

petrol (40–60°); Et₂O soluble fraction; precipitated and crystallized from EtOH; triacontane,⁶ C₃₀H₆₂, m.p. 66° (Found: C, 85.0; H, 14.60. Calc.: C, 85.30; H, 14.69%); IR and NMR. Whole plant, extract EtOH; concentrate and cool; residue, extract petrol (40–60°): Et₂O insoluble fraction; crystallized from EtOH; myristone,⁷ C₂₇H₅₄O, m.p. 75–76° (Found: C, 81.86; H, 14.03. Calc.: C, 82.23; H, 13.70%); IR, NMR, MS; reduction, dimyristyl carbinol.⁸ m.p. 80–81°. Ethanolic concentrate; extract. petrol (40–60°); waxy solid; acetylation, tetracosanyl acetate, C₂₆H₅₂O₂, m.p. 56–57° (Found: C, 78.58; H, 13.32. Calc.: C, 78.78; H, 13.13%); hydrolysis; tetracosanol,⁹ C₂₄H₅₀O, m.p. 75–76°; (Found: C, 81.55; H, 14.24. Calc.: C, 81.35; H, 14.12%). Benzene extract of residual plant after ethanolic extr. precipitated with MeOH and crystallized from EtOH; dotriacontane,¹⁰ C₃₂H₆₆, m.p. 69° (Found: C, 84.8; H, 14.5. Calc.: C, 85.33; H, 14.66%).

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Phytochemistry, 1972, Vol. 11, pp. 2884 to 2885. Pergamon Press. Printed in England.

CAMPANULACEAE

LOBELINE FROM *LOBELIA NICOTIANAEOFOLIA*

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Key Word Index—*Lobelia nicotianaefolia*; Campanulaceae; lobeline.

In 1954 Gedeon and Gedeon had reported^{1,2} that the Indian lobelia, *Lobelia nicotianaefolia* Heyne, did not contain lobeline. A pharmacological study of Indian lobelia showed^{3,4} that its total alkaloidal extract showed stronger respiratory stimulant action than did lobeline alone. This interesting finding and also reports^{5–10} about the occurrence of lobeline in other species of *Lobelia* prompted us to reinvestigate the drug.

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The mixture of total alkaloids (0.41%)¹¹ contained five components with cyclohexane—CHCl₃–Et₂NH (5:4:1) on silica gel G (E. Merck) plates. The third spot with 0.69, matched lobeline. A larger extract was separated on alumina (E. Merck) using CHCl₃ as eluent. Fractions 26–31 gave lobeline base m.p. 130–131° (HCl–ide m.p. 180°). IR identical. Lobeline was found to be 20% of the alkaloid fraction.

Plant material. These were procured through Mavji Sunderji & Co., Bombay and authenticated by us.

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Phytochemistry, 1972, Vol. 11, pp. 2885 to 2886. Pergamon Press. Printed in England.

CAPPARIDACEAE

ISOLATION OF LUPEOL FROM *CRATAEVA BENTHAMII*

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Key Word Index—*Crataeva benthamii*; Capparidaceae; lupeol.

Plant. Crataeva benthamii Eichler. *Source.* The plant material was collected on 6 May, 1968 at Ushpacona, Itaya River, Peru. A voucher specimen was identified by Dr. J. J. Wurdack, Smithsonian Institution, Washington, D.C., U.S.A. and has been deposited at the Smithsonian Institution Herbarium (specimen No. 2091). The authors are grateful to the Amazon Natural Drug Company for making the plant material available. *Uses.* None, but other species of this genus have shown the following biological activities: *Crataeva tapia* cardiorespiratory and oxytocic activity;^{1,2} *C. religiosa*—used for dysentery,³ inhibitory activity against Gram negative organisms,³ folklore anticonvulsant remedy in the Philippines;⁴ insect moulting activity.⁵ *Previous work.* None on *Crataeva benthamii*. From *C. nurvala*: lupeol,^{7,8,10} sitosterol⁶ and varunol;⁶ *C. religiosa*: lupeol,^{7,8,10} sito-

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