

Terpenoids and Related Compounds: Part VIII¹. Chemical Investigation of *Sapium baccatum* Roxb

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Taraxerone, 1-hexacosanol, taraxerol and β -sitosterol have been isolated and identified from the benzene extract of the bark of *Sapium baccatum* Roxb.

Sapium baccatum Roxb.^{2,3} (Fam. Euphorbiaceae) is a glabrous tree and is found in Assam, Sylhet and Khasia mountains. Young leaves which appear in April are orange-red. Since the chemical examination of the plant was not reported in the literature, we became interested to undertake the chemical investigation of the plant. The present communication deals with the isolation and characterisation of the neutral constituent, viz., taraxerone, 1-hexacosanol, taraxerol and β -sitosterol.

From the benzene extract of the dried and powdered bark (1.5 Kg) of *Sapium baccatum* Roxb., an yellow insoluble solid separated out which was collected by filtration. The clear filtrate was then separated into acidic and neutral fractions. The neutral fraction was chromatographed over deactivated Brockmann alumina. The petroleum eluate gave a fraction which solidified from methanol. The crude solid m.p. 225–35° after rechromatography and crystallisation from chloroform-methanol, gave crystals (in 0.16% yield) m.p. 238–9°*, $[\alpha]_D + 10.8^{\circ 4}$. The solid exhibited positive test for triterpene with Liebermann-Burchardt reagent and gave yellow coloration with tetranitromethane. The compound has been identified as suggested by their m.p. and specific rotation values, with taraxerone⁵, by direct comparison with authentic samples (m.m.p., rotation and I.R.) (Found : C, 84.51; H, 11.39. Calc. for C₃₀H₄₈O : C, 84.89; H, 11.32%). Lithium aluminium hydride reduction of the compound gave an alcohol, m.p. 278–80°, $[\alpha]_D + 37^{\circ}$, acetate m.p. 288–90°, $[\alpha]_D + 9.16^{\circ}$ and was found to be identical with an authentic sample of taraxerol and taraxeryl acetate respectively (m.m.p. and I.R.).

The solid obtained from the petroleum : benzene eluate (4 : 1) of the above chromatogram on rechromatography and crystallisation from petroleum afforded a waxy solid m.p. 78–9°, $[\alpha]_D + 0^{\circ}$, I.R. $\nu_{max}^{CHCl_3}$ 3350 cm⁻¹ (–OH group), has been identified as 1-hexacosanol

*All melting points are uncorrected. The petroleum used throughout the investigation had b.p. 60–80°.

1. 'Terpenoids and Related Compounds', Part VII; H, N, Khastgir and B. P. Pradhan, *J. Ind. Chem. Soc.*, (in press).
2. J. D. Hooker, 'Flora of British India', Vol. V, page 270, reprint 1954.
3. A. M. Cowan and J. M. Cowan, 'The Trees of North Bengal', page 119, 1929.
4. All rotations were taken in chloroform unless otherwise stated.
5. Simonsen and Ross, 'The Terpenes', Vol. IV, page 278, 1956, The University Press, Cambridge.

by direct comparison with an authentic sample (m.m.p.) (Lit.⁶ m.p. 79°). The acetate m.p. 68–9°, $[\alpha]_D 0^\circ$ was also found to be identical with 1-hexacosanol acetate (m.m.p. and I.R.).

The solid obtained from the petroleum : benzene eluate (3 : 2) was rechromatographed and the solid (0.6 gm.) obtained was recrystallised from chloroform-methanol, m.p. 278–80°, $[\alpha]_D +3.7^\circ$, (Found : C, 84.72; H, 11.68. Calc. for $C_{30}H_{50}O$: C, 84.50; H, 11.74%). The substance gave a positive Liebermann-Burchard reaction for a triterpene and gave yellow coloration with tetranitromethane. It gave an acetate m.p. 288–90°, $[\alpha]_D +9.16^\circ$. It was eventually identified as taraxerol, (Lit.⁷ m.p. 282–3°) by comparison with an authentic sample of taraxerol 9 (m.m.p.) and by comparison of the I.R. of its acetate with taraxeryl acetate. Further elution with the same solvent mixture afforded another solid m.p. 134–35°, $[\alpha]_D -40^\circ$ after crystallisation from methanol. The latter yielded an acetate m.p. 126–27°, $[\alpha]_D -38^\circ$ (Lit.⁸ m.p. 126–7°, $[\alpha]_D -42^\circ$) (Found : C, 81.68; H, 11.33. Calc. for $C_{31}H_{52}O$: C, 81.52; H, 11.48%). This solid had been identified as β -sitosterol (m.m.p. and I.R. comparison of the β -sitosterol and its acetate respectively with authentic samples).

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7. E. Koller, A. Hiestand, P. Dietrich and O. Jeger, *Helv. Chim. Acta*, 1950, **33**, 1051.
8. Ref. 6, vol. 4, page 362.