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# EXTRACTIVES FROM *SALVIA BELLOTAEFLORA*

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**Key Word Index**—*Salvia bellotaeflora*; Labiatae; epioleanolic acid; oleanolic acid; sitosterol.

*Plant. Salvia ballotaeflora*, Benth. Voucher No. 7185-I.T.E.S.M. *Previous work.* None, only on several sister species.[1] 3-Epioleanolic acid has been found once in a plant.[2] *Uses.* Medicinal purposes.

The dried aerial parts (1200 g) were extracted with light petroleum (b.p. 30–60°) yielding on evaporation of the solvent, 16·26 g (1·32%) of a dark brown residue. This residue was chromatographed over silicic acid. Benzene–hexane elution afforded 310 mg of sitosterol, $C_{29}H_{56}O$, m.p. and mixed acetyl, m.p., m.m.p. and co-TLC.

Benzene–$Et_2O$ (8:1) elution gave 3-epioleanolic acid (887 mg), $C_{30}H_{48}O_3$ *m/e* 456 ($M^+$) m.p. 297–299°, mixed with oleanolic acid melted at 275–280°. $[\alpha]_{589}^{25}$ +72·6°; $[\alpha]_{578}$ +77°; $[\alpha]_{365}$ +235° (chl.) Acetate, m.p. 270°, $[\alpha]_{589}$ +63°; $[\alpha]_{578}$ +75°; $[\alpha]_{546}$ +83°; $[\alpha]_{436}$ +140° $[\alpha]_{365}$ +209° (chl). Methyl, 3-epi-oleanolate, $C_{31}H_{50}O_3$, m.p. 195°, $[\alpha]_{589}$ +45°. The benzene-$Et_2O$ (1:4) eluate gave 343 mg of oleanolic acid, $C_{30}H_{48}O_3$, m.p. 302–305°, $[\alpha]_{589}^{25}$ +72·8° (chl). Acetate, m.p. 265° $[\alpha]_{589}^{25}$ +74° (chl). m.m.p. with an authentic specimen.

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## MELIACEAE

# ISOLATION OF OBACUNOL FROM *LOVOA TRICHILIODES*

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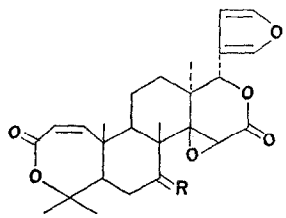
**Key Word Index**—*Lovoa trichiliodes*: Meliaceae; limonoids; obacunol.

*Lovoa* is a small genus of the Meliaceae, occurring in East and West Africa. Eleven species have been described, of which three are commonly accepted, although all are very similar and may be conspecific. We have examined the West African species *L. trichiliodes* Harms. for limonoids. The only crystalline compound obtained from the timber was cycloeucalenol. The seeds contained a complex mixture of bitter substances from which we have not

obtained any pure material. The bark has now been examined, it readily gave a crystalline material, m.p. 258–260° which was recognized as the 7α-alcohol[1] (Ia) related to obacunone (Ib). The identity was confirmed by oxidation to obacunone which was identical (NMR,



(Ia) R = H, αOH
(Ib) R = O

IR) with an authentic sample provided by Dr. F. M. Dean. Obacunol and obacunone are limonoid extractives of the Rutaceae, this is the first time a compound of this type has been obtained from a plant belonging to the Meliaceae, although gedunin, a common Meliaceae limonoid, is very similar, lacking only the characteristic oxidative opening of ring *A*.[2]

## EXPERIMENTAL

The bark of *Lovoa trichiliodes* from Benin (4·25 kg) was milled and extracted with refluxing light petroleum (b.p. 60–80°). The extract was chromatographed giving a small amount of obacunol. The bark was then extracted with diisopropyl ether. Concentration of the extract and crystallization from MeOH gave obacunol (350 mg) m.p. 256–260° ($M^+$ 456; δ3·50 m W/2 = 5 Hz. H7β; δ3·85s H-15, characteristic of 7α-OH compound[3]). Oxidation with Jones reagent gave obacunone, identical (NMR, IR) with an authentic sample provided by Dr. F. M. Dean.

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# PAPAVERACEAE

## ALKALOIDS FROM SEVERAL TUBEROUS *CORYDALIS* SPECIES*

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**Key Word Index**—*Corydalis* spp.; Papaveraceae; tetrahydroprotoberberine alkaloids; aporphine alkaloids; adlumidine; protopine.

*Plant. Corydalis decumbens* Pers. (Voucher specimen No. 78C on deposit in this laboratory) was collected in May 1970 at Osaka Prefecture, Japan. *Previous work.* Bulbocapnine, protopine and *d*-tetrahydropalmatine.[1]

* Part IX in the series "Constituents of *Corydalis* Species". For Part VIII see S. NARUTO and H. KANEKO, *Yakugaku Zasshi* in press.

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