

STUDY OF THE CHEMICAL COMPOSITION OF RHAPONTICUM
CARTAMOIDES

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Rhaponticum cartamoides (DC) Iljin., family Compositae, is similar to ginseng in its medical action [1]. It is used as a stimulant [2]. The roots and rhizomes of the plant have been found to contain tannins, inorganic salts, and vitamins A and C; no glycosides have been detected [3]. The roots of Rh. cartamoides collected in 1965 in the Altai were extracted with methanol. By paper chromatography at least nine substances were detected. The extract (yield 10%) was dissolved in water and extracted with 1-butanol.

When the butanolic extract was chromatographed on a column of polyamide powder, water eluted a compound (yield 1.5%) which was identified qualitatively and from the products of its reduction and hydrolysis as hesperidin [4]. The aqueous fraction, by chromatography on polyamide powder (with elution by water) and then on cellulose (with elution by the 1-butanol-acetic acid-water (4:1:5) system) gave a product decomp. 230-235° C, R_f 0.11; 0.80 [the same system - acetic acid-water (6:4)]. UV spectrum: λ_{max} 215 and 295 μ . Yield 1.5% of the total extract. The compound was readily soluble in water and gave color reactions like hesperidin. Hydrolytic degradation gave the aglycone hesperetin, and L-rhamnose and D-glucose were identified in the hydrolyzate.

The compound was not identical with substances reported previously and is apparently a new glycoside of hesperetin. The low R_f value of the glycoside shows that it probably contains more than two sugar residues.

In addition to the hesperetin glycosides mentioned above, the methanolic extract of the plant was shown by paper chromatography to contain a compound giving with a solution of vanillin in concentrated hydrochloric acid, an orange-red coloration characteristic for catechins and having a R_f value extremely close to that of epicatechin gallate [4].

REFERENCES

1. New Medicinal Plants of Siberia [in Russian], Novosibirsk, no. 3, 167, 1949.
2. V. I. Vereshchagin, K. A. Sobolevskaya, and P. I. Yakubova, Useful Plants of Western Siberia [in Russian], Moscow and Leningrad, 147, 1959.
3. A. F. Mikheeva and T. Ya. Chernikovskaya, Aptechn. delo, 1, no. 5, 1952.
4. V. M. Berezovskii, Chemistry of the Vitamins [in Russian], Moscow, 320, 1959; I. M. Hais and K. Macek, Paper Chromatography [Russian translation], Moscow, 310, 1962.

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FLAVONOIDS OF ARTEMISIA TRANSILIENSIS. I

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It is known that Artemisia transiliensis contains essential oils, santonin, and alkaloids [1].

We have detected ten substances of flavonoid nature in this plant by paper chromatography and qualitative reaction [2]. The total flavonoids were separated on a Kapron column. They were eluted with aqueous methanol and methanol. Two individual substances were isolated.

To elucidate the nature of these flavonoids we used alkaline degradation, reduction, and acid hydrolysis [3], and also the features of the UV spectrum with ionizing and complex-forming reagents [4, 5].