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Subject: Allergic reactions to (tropical) woods

Since January, 1972 we have tested patients with a probable hypersensitivity to woods with a series of 19 ethanolic extracts of common woods. The preparation of the extracts has been described in detail before (1).

Totally 60 persons were assayed, 22 of them showed positive tests to one or more extracts. Two persons were found to have status eczematicus and were omitted from the series. The extracts were assayed also in 21 patients with positive tests to wood tars (3 x 4% as recommended). Eleven (52%) of to tar positive persons appeared to show positive tests to wood extracts.

The results are recorded in the Table.

Results of tests with various woods

Trade name	Botanical name	Plant family name	No. pos. in 20 pat. allergic to woods	No. pos. in 21 pat. with pos. test to wood tar
American walnut	Juglans nigra L.	Juglandaceae	0	0
Iroko	Chlorophora excelsa Benth & Hook	Moraceae	8	3
Satiné rubané	Brosimum paraense Hub.	Moraceae	1	1
Coromandel	Diospyros melanoxylon ROXB	Ebenaceae	4	3
(Grand) Bassam mahogany	Khaya ivorensis A. Chev.	Meliaceae	4	2
(American) ash-wood	Fraxinus americana L.	Oleaseae	0	0
Teak	Tectona grandis L.J.	Verbenaceae	6	4
(European) beech	Terminalia superba. Engl. et Diels	Combretaceae	1	0
Afzelia	Afzelia bipindensis Harms	Leguminosae/ Caesalpiniaceae	3	0
California redwood	Sequoia sempervirens Endl.	Taxodiaceae	0	0

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Deal	Picea abies Karst	Pinaceae	4	0
Azobé	Lophira alata	Ochnaceae	0	0
Sipo	Entandophragma utile Liebl.	Meliaceae	3	0
(European) Oak	Quercus robur L.	Fagaceae	1	0
Panga nanga	Milettia stuhlmanii Taub.	Leguminosae/ Papillonaceae	1	0
Western red cedar	Thuja plicata D. Don.	Cupressaceae	4	3
Parana pine	Araucaria angustifolia O.KTZE	Araucariaceae	1	0
Abura	Mitragyna Stipulosa O.KTZE	Rubiaceae	1	0
Pitch pine	Pinus celliotti Engelm.	Pinaceae	7	4

Many positive reactions were observed to the tropical woods iroko, coromandel, mahogany and teak, but also to pitch pine, deal, western red cedar and beech.

A remarkable point is that so many patients with positive reactions to wood tar show skin reactivity to extracts of woods botanically unrelated to the woods from which the tars are derived. One of the most likely explanations for this finding is that tars contain substances chemically related to the active principles in woods. The allergens in woods, identified thus far, are mainly benzo- or anthra-quinon derivatives (2). Allergens from other plants are in the same group of compounds (primin) or belong to the terpenes and sesquiterpene lactones, while some allergens in balsams have been identified as dihydroxybenzene (derivatives eugenol, isoeugenol, vanillin). Tars contain poly-oxy or polyhydroxy (poly-phenols) as well and (traces of) oleroresin components. Likewise, the remarkable overlap of positive reactions to wood tars and other allergenic substances of plant origin such as colophony, turpentine, balsam of Peru and perfumes may be due to the presence in these materials of allergens which are chemically closely related.

References

1. Bleumink E., Mitchell, J.C. and Nater, J.P. Allergic contact dermatitis from cedar wood (Thuja plicata) Brit. J. Dermatol. 88 (1973) 499

2. Hausen, B.M. Holzarten mit gesundheitsschädigen Inhaltstoffen. DRW. Verlags, Stuttgart 1973

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