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FLAVONOIDS OF *Cnidium dahuricum*

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Six furocoumarins have been isolated previously from the fruit of *Cnidium dubium* (Schkuhr) Thell [1]. Continuing an investigation of plants of the genus *Cnidium* Cuss. (family Umbelliferae Juss.), we have studied the East Asian form of *Cnidium dahuricum* (Jacq.) Turcz. ex Fisch. et Mey., information on the flavonoids of which has been limited to a report of the presence of the substances in the epigeal organs, which was determined by qualitative reactions [2]. The plants were collected in the Maritime Territory, Shkotovo region, in the environs of the village of Shkotovo, in the meadow sections of the valley of the R. Skhotovka in September, 1981 (epigeal part) (fruit also in July, 1982). In the fruit and epigeal part of *C. dahuricum* coumarins were detected in the form of trace amounts (umbelliferone and scopoletin), while the flavonoids were present mainly in the epigeal part.

The flavonoids were extracted from the comminuted epigeal part with 85% ethanol. The extract obtained was evaporated, and the residue was diluted with water and purified with chloroform. The aqueous extract freed from lipophilic substances was deposited on a column of polyamide sorbent and elution was carried out with water and then with aqueous ethanol with ethanol concentrations rising to 30%. Fractions with the same flavonoid composition were combined, evaporated, and crystallized. Two crystalline substances (I and II) were obtained.

Substance (I) (hyperoside) had the empirical formula $C_{21}H_{20}O_{12}$, mp 246-250°C, $[\alpha]_D^{22}$ −59° (methanol) and was cleaved by the enzymes of the grape snail and by rhamnodiastase to the aglycone ($C_{15}H_{10}O_7$, mp 309-311°C), which was identified as quercetin, and the sugar component, D-galactose. On the basis of the results of a comparison of the UV and IR spectra, the hydrolysis products, and mixed melting points, the substance isolated was identified as hyperoside [3, 4].

Substance (II) (quercetin) proved to be identical with the aglycone of substance (I). Quercetin is probably not present in the plant in the native state but accumulates in the process of isolating the hyperoside.

This is the first time that flavonoids have been isolated from *C. dahuricum*.

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