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Contact dermatitis caused by brazilin in *Caesalpinia sappan*

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Many topical plant products used in traditional Chinese medicine are known to cause contact dermatitis (1). Here, we report a case with contact dermatitis caused by *Caesalpinia sappan*.

Case Report

A 49-year-old woman presented with an eczematous reaction on her hands that which had appeared 5 days previously. To treat her wrist sprain, she had applied hot compresses with a herbal water decoction of multi-ingredient formulations on her hands for half an hour, and bathed her hands in this decoction for another 20 min. After 1 day, her hands became erythematous, with burning and itching (Fig. 1a, b). The ingredients of the decoction are *Caesalpinia sappan*, myrrh, *Crocus sativus* L., and *Panax notoginseng*. Two years previously, she had experienced similar dermatitis after applying herbal plasters impregnated with *C. sappan*, myrrh, *Cr. sativus* L., pseudo-ginseng, and *Ligusticum chuanxiong* Hort.

Patch tests were performed on the patient's back with the plant materials involved. Each material was ground into powder, homogenized in 1:10 wt/vol deionized water, and stirred for 24 hrs. The herb extract was dispersed in 50%, 20% and 10% pet., representing final concentrations of 50%, 20%, and 10%, respectively, of the decoction that she had used. Allergens were applied with IQ Chambers™ (Chemotechnique Diagnostics, Vellinge, Sweden). The results were read according to the ICDRG scoring scale on day (D)2 and D3. There was a ++ positive reaction to *C. sappan* 50% pet. and there were doubtful reactions to 20% and 10% pet. on D2 and D3 (Fig. 1c). To determine the responsible hapten in *C. sappan*, brazilin and protosappanin B powder (National Institutes for Food and Drug Control, Beijing, China) 10% pet. were tested on the skin behind the ear (2). After 1 day, an erythematous and itchy reaction developed at the site of application of brazilin (Fig. 1d). Patch tests with *C. sappan* 50%, 20% and 10% pet., and brazilin 10% pet. gave negative results in 10 healthy controls. Therefore, this patient was

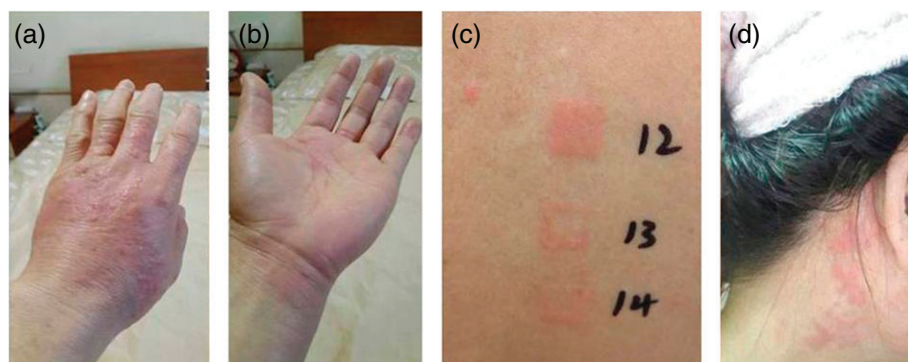


Fig. 1. (a, b) Eczematous reaction on hands. (c) Patch results with *Caesalpinia sappan* in 50%, 20% and 10% pet. (d) Dermatitis at the site of brazilin application.

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diagnosed with contact allergy to *C. sappan* and brazilin. After discontinuation of use of the herbal decoction and treatment with topical corticosteroids, her skin lesions improved.

Discussion

C. sappan belongs to the Leguminosae family, and is native to Southeast Asia and the south of China (3). The dried heartwood of *C. sappan* has been a common ingredient in traditional Chinese medicines for thousands of years. Because of its alleged antibacterial, anti-inflammatory, blood-activating, stasis-dissolving and analgesic properties, *C. sappan* is widely used for the treatment of menorrhagia, traumatic injury, and cardiovascular

and cerebrovascular diseases (4). Various compounds have been identified, such as brazilin, protosappanin, homoisoflavonoids, and chalcones. One of the main compounds in *C. sappan*, brazilin, is a reddish dye, and is claimed to have immunological activity (5).

In this case, *C. sappan* and brazilin turned out as contact allergens, and elicited allergic contact dermatitis when applied as a water decoction. To our knowledge, this is the first report of contact allergy to *C. sappan* and brazilin.

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