CIRSIMARITIN FROM *Stizolophus balsamita*

E. M. Suleimenov,[1*] V. A. Raldugin,[2] and S. M. Adekenov[3] UDC 547.972+547.314

The sesquiterpene lactones stizolicin, stizolin, and balsamin were isolated previously by Rybalko from *Stizolophus balsamita* (Lam.) Cass. ex. Takht. [1]. We isolated for the first time from this species 9-epibalsamin and 9-epihydroxy-8-(4′-hydroxysenecioyl)balsamin, which were isolated earlier from *Centaurea coronopifolia* [2], and isolated for the first time from a plant species 11,13-dihydrostizolin [3].

In continuation of research on the chemical composition of the aerial part of *S. balsamita*, we isolated from polar fractions a yellow crystalline compound **1** of composition $C_{17}H_{14}O_6$, mp 256-258°C.

The mass spectrum exhibited a molecular ion with *m*/*z* 314 (100) and a fragment ion with *m*/*z* 299 (85) that indicated cleavage of one methyl group. The IR spectrum of **1** contained absorption bands at 3276 cm^{-1}, indicative of a hydroxyl, and at 1656 cm^{-1}, consistent with a C=C bond in the molecule. The UV spectrum had absorption maxima at 336 and 276 nm, typical of phenolic compounds.

The PMR spectrum of **1** recorded in $CDCl_3$ showed two 2H doublets for aromatic protons at 7.95 and 6.93 ppm, two 3H singlets for methoxyls with chemical shifts at 3.93 and 3.74 ppm, and two singlets at 6.9 and 6.81 ppm. Furthermore, singlets for hydroxyl appeared at 12.91 and 10.3 ppm. The ^{13}C NMR spectrum had two quartets for methoxyls, a singlet for a carbonyl, four doublets, and nine singlets.

The mass, UV, IR, PMR, and ^{13}C NMR spectra were consistent with those of cirsimaritin (**1**) that was isolated earlier from *Teucrium polium* (Labiatae) [4], *Artemisia xerophytica* [5] and *A. xanthochroa* [6] (Asteraceae), and *Becium grandiflorum* (Labiatae) [7].

Cirsimaritin was isolated for the first time from *S. balsamita*.

REFERENCES

1. K. S. Rybalko, *Natural Sesquiterpene Lactones*, Meditsina, Moscow (1978).
2. S. Oksuz and H. Ayyildiz, *Phytochemistry*, **25**, 2, 535 (1986).
3. E. M. Suleimenov, V. A. Raldugin, Yu. V. Gatilov, I. Yu. Bagryanskaya, R. Seidakhmetova, R. M. Aksartov, and S. M. Adekenov, *Khim. Zh. Kazakhstana*, **3**, 126 (2005).
4. C. H. Brieskorn and W. Biechele, *Tetrahedron Lett.*, **31**, 2603 (1969).
5. L. M. Belenovskaya, L. P. Markova, and G. I. Kapranova, *Khim. Prir. Soedin.*, 121 (1982).
6. I. I. Chemesova, L. M. Belenovskaya, and L. P. Markova, *Khim. Prir. Soedin.*, 789 (1984).
7. R. J. Grayer and N. C. Veitch, *Phytochemistry*, **47**, 5, 779 (1998).

1) L. N. Gumilev Eurasian National University, 010008, Astana, Munaitpasova, 5, Republic of Kazakstan, e-mail: syerlan75@yandex.ru; 2) N. N. Vorozhtsov Novosibirsk Institute of Organic Chemistry, Siberian Division, Russian Academy of Sciences, 630090, Novosibirsk, prosp. Akad. Lavrent′eva, 9, Russia, fax (3832) 34 452, e-mail: raldugin@nioch.nsc.ru; 3) AO NPTs Fitokhimiya, 100009, Karaganda, Gazalieva, 4,Republic of Kazakstan, fax 8-(3212) 43 37 73, e-mail: arglabin@phyto.kz. Translated from Khimiya Prirodnykh Soedinenii, No. 3, p. 317, May-June, 2008. Original article submitted January 31, 2008.

 0009-3130/08/4403-0398