

sis but on hydrolysis with saturated Ba(OH)<sub>2</sub> in MeOH, an alcohol was produced which after acetylation was identified as 12-deoxy-phorbol-13, 20-diacetate (TLC, GC, MS, CD, IR, NMR) [2], and also an acid identified as phenylacetic acid by GC-MS of its methyl ester. On acetylation (3) produced the mono-acetate (4), and was assigned as the new natural product 12-deoxy-4βOH-phorbol-13-phenyl acetate.

Compound (4), yield 460 mg, was a high migrating, orange staining spot by TLC (*R<sub>f</sub>* 0.53). In the MS of (4) an M<sup>+</sup> ion was produced at *m/e* 508 (12%, C<sub>30</sub>H<sub>36</sub>O<sub>7</sub>) and significant fragment ions at *m/e* 490 (6%, M<sup>+</sup>-[18]); 448 (10%, M<sup>+</sup>-[60]); 430 (5%, M<sup>+</sup>-[60 + 18]); 372 (28%, M<sup>+</sup>-[136]); 354 (14%, M<sup>+</sup>-[136 + 18]); 312 (100%, M<sup>+</sup>-[136 + 60]); 294 (95%, M<sup>+</sup>-[136 + 60 + 18]). In the NMR spectrum (4) exhibited signals similar to (3) with the addition of a 3H signal due to an acetate methyl at δ 2.02, and also a shift of the allylic 2H signal at δ 3.97 in (3) to δ 4.47 in (4). Hydrolysis of (4) produced (3) (TLC, MS, CD, NMR), and 12-deoxy-4βOH-phorbol was identified as its diacetate after total hydrolysis as before. Compound (4) was identified as 12-deoxy-4βOH-phorbol-13-phenylacetate-20-acetate (4) [7].

**Acknowledgements**—F.J.E. is grateful to the Central Research Fund of the University of London for a travel grant to visit West Africa, and R.J.S. is indebted to the S.R.C. for a research grant to undertake this work. We are also grateful to Dr. Dai Games for field desorption spectra and to Professor E. Hecker for a sample of 12-deoxy-phorbol-diacetate.

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*Phytochemistry*, 1976, Vol. 15, p. 335 Pergamon Press. Printed in England.

### TERPENOIDS FROM *ELAEAGNUS OLDAHMI*

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(Received 5 August 1975)

**Key Word Index**—*Elaeagnus oldahmi*; Elaeagnaceae; arjunolic acid; maslinic acid.

**Plant.** *Elaeagnus oldahmi* Maxim was collected in Chia-ih, Taiwan on June 1970. A voucher specimen is deposited in the Herbarium of Brian Institute of Taiwan, Taipei. **Uses.** The roots of the plant is used to cure rheumatism in Taiwan. **Previous work.** None.

**Present work.** Powdered air-dried roots of *Elaeagnus oldahmi* were successively extracted with *n*-hexane and CHCl<sub>3</sub>. The hexane extract afforded sitosterol. The concentrated CHCl<sub>3</sub> extract was separated to neutral and acidic parts. The neutral part contained sitosteryl glucopyranoside. The acidic part was methylated with CH<sub>2</sub>N<sub>2</sub>, and the esters fractionated by column chromatography on silicic acid to give two triterpenoid esters. The first ester was identified as methyl arjunolate [1] from the following properties: C<sub>31</sub>H<sub>50</sub>O<sub>5</sub>; mp 208–210°; [*α*]<sub>D</sub> +58.20; ν 3450, 1730 cm<sup>-1</sup>; δ 0.73 (s, 3H), 0.81 (s, 3H), 0.94 (s, 3H), 0.95 (s, 3H), 1.08 (s, 3H), 1.15 (s, 3H), 3.62 (s, 3H), 5.3 (brd, 1H); MS 502(M<sup>+</sup>), 262, 222, 203 (base peak); triacetate; ν 1750 cm<sup>-1</sup>, δ 0.74 (s, 3H), 0.91 (s, 6H), 0.94 (s, 3H), 1.10 (s, 3H), 1.13 (s, 3H), 2.00 (s, 3H), 2.03 (s, 3H), 2.10 (s, 3H), 3.63 (s, 3H), 3.73 (AB q, J 12 Hz, 5.2 (m, 1H).

The second ester was shown to be methyl maslinic acid [2] (methyl crategolate) from the following properties: C<sub>31</sub>H<sub>50</sub>O<sub>4</sub>, mp 215–219°; ν 3350, 1730 cm<sup>-1</sup>; δ 0.72 (s, 3H), 0.81 (s, 3H), 0.90 (s, 3H), 0.92 (s, 3H), 0.96 (s, 3H), 1.01 (s, 3H), 1.12 (s, 3H), 3.55 (s, 3H), 5.18 (br.s, 1H), MS 486 (M<sup>+</sup>), 262, 224, 203; diacetate: ν 1742, 1725 cm<sup>-1</sup>, δ 0.72 (s, 3H), 0.92 (s, 12H), 1.07 (s, 3H), 1.12 (s, 3H), 1.98 (s, 3H), 2.05 (s, 3H), 3.55 (s, 3H), 4.7 (d, 1H, J 11 Hz), 5.20 (br.s, 1H). The IR spectra of the second ester and its acetate were coincident with spectra of authentic methyl maslinic acid and its diacetate, respectively.

**Acknowledgement**—The authors are indebted to Professor J. J. H. Simes of The University of New South Wales, Kensington, New South Wales, Australia, for copies of IR spectra of authentic methyl maslinic acid and its diacetate.

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