Allergic contact cheilitis caused by carnauba wax in a lip balm

Fuad Alrowaishdi1,2, Sophie Colomb1, Bernard Guillot1 and Nadia Raison-Peyron1

1Service de Dermatologie, CHU Montpellier, Université Montpellier I, FR-34295, Montpellier cedex 5, France and 2Ministry of Higher Education, 11324 Riyadh, Saudi Arabia

doi:10.1111/cod.12108

Key words: allergic contact dermatitis; carnauba wax; cheilitis; copernicia cerifera cera; lip balm; lipstick; patch test.

Carnauba wax or copernicia cerifera cera is a botanical ingredient used in a large number of food, industrial and household products because of its emollient properties and a high glossy finish.

This report describes a case of allergic contact cheilitis caused by carnauba wax in a lip balm.

Case Report

A 33-year-old woman was referred to our clinic after suffering from desquamative cheilitis and perioral dermatitis for a few months. She had a history of atopic dermatitis and asthma during childhood, and allergic contact dermatitis caused by jewellery.

Over a period of several months, the patient developed desquamative cheilitis with perioral dermatitis after she started using a lip balm for ‘cracked lips’. She had also applied lipsticks as make-up, but had stopped using them, without improvement of her symptoms.

She was patch tested with the European baseline series, additional series containing propolis, a cosmetic series, and the individual components of fragrance mixes I and II, and her own lipsticks, lip balm, and toothpaste, tested ‘as is’ with 2 days occlusion with IQ Chambers™. The patch tests read at D2 and D3 were positive only for nickel sulfate 5% pet. (++ at D2 and D3) and for the hypoallergenic lip balm ‘for cracked lips’ (Uriage®) tested ‘as is’ (1+ at D3).

A repeated open application test was positive for the same lip balm within 7 days.

Further patch testing with all of the ingredients of the lip balm, provided by the manufacturer, was performed. There was a positive reaction only to copernicia cerifera cera tested as is (Fig. 1). Patch testing in 10 control subjects gave negative results.

Discussion

Carnauba wax (INCI name copernicia cerifera cera or wax; CAS no. 8015-86-9) is a wax obtained from the leaves and leaf buds of the Brazilian carnauba palm, Copernicia prunifera. It contains mostly fatty acid esters, fatty alcohols, and acids, and ∼10% cinnamic acid (1). It is used in automobile, floor and furniture waxes, shoe polishes, and as a filming and coating agent for confectionaries and tablets. It is also a common ingredient in many cosmetic products, such as mascaras, lipsticks, eye shadows, and eyeliners, because of its emollient properties and a high glossy finish.

Skin sensitization or irritation is uncommon, so carnauba wax is considered to be hypoallergenic. In the literature, 2 cases of allergic contact dermatitis caused by carnauba wax have been reported, but both in association with another allergen (2, 3). In the first case, a 21-year-old woman presented with eyelid contact dermatitis caused by a mascara (2). Patch testing gave positive reactions to two ingredients of the mascara: yellow carnauba wax and Coathylene® (DuPont Polymer Powders, DuPont, Austria) which is the trade name of a low density polyethylene. In the second case, a 6-year-old girl with a history of mild atopic dermatitis from infancy presented with recurrent episodes of cheilitis and upper extremity dermatitis (3). Clinically relevant positive reactions to propolis and cinnamal were noted, and a provocative use
test with her lip balm gave a positive reaction. She also used to take chewable multivitamins, which, notably, contained an ‘unspecified’ amount of carnauba wax and beeswax. Discontinuation of the vitamins and of the lip balm resulted in clearance of both the cheilitis and dermatitis.

However, she was not tested with the ingredients of the lip balm, which contained a ‘wax base’, or with the chewable vitamins.

To our knowledge, this is the first case of allergic contact dermatitis caused only by carnauba wax and confirmed by patch testing.

References
2. Chowdhury M M. Allergic contact dermatitis from prime yellow carnauba wax and coathylene in mascara. Contact Dermatitis 2002; 46: 244.