

Occupational irritant contact dermatitis in a carpenter exposed to wood from Brazilian rainforest tree *Manilkara bidentata*

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Occupational contact dermatitis following exposure to various exotic woods is well known (1, 2). We report a rare cause of occupational irritant contact dermatitis following exposure to Brazilian rainforest wood from the tree *Manilkara bidentata*.

Case Report

A 36-year-old atopic male Caucasian was referred with a relapsing eczema-

tous rash on the hands, forearms, and face. His previous medical history was unremarkable, apart from contact sensitization to the fragrance chemical hydroxyisohexyl-3-cyclohexene carboxaldehyde (Lyrall[®]). As a carpenter working with construction of wooden decks, he had experienced dermatitis on three occasions following occupational skin exposure to *Manilkara bidentata*. The facial dermatitis occurred following exposure to dust from the sawing of boards. Patch testing was performed with the European baseline series using Finn Chambers[®] (8 mm; Epitest Ltd Oy, Finland) on Scanpor tape[®] (Norgesplaster A/S, Alpharma, As, Norway). Additional patch testing was performed with dust and scrapings from the wood material as well as prick testing with latex.

The patch tests were applied to the upper back and were occluded for 2 days. Readings were done on D2, D3, and D7 according to the recommendation from the International Contact Dermatitis Research Group (3). All tests were negative.

To identify the tree species, pieces of wooded floorboard brought by the patient were cut with a vibrating microtome and analysed with a dissection microscope, fluorescence microscope, and bright field microscope (Fig. 1). The vessels were arranged in radial files along the rays and embedded in extremely thick-walled fibre tissue. The axial parenchyma was banded and two to three cells wide. When using blue excitation, the green fluorescence showed that the fibre cell walls were lignified. Both axial and ray parenchyma fluoresced brown as is typical for tannic acids. The ray parenchyma was heterocellular with procumbent, square, and upright cells interconnected by numerous pit channels. Spacing of axial parenchyma and rays, size, and grouping of vessels, tyloses, and heterocellular rays identify this wood as *Manilkara bidentata* (4).

Discussion

Manilkara bidentata is a large evergreen rainforest tree found mainly in the Caribbean as well as in the Central and South America. *Manilkara bidentata* is also known as the bullet tree because it is extremely hard and therefore ideal for use in heavy, durable, wooden constructions. Tapping the bark yields a latex that was previously used in the production of

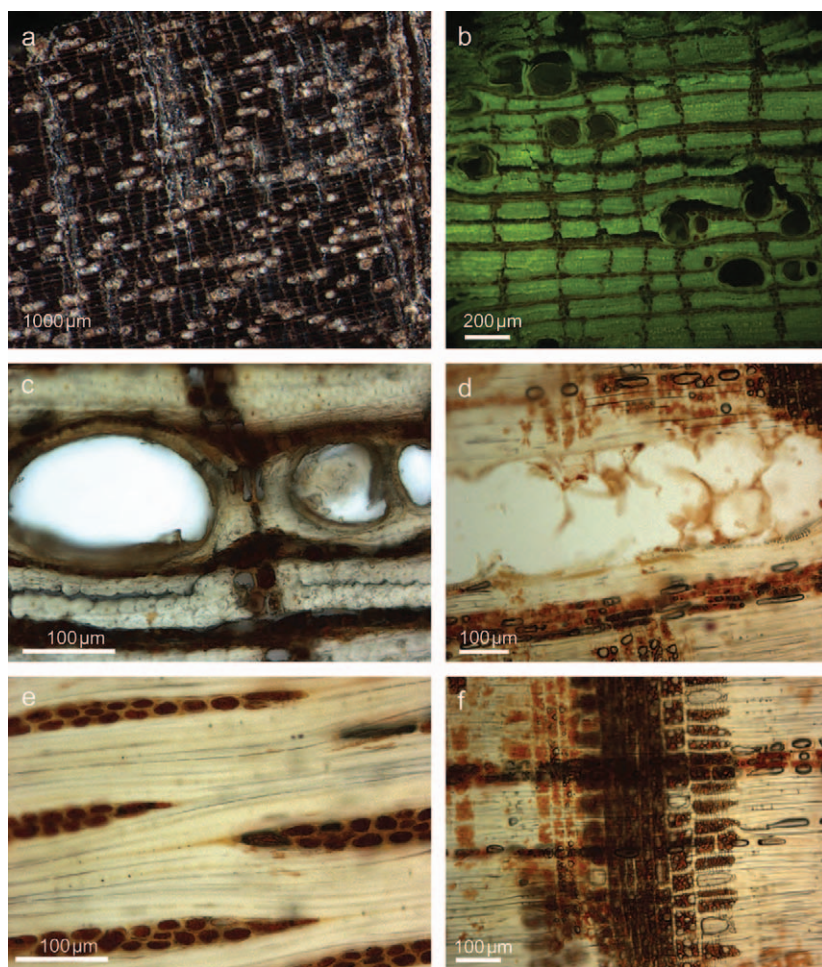


Fig. 1. (a) Wood block surface view (dissection microscope) showing radial grouping of two to four vessels arranged along rays and banded axial parenchyma. (b) Wood cross-section (fluorescence microscope, blue excitation, long-pass emission) with large vessels, fibres with very thick cell walls, fluorescing green because of lignifications, and ray and axial parenchyma cells fluorescing brown because of the tannic acid content. (c) Wood cross-section (bright field) with three vessels, four rays, and one band of axial parenchyma. Fibre cells are extremely thick walled (white), and ray and axial parenchyma contain brown tannic acid vacuoles. (d) Wood radial section with a vessel that is filled with tyloses and a simple perforation plate. Band of axial parenchyma seen in the lower half and ray parenchyma in the upper half. (e) Wood tangential section with fibres (bright cell walls) and six rays, consisting of two to three layers. (f) Wood radial section showing a heterocellular ray with procumbent and upright cells and two bands of axial parenchyma embedded in axial fibres.

transmission belts, submarine electric cabling, dentures, and the outer layer of premium golf balls (balata) (5, 6). Although *Manilkara bidentata* is

described as a potent skin irritant without known sensitizing potential, to our knowledge, only one case of irritant contact dermatitis following

exposure to *Manilkara bidentata* wood has been previously reported. Freise reported that skin exposure resulted in erythema, oedema, and vesiculation (1, 2). A search on PubMed with the terms 'manilkara, bidentata, bullet tree, dermatitis wood, sapota, and achras' identified no further studies.

This report describes presumed irritant dermatitis attributed to *Manilkara bidentata*, a relatively commonly used tropical wood. It is surprising that there is a paucity of reports of irritancy in the medical literature, although its irritancy is mentioned in several timber/woodworking websites.

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