Phytochemistry, 1980, Vol. 19, p. 2478. © Pergamon Press Ltd. Printed in England. 0031-9422/80/1101-2478 $02.00/0

RIOLOZATRIONE, A NEW CLASS OF DITERPENE FROM *JATROPHA DIOICA* VAR. *SESSILIFLORA*

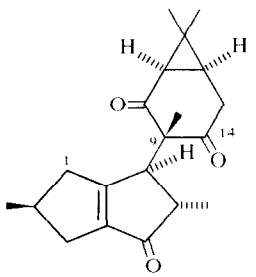
X. A. DOMINGUEZ, G. CANO, R. FRANCO, A. M. VILLARREAL, W. H. WATSON* and V. ZABEL*
Departamento de Quimica. I.T.E.S.M., Monterrey, N.L., Mexico:

* FASTBIOS Laboratory, Department of Chemistry, Texas Christian University, Fort Worth, TX 76129, U.S.A.

(*Revised received* 5 *March* 1980)

Key Word Index—*Jatropha dioica* var. *sessiliflora*; Euphorbiaceae; diterpene; new structural type; riolozane; riolozatrione.

Jatropha dioica var. *sessiliflora* (Hook) McVaugh (*J. spathulata*) [1, 2] is a common shrub in the arid regions of north-eastern Mexico. It is known locally as 'Sangredrago' or 'Aangre de Drago' and was called 'tlapelex ptali' by the Aztecs. The roots are chewed to relieve toothache [3] and the red root juice is used in folk medicine. Root extracts exhibit antibiotic activity against *Staphylococcus aureus* (X. A. Dominguez and G. Espinosa, unpublished) and isolation of the active ingredient yielded the diterpene riolozatrione (**1**). The structure and relative absolute configuration of **1** were determined unambiguously by X-ray diffraction techniques and it represents a new diterpene structural type for which the name riolozane is suggested. Riolozatrione may arise from the rearrangement of a lathyrol derivative or a macrocyclic precursor.



1 Riolozatrione

EXPERIMENTAL

^{13}C NMR: JEOL FX-60; mp uncorr; optical rotation: $CHCl_3$; X-ray diffraction: Syntex $P2_1$. The roots of *Jatropha dioica* were collected along the Monterrey–Saltillo highway at kms 57–59 in April 1978 and April 1979. Voucher specimen No. 7651 is deposited at the ITESM herbarium. Root material (930 g) was air-dried, powdered in a Wiley-type mill and Soxhlet-extracted with petrol for 6 days. The petrol was removed yielding 15 g residue. The residue was refluxed for 1 hr with 300 ml MeOH, the soln filtered and the MeOH removed to yield 6 g residue. The residue was dissolved in a small quantity of $CHCl_3$ and chromatographed over Si gel (0.2–0.5 mm) (Merck) using $CHCl_3$ and $CHCl_3$–Me_2CO as eluents. Evapn of the eluents yielded a solid which was recrystallized from isopropyl ether–petrol (4:1) yielding 170 mg crystalline riolozatrione (**1**), mp 118.6°. TLC with C_6H_6–Me_2CO (9:1) R_f 0.46, yellow spot with $CoCl_2$.

$$[\alpha]_{\lambda}^{25} = \begin{array}{cccccc} 589 & 578 & 546 & 436 & 365 & 316 \\ +57 & +61 & +72 & +164 & +486 & 0 \end{array}$$

(c = 10 mg/ml).

IR (KBr) cm^{-1}: 1740, 1710, 1670, 1380, 1370. UV (MeOH): 244 (ε, 16000); ^{1}H NMR: δ0.83 (*s*, Me), 1.06 (*s*, Me), 1.13 (*d*, 6.9, Me), 1.13 (*d*, 7.1, Me), 1.21 (*s*, Me), 1.60 (*dt*, 7.6, 4.2, 1H), 1.86 (*d*, 7.6, 1H), 1.93 (*ddt*, 15.9, 6.4, 2.6, 1H), 2.28 (*br. dd*, 18.1, 6.3, 1H), 1.40–2.50 (*m*, 3H), 2.73 (*ddd*, 6.4, 6.3, 2.3, 1H), 2.86 (*d*, 4.2, 2H), 3.14 (*br. s*, 1H); ^{13}C NMR: 206.7, 207.1 (10, 14), 203.4 (5), 181.3 (8), 149.6 (4), 65.5 (8), 52.5 (6), 47.9 (7), 40.4 (13), 38.0, 35.9 (*t*), 33.1, 32.6 (*t*), 28.3 (2), 26.2 (*s*), 22.7, 21.5, 17.6, 16.8, 12.4. Reddish ppt. formed with 2,4-DNPH. X-ray data: $C_{20}H_{26}O_3$. a = 11.330 (3), b = 21.070 (7), c = 7.482 (2) Å, V = 1786.2 (9) Å^3. Space group $P2_12_12_1$. Current R factor 0.089. The structural data will be published elsewhere.

Acknowledgements—We would like to acknowledge the financial support of Syntex de Mexico and The Robert A. Welch Foundation (P-074). This is FASTBIOS contribution No. 70.

REFERENCES

1. Standley, P. C. (1923) *Trees and Shrubs of Mexico*. Vol. 23, p. 637. Smithsonian Press.
2. Vines, R. A. (1960) *Trees, Shrubs and Woody Vines of The Southwest*, p. 625. University of Texas Press, Austin.
3. Martinez, M. (1959) *Plantas Medicinales de Mexico*, 5th edn, p. 251. Botas, Mexico.