



# Bakuchiol—A new allergen in cosmetics

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## CASE REPORT

A 33-year-old female patient presented to our clinic with a 1-year history of erythematous and itchy plaques on the both eyelids, the perioral area, and the neck (Figure 1). She associated her symptoms with food, spices and coffee, but not with cosmetics, as she stated that she used only “hypoallergenic cosmetic products for sensitive skin”. She has no other health problems or atopy. Prick tests with inhalant allergens and food gave negative results. Patch tests were performed with the European baseline series and a cosmetic series (Chemotechnique Diagnostics, Vellinge, Sweden), as well as with her creams (all “as is”) Noreva Global Exfoliac 6 and Noreva Recovery Cream, and “semi-open” with Noreva Exfoliac Gel, Noreva Actipur

Wash (all by Noreva Laboratoires, Paris, France), and ODA Wash (ODA, Elektrėnai, Lithuania). We performed patch tests by the use of Finn Chambers (SmartPractice Europe, Barsbüttel, Germany) covered with Mefix (Mölnlycke Healthcare, Göteborg, Sweden), and read them according to ICDRG guidelines on day (D) 2, D3, and D7. Positive reactions to Noreva Exfoliac Global 6 cream (+++), drometrizole, propyl gallate, dodecyl gallate, 3-(dimethylamino)-1-propylamine (all + reactions) were detected. All positive reactions were considered to be not clinically relevant to the present dermatitis, with the exception of Noreva Exfoliac Global 6 cream. The Noreva Laboratoires representative was contacted, and ingredients were kindly provided and patch tested. Tests were read on D3 and D7. A +++ positive reaction to bakuchiol 0.1% pet. appeared at D3. Ten controls were



**FIGURE 1** Allergic contact dermatitis of the eyelids

patch tested with bakuchiol, and showed negative results. Unfortunately, we were unable to patch test a dilution series of bakuchiol, owing to a very small sample being provided. The patient was advised to avoid cosmetics containing this substance.

## DISCUSSION

Bakuchiol (CAS no. 17015-60-0) is a purified meroterpene phenol, and is found mainly in *Psoralea corylifolia* (babchi seeds), as well as in some other Asian plants, for example, *Psoralea glandulosa*, *Pimelea drupaceae* (cherry riceflower), and *Ulmus davidiana* (Father David elm).<sup>1,2</sup> In vitro and experimental models, bakuchiol has shown various biological properties, including anticancer, antioxidant, oestrogen-like, antimicrobial, antifungal, liver-protective, antidiabetic and immune-suppressive activity.<sup>1-3</sup> This compound has been found to reduce photoageing and to have antiacne activity, similarly to retinoids.<sup>2</sup> One of the explanations for this action is modulation of retinoic acid receptor genes and upregulation of collagen and extracellular matrix synthesis enzymes.<sup>4</sup>

Patients and consumers are increasingly using natural products, and look for natural ingredients, hoping to avoid allergies and unwanted effects of “chemicals.” When these substances are incorporated in cosmetics or “hypoallergenic” products, a false feeling of security is created both in consumers and in physicians. However, cutaneous side-effects are possible when botanically derived phytochemicals and compound substances are used, and these appear to

not occur infrequently.<sup>5</sup> To our knowledge, this is the first case report regarding contact allergy to bakuchiol. Our case again shows the usefulness of patch testing with the patient's own products in addition to standard patch test series, in collaboration with manufacturers, to provide more knowledge about potential and rare allergens.

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## CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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