

## ACETYLISMIONE D FROM *PSOROSPERMUM FEBRIFUGUM*\*

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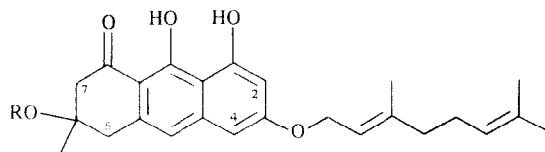
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**Key Word Index**—*Psorospermum febrifugum*; Guttiferae; acetylismione D.

**Abstract**—An acetone extract of the root-bark of *Psorospermum febrifugum*, collected in Zaire, afforded the known geranyloxyemodin, bianthrone A1, vismiones D and F, and the new acetylismione D.

### INTRODUCTION

The genus *Psorospermum* (tribe Vismieae) is a source of vismiones and other biogenetically linked anthranoids, which show cytotoxic activity and feeding deterrence [1]. Anthranoids from *Psorospermum* spp. are characterized by the presence of a geranyl substituent. This paper reports on the constituents of the root-bark of *Psorospermum febrifugum*, collected in Zaire.



- 1 R = H  
2 R = Ac

### RESULTS AND DISCUSSION

The cold acetone extract of the root-bark of *P. febrifugum* gave geranyloxyemodin [2], bianthrone A1 [3] and vismiones D (1) [2] and F [3]. A new compound (2),  $C_{27}H_{32}O_6$ , showed the typical spectral features of an acetylismione [2]. Its  $^1H$  NMR spectrum disclosed also the presence of three aromatic protons, two of which were *meta* coupled, and of an O-geranyl side chain. The compound was thus assigned structure 2 and given the name acetylismione D. In the mass spectrum, the losses of acetic acid and  $C_{10}H_{16}$  gave a base peak at  $m/z$  256, analogous to that given by vismione D; the rest of the spectrum was superimposable on that of emodin anthrone [2]. On silica gel, acetylismione D gave geranyloxyemodin, bianthrone A1 and emodin, as did vismione D [2].

### EXPERIMENTAL

Roots of *Psorospermum febrifugum* Spach were collected in Zaire and identified at the University of Kinshasa. A voucher specimen is deposited in the Herbarium of Centro Chimica dei Recettori under the cypher PFKK. The root-bark (76 g) was extracted with cold  $Me_2CO$  ( $3 \times 300$  ml) for 45 days to give a residue of 9.54 g. CC of a part of the extract (7.8 g) on silica gel with  $CHCl_3$ - $MeOH$  mixtures afforded: geranyloxyemodin [2] (0.78 g, 10%), bianthrone A1 [3] (1.1 g, 14%), acetylismione D,  $C_{27}H_{32}O_6$  (2.5 g, 32%), vismione D [2] (2.5 g, 32%) and

vismione F [3] (0.16 g, 2%). The known compounds were identified by comparison with authentic samples (spectral data, co-TLC and mmp). The new product was purified on a short (to avoid transformations) column of silica gel with  $CH_2Cl_2$ .

Acetylismione D (1),  $C_{27}H_{32}O_6$  ( $M$ , 452), mp 65–66° (hexane);  $[\alpha]_D^{22} = +6^\circ$  (0.3,  $CHCl_3$ ); UV  $\lambda_{max}^{CHCl_3}$  nm (log  $\epsilon$ ): 278 (4.68), 320 (3.87), 332 (3.79), 400 (4.09); UV  $\lambda_{max}^{MeOH}$ : 274, 319, 334, 396;  $\lambda_{max}^{MeOH} + AcONa$ : 274, 319, 334, 396;  $\lambda_{max}^{MeOH} + AlCl_3$ : 269, 290, 352, 455;  $\lambda_{max}^{MeOH} + AlCl_3/HCl$ : 260, 285, 344, 444; IR  $\nu_{max}^{CHCl_3}$   $cm^{-1}$ : 3380, 1723, 1622;  $^1H$  NMR ( $CD_3COCD_3$ ):  $\delta$  15.98 (1H, s (*br*), exchg  $D_2O$ , 9-OH), 9.56 (1H, s, exchg  $D_2O$ , 1-OH), 6.77 (1H, s (*br*), H-10), 6.55 (1H, d,  $J = 2$  Hz, H-4), 6.30 (1H, d,  $J = 2$  Hz, H-2), 5.45 (1H, t,  $J = 7$  Hz, =CH), 5.08 (1H, m (*br*), =CH), 4.60 (2H, d,  $J = 7$  Hz,  $OCH_2$ ), 3.60 + 3.00 (1H + 1H, d + d,  $J = 16$  Hz, 5- $CH_2$ ), 3.21 + 2.87 (1H + 1H, d + d,  $J = 18$  Hz, 7- $CH_2$ ), 2.30–1.90 (4H, m, 2  $\times$   $CH_2$ ), 1.75 (6H, s, COMe + Me), 1.65 + 1.60 (6H + 3H, s + s, 3  $\times$  Me); MS  $m/z$  (rel. int.): 452 [ $M$ ]<sup>+</sup> (1), 392 [ $M - AcOH$ ]<sup>+</sup> (6), 323 [ $M - C_5H_8$ ]<sup>+</sup> (1), 316 [ $M - C_{10}H_{16}$ ]<sup>+</sup> (1), 307 (2), 269 (3), 256 [ $M - AcOH - C_{10}H_{16}$ ]<sup>+</sup> (100), 241 (13), 228 (6), 227 (7), 213 (8), 211 (1), 210 (2), 152 (3), 136 (3), 93 (11), 81 (12), 69 (31). (Found: 452.2204. Calc. for  $C_{27}H_{32}O_6$ : 452.2199; Found: 392.1992. Calc. for  $C_{25}H_{28}O_4$ : 392.1987; Found: 256.0725. Calc. for  $C_{15}H_{12}O_4$ : 256.0736.)

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