LITERATURE CITED

1. I. I. Chemesova, "Phenolic compounds of representatives of the wormwood genus *Artemisia* L. of the Flora of the Mongolian Peoples' Republic," Author's abstract of Candidate's Dissertation, Pharmaceutical Sciences, Leningrad (1987).
2. M. E. Perel'son, Yu. N. Sheinker, and A. A. Savina, *The Spectra and Structures of Coumarins, Chromones, Xanthones* [in Russian] (1975).
3. V. K. Ahluwalia and Prakas Chandra, *Indian J. Chem., Sec. B* **15B**, No. 9, 808 (1977).
4. H. Wagner and S. Bladt, *Phytochemistry* **14**, No. 9, 2061 (1975).
5. G. Szabo, H. Greger, and O. Hofer, *Phytochemistry* **24**, No. 3, 537 (1985).
6. K. R. Markham and B. Ternai, *Tetrahedron* **32**, 2607 (1976).
7. T. A. Geissman, *J. Am. Chem. Soc.* **63**, 2689 (1941).
8. C. Van Hiille, P. Braeckman, and M. Vandewalle, *Planta Med.* **20**, No. 1, 278 (1971).
9. V. I. Litvinenko, *Farmats. Zh.* **18**, No. 5, 20 (1963).

FLAVONOIDS OF *Caragana spinosa*

G. A. Shpekina

UDC 547.972

The epigeal part of *Caragana spinosa* (L.) DC. (spiny pea shrub) gathered in the Buryat ASSR on the shores of Lake Gusinoe was exhaustively extracted with 70 and 96% ethanol. The ethanolic extract was concentrated in vacuum to an aqueous residue, which was treated with chloroform to eliminate ballast substances. Flavonoids were extracted from the purified aqueous solution with ethyl acetate. To isolate individual compounds, the combined flavonoids were deposited on a column of polyamide sorbent and were eluted successively with chloroform and mixtures of ethanol and chloroform. As a result six substances of flavonoid nature were isolated and identified.

Substance (I) – $C_{15}H_{10}O_7$, mp 308-310°C, λ_{max} 374, 255 nm (ethanol) – was identified as quercetin.

Substance (II) – $C_{15}H_{10}O_6$, mp 274-275°C, λ_{max} 368, 267 nm (ethanol) – was identified as kaempferol.

Substance (III) – $C_{27}H_{30}O_{16}$, mp 185-187°C, λ_{max} 362, 259 nm (ethanol) – was identified as rutin (quercetain 3-O-rutinoside).

Substance (IV) – $C_{28}H_{32}O_{16}$, mp 175-177°C, λ_{max} 360, 256 nm (ethanol) – was identified as narcissin (isorhamnetin 3-O-rutinoside) [1, 2].

Substance (V) – $C_{21}H_{20}O_{12}$, mp 210-212°C, λ_{max} 367, 255 nm (ethanol) – was identified as isoquercitrin (quercetin 3-O-glucoside).

Substance (VI) – $C_{21}H_{20}O_{12}$, mp 185-187°C, λ_{max} 350, 257 nm (ethanol) – was identified as quercetin 3-O-rhamnoside.

The structures of all the substances isolated were confirmed by the results of elementary elements, UV and IR spectroscopy, and a study of the products of acid and enzymatic hydrolysis, and also their comparison with authentic specimens.

LITERATURE CITED

1. L. A. Klyshev, V. A. Bandyukova, and L. S. Alyukina, *Plant Flavonoids* [in Russian], Alma-Ata (1978).
2. A. E. Polovinko and G. P. Yakovlev, *Khim. Prir. Soedin.*, 268 (1985).

Leningrad Institute of Pharmaceutical Chemistry. Translated from Khimiya Prirodnykh Soedinenii, No. 1, pp. 117-118, January-February, 1990. Original article submitted March 27, 1989.

0009-3130/90/2601-0095$12.50