

Generalized systemic allergic dermatitis caused by *Cinnamomum zeylanicum* in a herbal tea

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Cinnamon is the bark of *Cinnamomum zeylanicum* (Lauraceae), and is used as a culinary spice and flavouring agent (1, 2). Allergic contact dermatitis caused by cinnamon may present as perioral dermatitis, cheilitis, and/or stomatitis, and culprit allergen sources include wine, rice pudding (3), toothpaste (4, 5), lipstick (5), chewing gum (6, 7), and various other products (8). Systemic allergic dermatitis caused by cinnamon is considered to be rare, but may occur when sensitized patients are re-exposed to cinnamon via, for example, the oral route (4, 9–11).

Here, we describe a case of generalized systemic allergic dermatitis following the intake of a herbal tea containing a substantial amount of *C. zeylanicum*.

Case Report

A 26-year-old atopic female student presented at the Emergency Department with a widespread and itchy maculopapular skin eruption that had been present for 1 week. The lesions had started on the abdomen, and had spread to the arms, chest, legs, and thighs (Fig. 1). The patient was not known to have any prior illness, and she had not taken any medication. She informed us that, during the day before the onset of the eruption, she had drunk multiple cups of a specific herbal tea (Lipton® Morocco; Unilever, Leatherhead, Surrey, UK). Her history showed that, in the past, she had also suffered from a

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Fig. 1. Generalized maculopapular rash on the back and thighs following the ingestion of *Cinnamomum zeylanicum*-containing herbal tea.

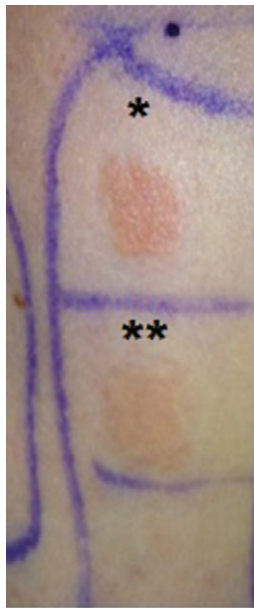


Fig. 2. Positive patch test reactions to cinnamal 1% pet.* (++) and to cinnamyl alcohol 2% pet.** (++) on day 4.

mild skin rash on the trunk and on her hands following the use of a scented shower gel and hair mousse, respectively.

Approximately 6 weeks following resolution of the dermatitis, patch tests with Van Der Bend® chambers (Van Der Bend, Brielle, The Netherlands) were performed with the Belgian baseline series, a cosmetic series, a fragrance

series, and a bakery series, all from Chemotechnique (Vellinge, Sweden), and with her own cosmetics. Furthermore, a patch test was performed with the tea dissolved in water, prepared according to the instructions on its leaflet, and with a pinch of tea 'as is', mounted on an equally small amount of pet. The tests were placed on the upper back, occluded for 2 days with Fixomull® stretch (BSN Medical, Hamburg, Germany), and read according to ESCD guidelines on day (D) 2 and D4 (12). Positive reactions were observed to fragrance mix I (D2, +; D4, +), cinnamyl alcohol (D2, ++; D4, ++), cinnamal (D2, ++; D4, ++), *Cananga odorata* (ylang ylang oil; D2, +?; D4, +?), benzoyl peroxide (D2, -; D4, +), and to the tea 'as is' (D4, ++), but not to the aqueous tea solution. Prick tests with the tea in water and 'as is', performed on the volar side of the lower arm, remained negative after 20 min; no late reactions were reported. Twenty control subjects showed no reaction on D4 to a patch test with the tea particles 'as is'. According to the leaflet of the tea, it contained a substantial amount of cinnamon (27.1%), and the manufacturer informed us that the specific cinnamon derivative used was *C. zeylanicum*, with cinnamal (syn. cinnamic aldehyde) being one of its main components (8). The patient was therefore diagnosed with systemic allergic dermatitis following the ingestion of a large amount of cinnamal-containing herbal tea. Prior skin sensitization had presumably taken place, following the use of scented cosmetics containing cinnamon derivatives. The patient was advised to avoid fragranced cosmetics in general, and to limit the consumption of cinnamon-containing food in particular; there has been no recurrence of her dermatitis after a follow-up of 6 years.

Discussion

Only 3 cases of generalized systemic allergic dermatitis caused by cinnamon have been previously published. In all of these, dermatitis developed shortly after the ingestion of cinnamon-flavoured food (9–11). In most cases it concerned *C. zeylanicum*, although *Cinnamomum cassia* has also been involved (9). Systemic allergic dermatitis, as in the present case, usually results in acute, widespread and symmetrically distributed eczema. The clinical picture of systemic dermatitis provoked by herbal ingredients can be very diverse (13), and may include very localized forms such as eyelid dermatitis, the latter also having been attributed to cinnamon (11). Moreover, acute and chronic urticaria, angioedema and even anaphylaxis caused by cinnamon have been reported (9, 10). As stated by Calapai et al. simultaneous positive patch test reactions to fragrance mix I, cinnamal, eugenol, *Myroxylon pereirae* (balsam of Peru),

cinnamon oils, clove oil and propolis are not surprising, given the structural similarities between the sensitizing substances (2). When systemic allergic dermatitis

caused by cinnamon has been confirmed, dietary avoidance is usually recommended in order to prevent future relapses (9–11).

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