

SHORT COMMUNICATION

MADHUCA LATIFOLIA: TRITERPENOID CONSTITUENTS OF THE TRUNK BARK

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Plant. *Madhuca latifolia* syn. *M. indica* (*Bassia latifolia*) (*Sapotaceae*).

Uses. Medicinal,¹ commercial value.²

Previous work. Bark,^{3,4} seed kernel,⁵⁻⁷ seed fat,^{8,9} fruit pulp and nut-shell,¹⁰ flowers.¹¹⁻¹³

Constituents of Bark. Extr. EtOH (cold): Hexane soluble (i) *lupeol acetate* $C_{32}H_{52}O_2$, m.p., (α)_D, mxd. m.p., i.r. spectra and co-TLC; alkali hydrolysis to *lupeol*, $C_{30}H_{50}O$, m.p., (α)_D, mxd. m.p.; acetate mxd. m.p., i.r. and co-TLC and to *acetic acid*, lanthanum nitrate-iodine positive; (ii) β -*amyrin acetate*, $C_{32}H_{52}O_2$, m.p., (α)_D, mxd. m.p., i.r. and co-TLC; hydrolysis to β -*amyrin* $C_{30}H_{50}O$, m.p., (α)_D, and mxd. m.p., acetate and benzoate, m.p. (α)_D, and mxd. m.p., oxidation (Jones reagent)¹⁴ to β -*amyrone*, m.p., (α)_D and oxime m.p.; (iii) α -*spinasterol* $C_{29}H_{48}O$, m.p., (α)_D and mxd. m.p., i.r. co-TLC, benzoate, acetate, m.p., (α)_D and mxd. m.p., i.r., co-TLC.

Triterpene Esters

Erythrodiol monocaprylate. $C_{38}H_{64}O_3$, m.p. 130–140°, (α)_D + 58° (lit.¹⁰ m.p. 152–156°, (α)_D + 62°), mxd. m.p. 140–150°; i.r. spectra superimposable; alkali hydrolysis to *erythrodiol* $C_{30}H_{50}O_2$, m.p., (α)_D, mxd. m.p., i.r. spectra; m.p., (α)_D and mxd. m.p. of diacetate and diformate; acid fraction of the hydrolyzate identified as caprylic acid $C_8H_{16}O_2$, neutr. equiv. 146 (cal. 144). Though the m.p. of the ester is lower than that reported earlier¹⁰ its identity has been established by co-TLC and superimposable i.r. spectra.

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Betulinic Acid and Oleanolic Acid Caprylates

A mixture (two spots on TLC) of fatty acid esters of triterpene acids was obtained as a low melting solid m.p. 80–100°, (α)_D + 10°. After saponification, it yielded: (i) *betulinic acid* C₃₀H₄₈O₃, (ca. 90 per cent), m.p., (α)_D and mxd. m.p., i.r. bands at 1640, 885 cm⁻¹; m.p., (α)_D and mxd. m.p. of methyl ester, methyl ester acetate and methyl ester benzoate; i.r. spectra of methyl ester superimposable (ii) *oleanolic acid* C₃₀H₄₈O₃, (α)_D, mxd. m.p., i.r. and co-TLC. The single component fatty acid part was found to be caprylic acid, C₈H₁₆O₂, neutr. equiv. 144.

Hexane insol: β -D- glucoside of β -sitosterol, C₃₅H₆₀O₆, m.p., (α)_D and mxd. m.p., tetracetate, m.p., (α)_D and mxd. m.p., acid hydrolysis to β -sitosterol and glucose.

Aqueous fraction: D-xylose, L-rhamnose, D-glucose and D-galactose, paper co-chromatography.

The constituents of the stem bark of both the species of *Madhuca* examined, viz. *M. latifolia* and *M. butyracea* (now *Diploknema butyracea*), establish their close chemotaxonomic inter-relationship.¹⁵

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