

7. É. D. Levin, B. Denisov, and R. Z. Pen, The Complex Processing of the Larch, [in Russian], Lesnaya Prom-st', Moscow (1978), p. 224,
8. Handbook of Terpenoids, CRC Press, Boca Raton, Florida, Vol. 11 (1985), p. 158.
9. G. F. Chernenko, I. Yu. Bagryanskaya, and É. N. Shmidt, Khim. Prir. Soedin., No. 5, 641 (1990).

#### LAMIIDE FROM *Phlomis cancellata*

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We have detected compound (I) of iridoid nature, in the epigeal part of the plant *Phlomis cancellata* Bunge (family Lamiaceae) collected in April, 1988 in the south-western Kopet Dagh.

The air-dry comminuted raw material (1.2 kg) was extracted at room temperature with 70% ethanol until extraction was complete. The concentrated extract (1 liter) was freed from lipophilic substances with diethyl ether (3 × 1 liter) and chloroform (3 × 1 liter) and then, to eliminate the phenolic compounds, was passed through a column of neutral alumina that had previously been washed with water. The column was eluted with water until the reaction for iridoid glycosides was negative, and the aqueous eluate was evaporated under reduced pressure. Ground activated carbon (750 g) was added to the concentrated extract until the iridoid glycosides had been adsorbed completely. The resulting suspension was placed in a column and was washed with water (15 liters) and then with aqueous alcoholic mixtures with increasing concentrations of ethanol.

The fraction containing 20% of ethanol afforded an individual compound (I) (yield on the air-dry raw material 1.5%) in the form of a white amorphous substance  $C_{17}H_{26}O_{12}$ ,  $[\alpha]_D^{25} -122^\circ$  (c 1.0,  $CH_3OH$ ),  $\lambda_{max}^{CH_3OH}$  nm: 230 (log 4.15);  $\nu_{max}$ ,  $cm^{-1}$ : 1700 (C=O); 1635 (C=C);  $^{13}CNMR$  (50.33 MHz,  $D_2O$ ); 94.46 (C-1), 152.67 (C-3), 114.21 (C-4), 68.71 (C-5), 45.80 (C-6), 77.14 (C-7), 79.14 (C-8), 56.86 (C-9), 19.60 (C-10), 169.00 (C-11), 99.14 (C-1'), 52.61 ( $CH_3O$ ).

Substance (I) (0.3 g) was acetylated with acetic anhydride at room temperature for a month. The reaction products were chromatographed on a column of silica gel with elution by the chloroform-methanol (9:1) system. This gave 180 mg of the pentaacetate (II)  $C_{27}H_{36}O_{17}$ , mp 186-188°C (from ethanol),  $[\alpha]_D^{25} -76^\circ$  (c 0.5;  $CHCl_3$ ) and 75 mg of the hexaacetate (III),  $C_{29}H_{38}O_{18}$  mp 203-204°C (ethanol),  $[\alpha]_D^{25} -54^\circ$  (c 1.0;  $CHCl_3$ ).

From the physicochemical constants and spectral characteristics of substance (I) and its derivatives (II) and (III), the compound isolated from *Phlomis cancellata* was identified as lamiide, an iridoid glucoside of the loganin group [1, 2].

#### LITERATURE CITED

1. M. L. Scarpati and M. Guiso, Gazz. Chim. Ital., 99, 1150 (1969).
2. A. Bianco, P. Caciola, M. Guiso, C. Iavarone, and C. Trogolo, Gazz. Chim. Ital., 111, 201 (1981).

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