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Occupational airborne contact dermatitis caused by *Pinus roxburghii* sawdust

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Allergic contact dermatitis caused by airborne plant allergens is well recognized. Compositae plants, particularly *Parthenium hysterophorous*, constitute one of the major causes of airborne contact dermatitis in India (1). We report the first case of occupational airborne contact dermatitis caused by *Pinus roxburghii* (syn. *Pinus longifolia*, family Pinaceae) sawdust.

Case Report

A 30-year-old man presented with recurrent episodes of dermatitis affecting his face, trunk and extremities for 12 months. The dermatitis began over his upper eyelids and nasolabial folds, and spread to involve other body areas. He was a professional wood sawyer, and used a hand-saw to cut all kinds of wood logs into planks; he attributed most of the recurrences to his work. On initial examination, he had a severe, acute oozy dermatitis affecting his face, eyelids, nasolabial folds, trunk, limbs, and ante-cubital and popliteal fossae in an airborne pattern. Treatment with oral prednisone at 30 mg/day resolved his dermatitis within 2 weeks. Later, patch testing by the Finn Chamber® method, performed sequentially with the Indian baseline series (2), ether and aqueous extracts of common native plants and weeds, and moistened sawdust of the woods with which he had been working, showed positive reactions to colophonium (1+) and *P. roxburghii* sawdust (2+) on D2 and D3 (Table 1). Patch testing with *P. roxburghii* sawdust in five controls who were not exposed to the wood gave negative results. Long-term review showed

that avoidance of the allergenic wood prevented further recurrences.

Discussion

Timbers are responsible for a number of adverse skin reactions, and sawdust exposure can be particularly allergenic. Occupations commonly affected include carpenters, cabinet makers, joiners, wood polishers, wood turners, and tree fellers, all of whom are exposed to fine sawdust. The dermatitis caused by sawdust has typical feature of airborne contact dermatitis involving the face, eyelids, and neck, as in our patient. Other areas, such as the waist, axillae, groins, and genitalia (where sawdust particles can penetrate or are trapped), may be involved later. Sawdust from teak (*Tectona grandis*), red wood (*Sequoia sempervirens* and *Sequoiadendron giganteum*), mahogany (*Swietenia mahogany* and *Swietenia macrophylla*) and rosewood (*Dalbergia latifolia* and *Dalbergia nigra*) produces a dry dermatitis, particularly on the face and genitalia, among persons working with these woods (3). Contact dermatitis caused by pines mostly results from its derivatives, oil of turpentine and colophonium, as the opportunity for contact with them, both in industry and in daily life, is widespread (4). Turpentine vapours constitute a common cause of occupational airborne contact dermatitis in most industries that use it as solvent for waxes or for making varnish. Cook and Freeman (5) reported a case of chronic acrofacial dermatitis in a cabinet maker who showed positive patch test reactions to colophonium and sawdust samples of silky oak, Queensland hoop pine, radiata pine, and Australian red cedar. However, allergic contact dermatitis caused exclusively by *P. roxburghii* sawdust remains unreported. Although, for most woods, patch tests can be performed with moistened fine wood dust as is, that of teak (*T. grandis*) may elicit false-positive

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Table 1. List of aqueous and ether extracts of plants and weeds, and sawdust used for patch testing

	Concentration for patch test	Patch test results	
		D2	D3
Aqueous and ether extracts of plants and weeds (common names)			
<i>Parthenium hysterophorus</i> (wild feverfew, parthenium)	15% aqueous and ether	– (negative)	—
<i>Xanthium strumarium</i> (cockelbur)	15% aqueous	—	—
<i>Lantana camara</i> (lantana)	15% aqueous	—	—
<i>Chrysanthemum morifolium</i> (chrysanthemum)	15% aqueous	—	—
<i>Dahlia pinnata</i> (dahlia)	15% aqueous	—	—
<i>Helianthus annuus</i> (sunflower)	15% aqueous	—	—
<i>Bougainvillea glabra</i> (bougainvillea or ‘paper flower’)	15% aqueous	—	—
<i>Pinus roxburghii</i> (chir)	15% aqueous and ether	—	—
<i>Cedrus deodara</i> (deodar)	15% aqueous	—	—
<i>Eucalyptus citriodora</i> (eucalyptus)	15% ether	—	—
Moss (collected from tree barks)	15% ether	—	—
Sawdust sourced from patient			
<i>Pinus roxburghii</i>	As is	2+	2+
<i>Eucalyptus citriodora</i>	As is	—	—
<i>Cedrus deodara</i>	As is	—	—
<i>Dalbergia sissoo</i> (shisham)	As is	—	—

(irritant) reaction. We patch tested with common regional plants and weeds, and sawdust samples, particularly of woods that the patient was working with, to identify the suspected allergen. The positive reaction to *P. roxburghii*

sawdust in our patient is apparently a true allergic reaction, as it could be correlated with a positive patch test reaction to colophonium in him and negative reactions to *P. roxburghii* sawdust among controls.

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