COUMARINS OF Artemisia glauca

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We have analyzed the epigeal part of Artemisia glauca Pall., gathered in the flowering phase in the environs of Tomsk. The comminuted raw material was extracted with 96% ethanol, and the alcoholic extract was evaporated to an aqueous residue and was diluted with water (1:1). The precipitate that had deposited was separated off, and the filtrate was subjected to fractionation with solvents of increasing polarity: chloroform, ethyl acetate, and butanol. After elimination of the solvent, the chloroform fraction was chromatographed on Leningrad S paper and on FN-12 paper that had been impregnated with formamide–acetone (1:3) [1].

In the epigeal part of Artemisia glauca, by descending chromatography in the chloroform system, the presence of nine substances of coumarin nature was established from their fluorescence in UV light before and after revelation with an alcoholic solution of alkali and from the coloration of the spots after the performance of a diazotization reaction. The subsequent separation of the total coumarins and the isolation of individual substances was carried out by preparative chromatography in a thin layer of polyamide in the chloroform and chloroform–ethanol (9:1) systems. The substances were eluted with 96% ethanol. By recrystallization from methanol four individual substances were obtained.

Substance (I) – mp 144-146°C. UV spectrum: $\lambda_{max}^{C_2H_5OH}$ 229, 313 n. IR spectrum (tablets with KBr), cm^{-1}: 1720 (C=O); 1610, 1550, 1510 (aromatic ring). Substance (I) was identified as scoparone.

Substance (II) was not identified.

Substance (III) – mp 233-234°C. UV spectrum: $\lambda_{max}^{C_2H_5OH}$ 216, 325 nm. IR spectrum, ν_{max}^{KBr}, cm^{-1}: 3300 (OH group); 1725 (α-pyrone). On the basis of the UV and IR characteristics obtained and a mixed melting point with an authentic sample, substance (III) was identified as umbelliferone.

Substance (IV) – mp 203-205°C. UV spectrum: $\lambda_{max}^{C_2H_5OH}$ 340, 298, 256 nm. IR spectrum (tablets with KBr), cm^{-1}: 3340 (OH group); 1707 (C=O). By comparison with an authentic sample, substance (IV) was identified as scopoletin.

The total amount of coumarins in the epigal part of A. glauca was 0.12%. The determination was made spectrophotometrically.

LITERATURE CITED

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