

Contact allergy from alkyl rhamnoside-C5

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Acute exacerbation of atopic dermatitis may be due to a contact allergy from topical preparations. We report a case where patch testing identified a sugar derivative as a new allergen in a moisturizer.

Case Report

A 59-year-old woman had a 6-year history of atopic dermatitis. In the previous 2 months she had noticed progressive worsening of the dermatitis on her face, neck, and chest, which required inpatient treatment with systemic and topical corticosteroids. Patch testing was performed 2 weeks later with the baseline series of the German Contact Dermatitis Group, additional preservatives and cosmetic allergens, corticosteroids and her own topical preparations. For several months she had regularly applied a moisturizing cream called TriXéra+Sélectiose™ (Avéne, Pierre Fabre Dermo-Kosmetik GmbH, Freiburg, Germany).

Results

In the baseline series, the patient reacted to nickel sulphate ++, formaldehyde ++, potassium dichromate +, and *Myroxylon pereirae*+. TriXéra+Sélectiose™ (tested in a large Finn Chamber™ 'as is') caused a ++ reaction on D3 (Fig. 1). Only the reaction to nickel was clinically relevant.

A repeated open application test (ROAT) performed twice daily on the forearm with TriXéra+Sélectiose™ cream was strongly positive on the 7th day (pruritic papules and vesicles). The manufacturer provided 19 individual constituents of TriXéra+Sélectiose™ cream for further testing. Only alkyl rhamnoside-C5 (1% in water) produced a reaction: ? at D2 and + at D3. Control testing on five volunteers was negative. At a follow-up visit after 4 weeks the dermatitis on the face, neck, and chest had nearly cleared with intermittent use of prednicarbate ointment and a bland emollient.

Discussion

The observed exacerbation of the atopic dermatitis was due to sensitization from alkyl rhamnoside-C5 present in the moisturizer TriXéra+Sélectiose™. This fragrance-free product is recommended for treatment of dry skin particularly in atopic dermatitis (1). The active ingredient is alkyl rhamnoside-C5 (pentyl rhamnoside, CAS 494844-53-0; INCI pentyl 6-deoxy-L-monopyranoside) synthesized by chemists of the laboratory Pierre Fabre Dermo-cosmetique (Castanet-Tolosan, France) (2). Pentyl rhamnoside belongs to the



Fig. 1. Strong patch test reaction to TriXéra+Sélectiose™ cream

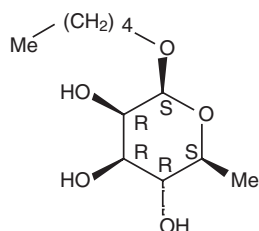


Fig. 2. Molecular structure of alkyl rhamnoside-C5, CAS. 494844-53-0, INCI Pentyl 6-deoxy-L-monopyranoside

group of alkyl polysaccharides and is synthesized from L-rhamnose, an important natural sugar. The chemical structure is shown in Fig. 2. Pentyl rhamnoside is water soluble and used as a co-surfactant for microemulsions. Compositions of liquid soaps and moisturizers with pentyl rhamnoside have been well tolerated in use tests according to the manufacturer (2). Furthermore, pentyl rhamnoside has been shown to penetrate well into the superficial epidermis and may have anti-irritant effects by interfering with the cytokine cascades (1). Based on our case report it has also sensitizing properties. Further observations will reveal how frequent this event occurs.

References

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