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EVODULONE, A NEW TETRANORTRITERPENOID FROM CARAPA PROCERA

B.L. Sondengam and C.S. Kamga
Department of Organic Chemistry, University of Yaounde, Cameroon
and
J.D. Connolly
Department of Chemistry, University of Glasgow, Scotland

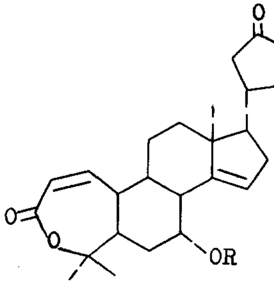
Summary : Hexane extraction of the ground seeds of *Carapa procera* followed by chromatography afforded a new tetranortritepenoid for which the structure (II) is proposed on the basis of spectroscopic evidence.

As a result of a recent report in this journal of tricoccin S_{13}[1] (I), a new tetranortriterpenoid isolated from *Cneoraceae tricoccon L.*, we are prompted to immediately report our investigations on *Carapa procera* from which we have isolated a similar tetranortriterpenoid. In our investigations we have obtained 7-oxogedunin[2], andirobin[3], and a new compound (II) which we designate as evodulone. We wish to report the isolation and structure elucidation of this compound.

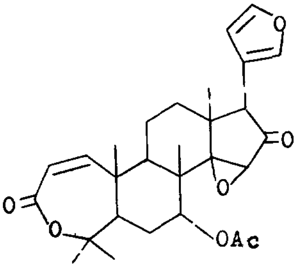
The hexane extract of the air dried finely powdered seeds of *Carapa procera* (collected from Evodula) on chromatography over alumina yielded a fraction in hexane eluate, m.p. 199-200°C (ether-hexane 4:3). The compound was analysed as $C_{28}H_{34}O_7$, M^+482.

The IR (KBr) spectrum of the compound shows characteristic bands at 1750 (cyclopentanone), 1720 (acetate), 1710 (enone), 1285 (epoxide) and 875cm^{-1} (β-substituted furan). The ^{1}H-NMR ($CDCl_3$, δ ppm) spectrum is very characteristic of tetranortriterpenoids. It reveals the presence of a β-substituted furan (6.25, 7.41, 7.60, 1H each), five tertiary methyl groups (1.04, 1.20, 1.35, 1.38, 1.44), a secondary acetate group (2), 15-H (3.45), 17-H (3.92), 1-H (6.58, d, J=12Hz) and 2-H (5.91, d, J=12Hz). In the NMR spectrum of tricoccin S_{13} acetate (III), 1-H and 2-H appear at 6.47 (J=12Hz) and 5.87 (J=12Hz) respectively. The ^{13}C-NMR spectrum ($CDCl_3$, δ ppm) shows typical peaks for ring A at 157.3 (d, C-1), 121.4 (d, C-2), 167.5 (s, C-3) and 84.8 (s, C-4).

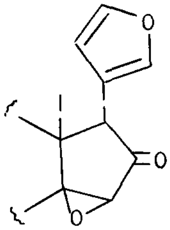
The mass fragmentation pattern is in agreement with the proposed structure and parallels those of known tetranortriterpenoids of similar structures. The peak at m/e 108 (V) confirms the partial structure proposed for ring D (IV).



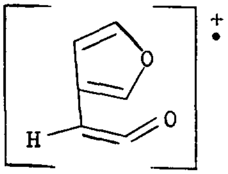
I (R = H)
III (R = OAc)



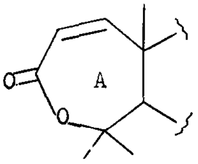
II



IV



V
m/e 108 (90%)



VI

The common botanical source (Meliaceae, Rutaceae and Cneoraceae) and the partial similarity of the various spectra (IR, NMR and Mass) of evodulone (II) and known tetranortriterpenoid of similar structures prompt us to deduce a close structural relationship between these compounds. Partial structure for rings A (VI) and D are proposed on the basis of spectroscopic data only. Work is in progress to substantiate the proof of this structure by chemical transformations.

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