Chemistry of Natural Compounds, Vol. 42, No. 5, 2006

STEROIDAL SAPOGENINS FROM SUBTERRANEAN ORGANS OF *Helleborus caucasicus*

T. S. Muzashvili, M. M. Benidze,
A. V. Skhirtladze, and Ts. P. Sulakvelidze

UDC 547.918

Helleborus caucasicus A. Br. (Caucuses hellebore, Helleboraceae) is a rich source of biologically active compounds of several classes. The subterranean parts of the plant afforded lipids, bufadienolides, and the monohydroxysapogenin smilagenin [1-4].

In continuation of the study of steroidal sapogenins from roots and rhizomes of *H. caucasicus*, saponins in raw material [5] were directly hydrolyzed. Total sapogenins, which consisted of three compounds, were isolated in 1.2% yield. The total (0.5 g) was subjected to adsorption chromatography over a column of Al_2O_3 using benzene:chloroform (5:1) to isolate two pure compounds, sapogenins **1** (0.02 g) and **2** (0.08 g).

Sapogenin 1 was recrystallized from CH_3OH, mp 199-202°C. IR spectrum (λ_{max}, KBr): 3400 (OH), 1650, 1050, 980, 960, 918, 921, 865, 821 cm^{-1}. A mixed sample with an authentic sample of neoruscogenin did not depress the melting point and gave one inseparable spot on TLC in various solvent systems. Acetylation of the sapogenin (0.010 g) in acetic anhydride and pyridine produced the acetate (0.011 g), mp 131-134°C. The IR spectrum showed absorption bands at 1740, 1665, 1655, 1471, 1230, 1050, 950, 920, 880, and 820 cm^{-1}. The measured physical chemical constants and those in the literature identified **1** as neoruscogenin, spirostan-5(6),25(27)-dien-1β,3β-diol [6].

Sapogenin 2 had mp 235-238°C. IR spectrum (λ_{max}, KBr): 3332 (OH), 2939, 1650, 1265, 1041, 972, 918, 900, 879, and 812 cm^{-1}. The sapogenin acetate had mp 191-194°C. IR spectrum of the acetate (λ_{max}, KBr): 1735, 1658, 1249, 1041, 972, 918, 900, 880, and 812 cm^{-1}. The results and literature data identified **2** as spirostan-5(6),25(27)-dien-1β,3β,11α-triol, which was isolated previously from *H. serbicus* [7].

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I. G. Kutateladze Institute of Pharmaceutical Chemistry, Georgia, Tbilisi, 0159, ul. P. Saradzhishvili, 36, fax: 995 32 25 00 26. Translated from Khimiya Prirodnykh Soedinenii, No. 5, p. 494, September-October, 2006. Original article submitted July 31, 2006.

0009-3130/06/4205-0613