

Short Communication

Airborne allergic contact dermatitis from iroko (*Chlorophora excelsa*)

LUCA STINGENI, MICHELA MARIOTTI AND PAOLO LISI

Allergologic and Environmental Dermatology Unit, Department of Medical and Surgical Specialities, University of Perugia, Policlinico Montelucente, I-06100 Perugia, Italy

Key words: *Chlorophora excelsa*; Moraceae; iroko; airborne contact dermatitis; wood dust; woods; patch testing technique. © Munksgaard, 1998.

Chlorophora excelsa (iroko, kambala, African teak), a member of the Moraceae family, is a West African hardwood widely used as a teak substitute in building floors, window frames and boats (1). In spite of this, irritant and allergic disorders of the skin and mucous membranes are rare (2).

Case Report

An atopic 42-year-old male sales representative, a joiner in the past, presented with an itchy erythematous-oedematous dermatitis on the eyelids, jaw area, neck and V of the chest, quickly spreading to the groins, antecubital and popliteal regions, and genitalia. The dermatitis developed after exposure to the wood dust of iroko, utilized as building timber for a staircase. 10 months before, the patient had had the same lesions but only on the face, after a short stay in a shipyard where iroko hardwood was used for hull repair. On both occasions, the dermatitis rapidly cleared with fine scales after topical corticosteroid and oral antihistamine. Blood tests revealed only high levels of IgE (388 kU/l) and circulating immune complexes (CIC) (6.1 µg/ml).

Patch tests with the GIRDCA standard series were negative, while those with an ethanolic extract (2) of a sample of the wood used by the patient (5% pet. and eth.) elicited coalescing vesicles and bullae. Later, additional patch and prick tests were performed with an ethanolic extract of untreated *Chlorophora excelsa* wood, supplied by the Department of Plant Biology of Perugia University. The vehicles and test concentrations, as well as the test results, are reported in Table 1. Reactions to patch tests at D2 and D3 were equal. No positive reactions in 10 volunteer control subjects were observed. After 36–48 h exposure to allergens, itching and dermatitis relapsed, especially in the folds, with dizziness, nausea and vomiting. At this time, a further slight increase in the serum level of IgE and CIC was found (412 kU/l and 8.7 µg/ml, respectively).

Discussion

Contact dermatitis from wood is an uncommon, often irritant and usually occupational disorder (3). Some-

Table 1. Patch and prick test results

Patch tests (D2, D3)			
		pet.	ethanol
<i>Chlorophora excelsa</i>	5%	+++ ^{a)}	+++ ^{a)}
	1%	++	++
	0.1%	++	++
Prick tests (D1)			
		hydroalcoholic sol.	
<i>Chlorophora excelsa</i>	1%	++ ^{b)}	
	0.1%	++ ^{b)}	

^{a)}Coalescing vesicles and bullae.

^{b)}Delayed-type erythematous-oedematous reaction.

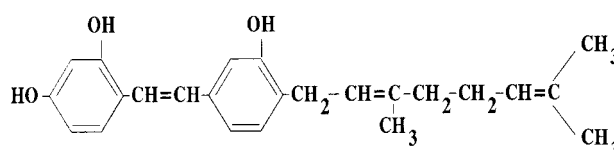


Fig. 1. Chemical structure of chlorophorin.

times, it is associated with mucosal irritation and systemic symptoms from absorption of sawdust (2). *Chlorophora excelsa* was reported as cause of cutaneous problems mainly in the past (1910–1944) (2) and as a sensitizer in only a few cases (2, 4, 5). In these cases, as well as in our patient, the dermatitis had an airborne distribution, even if at a later stage other skin areas became involved, and in particular those (i.e., folds) where dust is trapped by clothes.

In the majority of reports, allergen concentration and vehicles used are not given. According to our findings, the best concentration of wood extract may range from 1% to 0.1%, while the nature of the vehicle seems unimportant. Positive reactions to *Chlorophora excelsa* are probably due to chlorophorin (Fig. 1), an oxystilbene with an unsaturated aliphatic side-chain, isolated by King & Grundon (6). This substance may be the main sensitizer of iroko (7).

References

1. Lovell C R. *Plants and the skin*. Oxford: Blackwell Scientific Publications, 1993: 246–254.

2. Woods B, Calnan C D. Toxic wood. *Br J Dermatol* 1976; 95 (suppl 13): 1–97.
3. Gan S L, Goh C L, Lee C S, Hui K H. Occupational dermatoses among sanders in the furniture industry. *Contact Dermatitis* 1987; 17: 237–240.
4. Schulz K H. Allergische Kontaktdermatitis durch exotische Hölzer, insbesondere durch Kambala-Teakholz. *Dermatosen* 1957; 5: 238–239.
5. Hinnen U, Willa-Craps C, Elsner P. Allergic contact dermatitis from iroko and pine wood dust. *Contact Dermatitis* 1995; 33: 428.
6. King F E, Grundon M F. The constitution of chlorophorin, a constituent of iroko, the timber of *Chlorophora excelsa*. *J Chem Soc* 1949: 3348.
7. Schulz K H. Untersuchungen über die sensibilisierende Wirkung von Inhaltsstoffen der Hölzer. *Dermatosen* 1962; 10: 17–20.