedies have been reported to cause either allergic sensitization or photosensitization.

In a recent study in Portland, Oregan, USA, 63% of patients with suspected cosmetics dermatitis that had used a skin product containing botanical extracts were patch test positive to a botanical extract. In New Zealand the true prevalence of contact allergy to botanical extracts in patients with cosmetics dermatitis is unknown, as most people who suffer from skin rashes do not seek medical help unless the rash is persistent.

Common herbal products causing contact dermatitis include plants from the Compositae family:

- Artichoke
- Chamomile (found in numerous shampoos & other hair treatment products)
- Daisy (Chrysanthemum)
- Dandelion (Taraxacum)
- Feverfew
- Marigold
- Pyrethrum

- Ragweed (Ambrosia)
- Thistle

Several plants in the Compositae plant family are regularly included in "natural skin care products" in New Zealand, especially shampoos and aromatherapy solutions. In some cases the reactions to Compositae is worsened by sunlight, often giving the appearance of a light-sensitive rash.

Tea Tree (Melaleuca alternifolia) Oil is increasingly being used in NZ in various cosmetics (soaps, deodorants, toothpaste, gargles & aftershave) and allergic contact dermatitis is being found related to this product throughout the world.

The leaves of the tea tree contain an essential oil, which contains turpentines (limonene, alpha-pinene, phellandrene). In one study in Honolulu limonene was the most common allergen causing allergic contact dermatitis from tea tree oil.

The 'tea tree' oil available in the Netherlands is distilled from the Melaleuca alternifolia and mainly contains eucalyptol. Eucalyptol is probably the most important allergen. The Photoaged Melaleuca is a stronger sensitiser than regular tea tree.

There have been recent reports of topical tea tree oil causing anaphylaxis (Allergy Asthma Proc. 2003 Jan-Feb; 24(1): 73-5)

Propolis

There are reports in the literature describing several individual cases of contact dermatitis in patients using propolis as a component of various cosmetic products, listing the most frequently sensitizing constituents of propolis. There are also reports of the existence of a cross-reaction between the components of Peruvian balsam and propolis constituents.

Henna Allergy

With the vigorous back-to-nature trend in Western countries, henna as a natural hair dye has become increasingly popular. This shift away from chemical dyes is enforced by the relatively high risk of sensitization to chemical dyes, in both hairdresser and their clients.

Henna is derived from a shrub Lawsonia inermis, which is native to the Middle East & North Africa.

There have been several reports in the literature of Immediate Allergic (& Anaphylactic) reaction to using Henna hair dyes. Most cases had sneezing, runny nose, cough, & shortness of breath instead of skin reactions. They were all diagnosed with the help of a positive skin prick test to henna extract. Most of these individuals were hairdressers who became sensitized from their work. It is felt that they became sensitized by inhalation of henna powder dispersed in the

air.

Henna also causes allergic contact dermatitis.

Photosensitivity is the term used to describe skin disease caused by the interaction of UV radiation and an exogenously (externally) acquired chemical agent, which may be either a drug or food taken orally, or a substance applied to the skin. It can be divided into photodermatitis, also referred to as photoallergic dermatitis, and **photoirritant** contact dermatitis.

Plants that cause photodermatitis (Phytophotodermatitis)

Phytophotodermatitis produces reddening and blisters on first exposure followed by persistent hyperpigmentation (darkening of the skin). This darkening of the skin can last for months. The rash is produced via a phototoxic reaction, which simply means that the reaction renders the skin susceptible to damage by UV light, and symptoms include burning pain at the affected site. This is in contrast to the reaction produced by plants such as poison ivy, which is classified as allergic contact dermatitis, and involves symptoms such as intense itching.

Compounds related to furocouramins (psoralens) usually cause plant-related photosensitivity. Two requisites for initiation of phytophotodermatitis are contact with a sensitizing plant (e.g. furocouramin) and exposure to ultraviolet light (wavelength greater than 320 nm), usually sunlight. Therefore, this dermatitis is usually seasonal.

Common plants causing photodermatitis:

Common Name	***Botanical Name***	***Family***
Angelica	Angelica archangelica	Umbelliferae
Bergamot	Citrus bergamia	Rutaceae
Celery	Apium aurantium	Umbelliferae
Citron	Citrus medica	
Dill	Anethum graveolens	Umbelliferae
Fennel	Foeniculum vulgare	Umbelliferae
Fig	Ficus carica	Moraceae
Lemon	Citrus lemon	Rutaceae
Lime	Citrus aurantifolia	Rutaceae
Parsnip	Pastinaca sativa	Umbelliferae
Wild Carrot	Dacus carota	Umbelliferae

In New Zealand many of these plants are also being added to "natural skin care products".

Contact urticaria is a hives-like reaction occurring at the site of contact of the skin product and usually occurring within 15 minutes of the product touching the skin.

Diagnosis of skin rashes caused by cosmetics

Contact Urticaria is diagnosed by applying the product to the skin for 15 - 20 minutes and observing the skin for redness, swelling and itching or doing a **skin prick test** (applying the suspected allergen/s to the forearm and pricking the skin with a lancet & waiting 15 minutes for a bump like a mosquito bite at the site of the prick)

Contact Dermatitis is diagnosed by doing a **patch test**. The only way to obtain proof of allergic contact dermatitis is by **patch testing**. Patch testing is the universally accepted method for the detection of the causative contact allergens. The positive patch test reproduces an experimental contact dermatitis on a limited area of the skin. This is different from skin prick testing (which gives a positive response in 15 minutes) in that it is a delayed hypersensitivity response (it gives a positive response in about 48 hours).

The most frequently encountered contact allergens have been selected by various international contact dermatitis groups and included in standard patch test series. The chemicals are taped to the back in small chambers. The skin is not broken. The patches stay in place for 48 hours. You cannot shower or do any work or exercise that will wet or loosen the patches.

After 2 days, the patches are removed, and a reading is done. The patch sites are marked, and you may be asked to return for a final reading on another day. An experienced doctor can differentiate between allergic contact dermatitis and an irritant reaction on patch testing.

Repeated Open Application Test (ROAT) or Use Test

This is a simple test for new skin care products or products suspected of causing skin reactions. A small amount of the product is applied twice daily to a small area of normal skin, usually on the front of the elbow for 1 week. If no rash appears after 1 week the product is considered safe for that individual. This test simulates the everyday use of cosmetic products and can be used to define the clinical relevance of doubtful or positive diagnostic patch tests.

Photo-patch testing is patch testing with the addition of radiation to induce the formation of photoantigens. All photosensitive patients should be photo-patch tested.

Cosmetic Allergy & The Future

A recent Patch test study done in Austria (published in Paediatrics Dermatology 2003 Mar-Apr; 20(2): 119-23) showed that the overall sensitization rate was highest in children less than 10 years old (62%) and decreased steadily to be lowest among patients more than 70 years old. This coupled with the fact that appearance is so important to adolescents as they are bombarded with numerous cosmetic advertisements; they are significant consumers of toiletry & skin care products. Therefore we would expect the prevalence of cosmetic allergy to continue to increase.

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Contact & Occupational Dermatology by James G. Marks & Vincent A. DeLeo

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