Phytochemistry, Vol. 20, No. 10, p. 2433, 1981.
Printed in Great Britain.

0031-9422/81/102433-01 $02.00/0
© 1981 Pergamon Press Ltd.

DIHYDRODENDROIDINIC ACID FROM *PLEUROCORONIS PLURISETA**

FERDINAND BOHLMANN, NALEEN BORTHAKUR, ROBERT M. KING† and HAROLD ROBINSON†

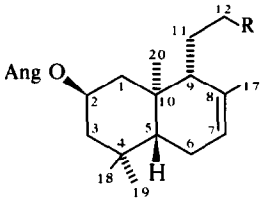
Institute for Organic Chemistry, Technical University Berlin, D-1000 Berlin 12, West Germany; †Smithsonian Institution, Washington, DC 20560, U.S.A.

(*Received* 13 *January* 1981)

Key Word Index—*Pleurocoronis pluriseta*; Compositae; Eupatorieae; diterpenes; *ent*-labdanes.

Abstract—The diterpenic acid, dihydrodendroidinic acid, was characterized from the aerial parts of *Pleurocoronis pluriseta*.

Re-investigation of the aerial parts of *Pleurocoronis pluriseta* (A. Gray) K. et R. afforded in addition to dendroidinic acid (**1**) isolated previously [1, 2] taraxasteryl acetate, sitosterol, stigmasterol and the dihydro derivative of **1a**, the angelate **2a**, as clearly followed from the ^{1}H NMR data of the corresponding methyl ester **2b** (Table 1). The stereochemistry at C-13, however, was not determined. All ^{1}H NMR signals were close to those of **1b** [2] except those of the side-chain, which, however, were similar to those of related *ent*-labdanes with a saturated side-chain. Though **2b** did not show measurable optical rotation, the presence of an *ent*-labdane was very likely, as most of these diterpenes from the Eupatorieae belong to this group.



1a R = C(Me)=CHCO$_2$H
1b R = C(Me)=CHCO$_2$Me
2a R = CH(Me)CH$_2$CO$_2$H
2b R = CH(Me)CH$_2$CO$_2$Me

Table 1. ^{1}H NMR spectral data of compound **2b** (400 MHz, $CDCl_3$, TMS as internal standard)

H-1α	2.17 *m*	H-17	1.67 *br s*
H-1β	1.07 *dd*	H-18	0.98 *s*
H-2	5.09 *dddd*	H-19	0.92 *s*
H-3α	1.83 *m*	H-20	0.85 *s*
H-3β	1.28 *dd*	OMe	3.65 *s*
H-7	5.39 *br s*	OAng	6.03 *qq*
H-14	2.36 *dd*		1.98 *dq*
H-14′	2.11 *dd*		1.89 *dq*
H-16	0.94 *d*		

J (Hz): 1α,1β = 11.5; 1α,2α = 3.5; 1β,2α = 11.5; 2α,3α = 3.5; 2α,3β = 11.5; 3α,3β = 12; 13,14 = 5.5; 13,14′ = 8; 13,16 = 6.5; 14,14′ = 15; 3′,4′ = 7; 3′,5′ = 4′,5′ = 1.5.

EXPERIMENTAL

The air-dried plant material (collected in California) was extracted with Et_2O–petrol, 1:2 and the extract obtained separated by CC (Si gel). The polar fractions were treated with CH_2N_2 in Et_2O and the methyl esters obtained were separated by TLC (Si gel) (Et_2O–petrol, 1:1). Finally 12 mg taraxasteryl acetate, 2 mg sitosterol, 2 mg stigmasterol, 2 mg **1b** and 2 mg **2b** were obtained.

Methyl-13,14-dihydro-dendroidinate (**2b**). Colourless gum, IR $\nu_{max}^{CCl_4}$ cm^{-1}: 1755 (CO_2R), 1715, 1650 (C=CCO_2R); MS *m/z* (rel. int.): 418 (M^+, 0.5), 387 (M − OMe, 1), 318.256 (M − RCO_2H, 33) ($C_{21}H_{34}O_2$), 303 (318 − Me, 14), 203 (318 − CH_2CH-$MeCH_2CO_2Me$, 53), 189 (318 − $CH_2CH_2CHMeCH_2CO_2Me$, 35), 83 ($C_4H_7CO^+$, 60), 55 (83 − CO, 100).

Acknowledgements—We thank Dr. D. Keil, California Polytechnic State University, for the plant material and the Deutsche Forschungsgemeinschaft for financial support.

REFERENCES

1. Bohlmann, F., Suwita, A. and Mabry, T. J. (1978) *Phytochemistry* **17**, 763.
2. Bohlmann, F. and Grenz, M. (1977) *Chem. Ber.* **110**, 1321.

*Part 366 in the series "Naturally Occurring Terpene Derivatives". For Part 365 see Bohlmann, F. and Zdero, C. (1981) *Phytochemistry* **20** (in press).