

BRIEF COMMUNICATIONS

p-HYDROXYACETOPHENONE AND PICEIN FROM *Rhodiola*

litvinovii

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Continuing a systematic investigation of plants of the family Crassulaceae [1-3], we have studied the chemical composition of the roots of *Rhodiola litvinovii* Boriss., collected in the flowering and fruit-bearing phase in the Tien-Shan region of the Kirghiz SSR. By chromatography on paper and also in thin layers of alumina and silica gel we found that an ethanolic extract contained three or four substances of a phenolic nature (detection by means of Pauly's reagent and iodine vapor). Two of these compounds have been isolated in the crystalline state.

The raw material was treated with hot water and the aqueous extracts were reextracted with chloroform. The chloroform extracts were dried with sodium sulfate and the solvent was distilled off. The residue consisted of crystalline substance 1.

The aqueous extracts after treatment with chloroform were evaporated, and the residue was dried and extracted with boiling ethanol. The extract was separated by column chromatography on alumina (activity grade IV, neutral) with discrete gradient elution with mixtures of chloroform and ethanol. The treatment of the column with this mixture in a ratio of 5:5 gave substance 2.

Substance 1 had the formula $C_8H_8O_2$, mp 109-110°C (from benzene); hydrazone with mp 269-270°C. This phenolic substance was identified by means of its physicochemical constants and spectra as p-hydroxyacetophenone [4-6]. A mixture with an authentic sample of p-hydroxyacetophenone showed no depression of the melting point.

Substance 2 had the formula $C_{14}H_{18}O_7$, mp 195-197°C (from ethanol), $[\alpha]_D^{20}$ 85.65° (c 0.467; water), λ_{max} 265 nm (log ϵ 4.22), and consisted of a glucoside. Its hydrolysis with 5% hydrochloric acid or with an enzyme preparation from the fungus *Aspergillus oryzae* and extraction with chloroform gave the aglycone, which was identified as p-hydroxyacetophenone. The sugar component in the hydrolyzate was identified as D-glucose. The tetraacetyl derivative of the glucoside had mp 173-174°C [7].

From the results of acid and enzymatic hydrolysis, UV and IR spectra, and polarimetry, the glycoside isolated has been characterized as p-hydroxyacetophenone 1- β -D-glucopyranoside, picein (piceoside) [8]. In view of the possibility of the hydrolytic cleavage of the glucoside with the formation of p-hydroxyacetophenone under the conditions of extracting the raw material with hot water, the native nature of the latter was shown by chromatographic comparison with the initial extract, and also by its direct extraction by chloroform and subsequent purification.

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