

SOME CONSTITUENTS OF *AKANIA LUCENS*

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Akania lucens (F. Muell.) Airy-Shaw, commonly known as "turnip wood", is a small to medium sized tree found in the coastal districts of northern New South Wales and southern Queensland. It is the sole member of the family Akaniaceae which is related to the Sapindaceae. It was of some interest therefore to examine its constituents. In the event the only substances that could be isolated from the bark were benzoic acid (0.00026%), betulonic (0.001%) and betulic (0.019%) acids (as their methyl esters), and β -sitosterol (0.047%). Small amounts of fatty acids and waxes were also obtained but were not further examined. In addition psoromic acid (0.002%) was isolated, but it probably originated from lichens growing on the bark rather than from the bark itself.

Experimental

Melting points are uncorrected. Light petroleum had b.p. 40–60°. The substances isolated were identified by m.p., mixed m.p. with an authentic specimen, and comparison of i.r. spectra.

Extraction of the Bark

The dried milled bark (7.0 kg; S.N. 8369) was exhausted at room temperature in turn with light petroleum, ether, and methanol. The light petroleum solution was concentrated and the residue dissolved in ether. The methanol solution was concentrated, the residue shaken with ether and water, and the ether layer washed with water. Alkaloidal material was absent from each of the extracts.

Each extract was then fractionated by shaking with dil. NaHCO_3 , Na_2CO_3 , and NaOH . Each fraction was recycled; the precipitates which formed at the interfaces on shaking the ether extract with dil. NaHCO_3 and NaOH were also reprecipitated by treatment with acid, extraction with ether, and shaking with the appropriate alkali.

The material obtained from the precipitate produced by dil. NaHCO_3 , on chromatography on silica gel yielded no crystalline product. The other interfacial material was methylated with diazomethane and the product chromatographed on alumina. Elution with light petroleum–ether (1 : 1) gave methyl betulonate (0.07 g), and ether yielded methyl betulate (1.3 g).

The NaHCO_3 -soluble fractions of the light petroleum and methanol extracts gave no crystalline product by chromatography on silica gel, but the corresponding fraction of the ether extract gave benzoic acid (0.018 g) on elution with benzene–ether (19 : 1), and psoromic acid (0.14 g) on elution with benzene–ether (9 : 1).

The Na_2CO_3 -soluble fraction of the light petroleum extract was chromatographed on silica gel. Benzene eluted a solid product (2.4 g), m.p. 76–77°, which appeared to be a mixture of fatty acids and was not further examined. Small amounts of similar materials were obtained from the other two Na_2CO_3 -soluble fractions.

The three NaOH -soluble fractions were combined, the material methylated, and the product chromatographed on alumina. Methyl betulate (0.02 g) was the sole product isolated.

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The neutral fraction of the light petroleum extract was chromatographed on alumina. Elution with benzene gave a wax, m.p. 82–84° (0.04 g), not further examined, and elution with ether yielded β -sitosterol (2.3 g). Each of the other two neutral fractions similarly gave β -sitosterol (0.5 g).

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