Allergic Contact Dermatitis to Decyl Glucoside in *Tinosorb M*®

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Tinosorb M® is a widely used UV filter complex. Its active component, bisoctrizole, is solubilized by the surfactant decyl glucoside.

Case Report

A 66-year-old male was observed with 1-year history of recurrent, pruriginous, and erythematous plaques in his face and neck, not related to his work (printing industry), with transient improvement on topical treatment.

Patch tests were performed with the Portuguese Contact Dermatitis Study Group baseline series, with an extended cosmetic and photo-allergen series, including the UV filters provided for the European Multi-Centre Photopatch Test Study. On D2/D4 there was only a positive reaction (++) for Tinosorb M® (10% pet.), with no further aggravation after 5 J/cm^2 UV irradiation. This reaction was considered relevant, as the patient was regularly using a facial sunscreen (Avène®) containing Tinosorb M® and lesions cleared on stopping its application.

Further patch testing with decyl glucoside (5% pet.), several commercial sunscreens, and other cosmetics containing different glucosides (myristyl-, coco-, lauryl-, arachidyl-, cetearyl- and xylityl glucosides) revealed positive reactions (++) to decyl glucoside, Tinosorb M® and sunscreens containing Tinosorb M®, and also all cosmetics containing myristyl-, coco-, and lauryl glucosides.

Discussion

Bisoctrizole (CAS 103597-45-1; or 2,2′-Methylene-bis-(6-(2H-benzotri

azol-2-yl)-4-(1,1,3,3-tetramethylbutyl) phenol)) is an insoluble, photostable, and poorly absorbed organic UV filter. It has been described as a weak allergen, and its use is considered safe and well tolerated. It is commercially provided as Tinosorb M®, combined with propylene glycol, xantham gum, and decyl glucoside.

Decyl glucoside (CAS 58846-77-8) is a mild non-ionic surfactant used as a cleansing agent; despite being widely used and having a low allergic potential (1), it has rarely been associated with allergic contact dermatitis (2, 3, 4, 5). As a component of Tinosorb M®, decyl glucoside has been identified as the responsible allergen in the present case, as in similar cases (2). In another published case of allergic contact dermatitis from Tinosorb M®, decyl glucoside was not tested (6).

Concomitant reactions to several glucosides observed in this case may be because of cross-reactivity between these structurally similar molecules. However, it is also important to stress the possibility of the existence of other glucosides, including decyl glucoside, as impurities that persist in the glucoside solutions during their industrial production. This might impose significant limitations in daily routine in patients allergic to decyl glucoside, as they have to avoid both sunscreens containing Tinosorb M® and several other cosmetics containing glucosides.

The absence of decyl glucoside in most cosmetic series for patch testing and its recent commercial use in cosmetics might contribute to an underestimation of its frequency as a contact allergen.

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References

1. Goossens A, Decraene T, Platteaux N, Nardelli A, Rasschaert V. Glucosides as unexpected allergens in cosmetics. *Contact Dermatitis* 2003: 48: 164–166.
2. Andersen K E, Goossens A. Decyl glucoside contact allergy from a sunscreen product. *Contact Dermatitis* 2006: 54: 349–350.
3. Blondeel A. Contact allergy to the mild surfactant decylglucoside. *Contact Dermatitis* 2003: 49: 304–305.
4. Horn H M, Murray C, Aldridge R D. Contact allergy to decyl glucoside. *Contact Dermatitis* 2005: 52: 227.
5. Le Coz C J, Meyer M T. Contact allergy to decyl glucoside in antiseptic after body piercing. *Contact Dermatitis* 2003: 48: 279–280.
6. González-Pérez R, Trébol I, García-Río A, Arrequi M A, Soloeta R. Allergic contact dermatitis from methylene-bis-benzotriazolyl tetramethylbutylphenol (Tinosorb M). *Contact Dermatitis* 2007: 56: 121.

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