

Unlike *V. anthelmintica* and possibly *V. colorata*, *V. amygdalina* does not produce seeds and in Nigeria, it is propagated by cuttings. Work on *V. anthelmintica* seeds<sup>2a</sup> revealed that 7,24(28)-stigmastadien-3 $\beta$ -ol was present along with other compounds; while *V. colorata*<sup>3</sup> showed the presence of a sesquiterpene ester-hydroxy vernolide.

Light petroleum (b.p. 60–80°) extraction of the pulverized dry stem of *V. amygdalina*<sup>4</sup> gave a brown oil. This oil was chromatographed on silica gel (Merck: Kieselgel, 0.2–0.5 mm, 30–70 mesh ASTM). Light petroleum and benzene fractions eluted oily materials that did not crystallize; 20% CHCl<sub>3</sub>–benzene eluted a solid which was recrystallized from MeOH to give light green crystals (leaflets) m.p. 148–151° (C<sub>29</sub>H<sub>48</sub>O MW (MS) of 412). IR showed it to be a steroidal alcohol. It gave an acetate (Ac<sub>2</sub>O–HOAc using *p*-toluene sulphonic acid as catalyst), m.p. and m.m.p., with an authentic sample<sup>2a</sup> of acetate of 7,24(28)-stigmastadien-3 $\beta$ -ol, 150–152°. The compounds were identical by TLC.

#### EXPERIMENTAL

*Extraction of stem.* The dried powdered stem of *V. amygdalina* (1.5 kg), extracted with light petroleum, gave an oil (4.5 g).

*Isolation of 7,24(28)-stigmastadien-3 $\beta$ -ol.* The oil (4.5 g) was dissolved in light petroleum and chromatographed on silica gel (135 g). The column was eluted progressively and 20% CHCl<sub>3</sub>–benzene eluted solids which crystallized from MeOH or benzene. Repeated crystallization yielded 7,24(28)-stigmastadien-3 $\beta$ -ol as light green crystals (leaflets) (97 mg) m.p. 148–151° (Calc. C, 84.40; H, 11.72. Found: C, 84.31; H, 11.67%) with M<sup>+</sup> as 412, C<sub>29</sub>H<sub>48</sub>O has M<sup>+</sup> as 412.67;  $\nu_{\max}$  3300 cm<sup>-1</sup> (broad) in Nujol. (Acetate m.p. 150–152°.)

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<sup>4</sup> Samples of *V. amygdalina* stem supplied by Mrs. V. N. ARENE and Mrs. C. EKUNDAYO of College of Education, University of Lagos.

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### EUPHORBIACEAE

#### CONSTITUENTS OF *EUPHORBIA TINCTORIA*

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**Key Word Index**—*Euphorbia tinctoria*; Euphorbiaceae; nonacosane; octacosanol;  $\gamma$ -euphorbol.

*Plant.* *Euphorbia tinctoria* L. *Source.* Central parts of Iran plateau. *Use.* Plant is used as purgative. *Previous work.* None.

Roots, stem, leaves and flowers were extracted with light petroleum (40–60°). The residue was dissolved in petroleum and chromatographed on Kieselgel S. *Nonacosane*. C<sub>29</sub>H<sub>60</sub> (Found, C, 84.90; H, 14.60. Req'd: C, 85.20; H, 14.80% m.p., m.m.p., IR and NMR). Earlier petroleum fractions and crystallization (MeOH–petroleum). *Unidentified ketone*. (m.p. 77°. IR 1720 cm<sup>-1</sup>). From petroleum–benzene fractions (80–20) crystallized with MeOH.  $\gamma$ -*Euphorbol*. (m.p. 71–96°, IR 3400 cm<sup>-1</sup>. Acetate, benzoate m.p., m.m.p. and IR 1740 cm<sup>-1</sup> and NMR). From benzene fractions. Crystallized from MeOH. *Octacosanol*. C<sub>28</sub>H<sub>58</sub>O (Found: C, 81.56; H, 14.08. Req'd: C, 81.67; H, 14.23%, IR 3418 cm<sup>-1</sup>, m.p., m.m.p. Acetate, benzoate, m.p., m.m.p., IR 1740 cm<sup>-1</sup>). From benzene–CHCl<sub>3</sub> (95–5) fractions: crystallized from MeOH–acetone (80–20).

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