Chemistry of Natural Compounds, Vol. 31, No. 5, 1995

IRIDOIDS OF PLANTS OF THE SPECIES *Incarvillea olgae* AND *Dadartia orientalis*

M. S. Maksudov, M. F. Faskhutdinov, R. U. Umarova, and Z. Saatov

UDC 547.918:547.192

We have previously reported the isolation of 7-O-benzoyltecomoside from the epigeal part of the plant *Incarvillea olgae* (fam. Bignoniaceae) and the determination of its structure, while, in addition to this compound, the total glycosides included four substances (B, C, D, and E) having an iridoid nature [1]. In the present paper we give a proof of the structure of compound C.

When the mixture of iridoids B, C, and D was rechromatographed (SiO_2, ethyl acetate–methanol–water (100:16.5:13.5)) we succeeded in isolating 253 mg (0.51%, yield calculated on the air-dry raw material) of this glycoside: $C_{16}H_{24}O_9$, amorph., $[\alpha]_D^{20}$ −125.2±2° (*c* 0.42, methanol), UV spectrum (EtOH, λ_{max}, nm): 241 (log ε 4.01). IR spectrum (KBr, ν, cm^{-1}): 3376 (OH), 1670 (C=O), 1623 (C=C).

^{13}C NMR (100 MHz, CD_3OD): 97.63 (C-1, d), 163.51 (C-3, d), 126.31 (C-4, s), 74.40 (C-5, s), 38.69 (C-6, t), 31.82 (C-7, t), 36.00 (C-8, d), 57.66 (C-9, d), 20.54 (C-10, q), 192.36 (C-11, d), 100.17 (C-1′, d), 74.40 (C-2′, d), 77.51 (C-3′, d), 71.56 (C-4′, d), 78.50 (C-5′, d), 62.67 (C-6′, t).

The facts given above, the presence of the molecular ion $[MH^+]$ 361 in the mass spectrum of the iridoid, and also the features of the PMR spectra permitted the assumption that it was stansioside [2], found previously in the plants *Tecoma stanss* [3, 4] and *Euphrasia cuspidata* [5]. This is the first time that stansioside has been isolated from *I. olgae*.

We have isolated the iridoid glycoside mussaenoside [6] from the epigeal organs of the plant *Dadartia orientalis* L. (fam. Scrophularaceae) [6]. By rechromatographing (chloroform–methanol–water (4:1:0.1) system) the fraction containing a mixture of compounds more polar than mussaenoside (1.6 g) we have now isolated 300 mg (0.015%) of an amorphous substance: $C_{17}H_{26}O_{10}$, $[\alpha]_D^{20}$ −106.8 ± 2° (*c* 0.66; methanol). UV spectrum (EtOH, λ_{max}, nm): 236 (log ε 4.00). IR spectrum (KBr, ν, cm^{-1}): 3408 (OH), 1693 (C=O), 1639 (C=C). $[MH^+]$ 391.

^{13}C NMR (100 MHz, CD_3OD): 95.8 (C-1, d), 151.3 (C-3, d), 113.04 (C-4, s), 28.91 (C-5, d), 38.99 (C-6, t), 78.13 (C-7, d), 42.18 (C-8, d), 41.08 (C-9, d), 13.15 (C-10, q), 169.49 (C-11, s), 51.69 (OCD_3, q), 98.7 (C-1, d), 72.75 (C-2, d), 75.82 (C-3′, d), 69.69 (C-4′, d), 76.26 (C-5′, d), 60.88 (C-6′, t).

Acetylation of the iridoid with acetic anhydride in pyridine under the usual conditions led to the pentaacetate $C_{27}H_{36}O_{15}$.

PMR spectrum (100 MHz, $CDCl_3$, 0-HMDS, δ, ppm): 0.92 (CH_3-10, d, J = 8.0 Hz), 1.70-2.36 (H-6, m), 2.30 (H-8, m), 2.64 (H-9, d.t, J = 3.8 Hz), 2.96 (H-5, d.d, J = 10; 17.5 Hz), 3.46-3.76 (H-7, m), 3.66 ($COOCH_3$), 4.16 (H-6, m), 5.34 (H-1, J = 3 Hz), 7.29 (H-3, s), 1.90-2.10 (5 OAc), 4.78-5.20 (H-1′, 2′, 3′, 4′, 5′).

On the basis of the physicochemical constants given above and spectral characteristics, the iridoid was identified as 8-epiloganin [7].

REFERENCES

1. M. S. Maksudov, R. U. Umarova, B. Tashkhodzhaev, Z. Saatov, and N. D. Abdullaev, Khim. Prir. Soedin., 61 (1995).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Republic of Uzbekistan, Tashkent, fax (3712) 89 14 75. Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 751-752, September-October, 1995. Original article submitted February 13, 1995.

0009-3130/95/3105-0630$12.50

2. A. Bianco, P. Caciola, M. Guiso, C. Iavarone, and C. Trogolo, Gazz. Chim. Ital., **111**, 201 (1981).
3. A. Bianco, M. Guiso, C. Iavarone, M. Massa, C. Trogolo, I. U. Oguakwa, and A. Francesconi, Gazz. Chim. Ital., **112**, 199 (1982).
4. A. Bianco, M. Massa, I. U. Oguakwa, and P. Passacantilli, Phytochemistry, **20**, 1871 (1982).
5. S. Damtoft, S. R. Iensen, and B. I. Nielson, Phytochemistry, **20**, 2717 (1981).
6. R. U. Umarova, M. B. Gorovits, and N. K. Abubakirov, Khim. Prir. Soedin., 301 (1988).
7. A. Bianco and P. Passacantilli, Phytochemistry, **20**, 1873 (1981).