

Eight substances of polyphenolic nature have previously [1, 2] been isolated from sea buckthorn leaves collected in the environs of Alma-Ata.

In the present communication we give the results of an investigation of the phenolic compounds present in the waste from the production of sea buckthorn oil. Extraction of the material (after preliminary treatment with petroleum ether and chloroform to eliminate residual oil, resins, and other accompanying substances) was performed with methanol.

Fractional chromatography on a column of polyamide sorbent (eluting mixtures: water, chloroform, and methanol with increasing concentration) led to the isolation of six substances. Substance (I), mp 307-310°C; (II), mp 303-305°C; (III), mp 356-358°C; (IV), mp 243-245°C, $[\alpha]_D^{20} -20.5^\circ$ (c 0.2; CH₃OH); (V), mp 234-236°C $[\alpha]_D^{20} -57.75^\circ$ (c 0.25; CH₃OH); (VI), mp 179-181°C $[\alpha]_D^{20} -70.0^\circ$ (c 0.1; DMFA).

The compounds isolated were identified on the basis of chromatographic analysis, IR and UV spectroscopy, and chemical transformation (alkaline cleavage, acid, alkaline, and enzymatic hydrolyses) and comparison with authentic samples. Substances (I-V) were identified as quercetin, isorhamnetin, myricetin, isorhamnetin 3-O-β-D-glucopyranoside, and isoquercitrin, respectively.

Substance (VI), on stepwise acid hydrolysis, gave an intermediate product with mp 241-243°C, which was identical with substance (V).

The orders of the bonds between the sugars were determined by oxidative destruction with hydrogen peroxide and by specific qualitative reactions [3].

From the results obtained, substance (VI) was characterized as isorhamnetin 3-O-[O-β-D-glucopyranosido)(1 → 2)-β-D-glucopyranoside].

LITERATURE CITED

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2. M. M. Mukhamed'yarova and T. K. Chumbalov, *Khim. Prir. Soedin.*, 281 (1977).
3. R. W. Bailey, *J. Chromatogr.*, **8**, 57 (1962).