On acid hydrolysis, the yield of aglycone was 63%, which indicates that the substance is a monoglycoside. The aglycone, $C_{15}H_{10}O_6$, had mp 325–328° C (from ethanol); UV spectrum: λ_{max} 355, 260 mμ; $\lambda_{max}^{AlCl_3}$ 400, 270 mμ, λ $\lambda_{max}^{CH_3COONa}$ 375, 265 mμ; $\lambda_{max}^{CH_3COONa+H_3BO_3}$ 375, 265 mμ; $\lambda_{max}^{AlCl_3+HCl}$ 390, 270 mμ; $\lambda_{max}^{CH_3ONa}$ 400, 280 mμ. On the basis of these results and a mixed melting point, the aglycone was identified as luteolin. The addition of sodium acetate to the glycoside did not lead to a bathochromic shift of the absorption bands, which shows that the sugar component (glucose) is attached to the aglycone in the $C_{(7)}$position. The osazone had mp 204–206° C (from 50% ethanol). The acetate of the aglycone had mp 222–226° C (from petroleum ether–chloroform) and gave no depression of the melting point in admixture with the acetate of a sample of luteolin obtained from willow [1].

The glucoside was subjected to hydrolysis with an enzyme preparation from Aspergillus oryzae, which showed the β configuration of the glycosidic bond. The results of differential IR spectroscopy and also a comparison of (M) for the glycoside with (M) for phenyl β-D-glucopyranoside showed that in the glycoside isolated the glucose is in the β-D-glucopyranose form. Consequently, the glycoside is 5, 3', 4'-trihydroxyflavone 7-O-β-D-glucopyranoside (luteolin 7-β-D-glucopyranoside).

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14 May 1969

Pyatigorsk Pharmaceutical Institute

UDC 547.918

KAEMPFEROL 7-RHAMNOSIDE FROM ACONITUM ORIENTALE

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Khimiya Prirodnykh Soedinenii, Vol. 5, No. 5, p. 441, 1969

By chromatographing the total material from an ethanolic extract of the leaves [1, 2] of Aconitum orientale Mill., collected in the Teberdina reserve, on a column of polyamide sorbent, we have isolated, using 45% ethanol, an individual substance with composition $C_{21}H_{20}O_{10}$, mp 232–233° C, $[\alpha]_D^{20}$ −165° (c 0.42; methanol). A positive cyanidin reaction showed its flavonoid nature.

On acid hydrolysis, an aglycone (yield 67%) and a sugar component were obtained. The latter was identified by paper chromatography as L-rhamnose (melting point of the osazone 178–180° C).

After recrystallization from ethanol, the melting point of the aglycone was 273–275° C and that of its acetyl derivative 180–182° C. The substance was identified by a mixed melting point as kaempferol (3, 5, 7, 4'-tetrahydroxyflavone).

In the UV region of the spectrum the glycoside had λ_{max} 370, 258 mμ (methanol). The absence of a bathochromic shift of band I of the glycoside on the addition of CH_3COONa shows that the hydroxyl group at $C_{(7)}$ is glycosidated.

Hydrolysis with an enzyme preparation from Aspergillus oryzae [5] did not lead to the cleavage of the glycoside, which shows the absence of a g-glycosidic linkage.

On comparing the molecular rotation of the glycoside isolated and the appropriate phenyl rhamnosides [6], it was found that the L-rhamnose was attached by an α-glycosidic bond and is present in the furanose form.

The results obtained and also the IR spectrum, permit the glycoside isolated to be regarded as kaempferol 7-O-α-L-rhamnofuranoside.

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UDC 547.918

HYPEROSIDE FROM EUPHORBIA PETROPHILA AND E. IBERICA

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Khimiya Prirodnykh Soedinenii, Vol. 5, No. 5, p. 442, 1969

The leaves of Euphorbia petrophila C. A. M. and E. iberica Boiss (spurges) were extracted successively with petroleum ether, chloroform, and methanol. The methanolic extracts were evaporated in vacuum, diluted with water, and extracted with ethyl acetate. The solvent was distilled off and the combined flavonoids were precipitated with chloroform. Fractional recrystallization of the combined flavonoids from each of the spurge species yielded the same substance with the composition $C_{21}H_{20}O_{12}$, mp 233–235° C (from ethanol).

A mixture of the two substances showed no depression of the melting point. Acid hydrolysis of the glycoside formed an aglycone $C_{15}H_{10}O_7$ which, from its UV spectra with ionizing and complex-forming additives, from the products of alkaline degradation, and from its pentaacetate was identified as 3,5,7,3',4'-pentahydroxyflavone (quercetin). An equimolecular amount of a sugar component, galactose, was also obtained.

A mixture with an authentic sample of hyperoside gave no depression of the melting point [1].

On the basis of a study of the hydrolysis products, UV spectroscopy, and the specific and molecular rotations of the glycoside, it has been established that it is quercetin 3-O-β-D-galactopyranoside.

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UDC 547.972

RUTIN AND FLAVONOID COMPOUNDS FROM THE LEAVES OF DUSSIA Spp.

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Khimiya Prirodnykh Soedinenii, Vol. 5, No. 5, p. 442, 1969

We have found compounds of a flavonoid nature in ethanolic extracts of the leaves of several southern- and central-American species of Dussia Taub. (Leguminosae).

The optimum extraction of these compounds from the materials was achieved with 70% ethanol. We succeeded in separating these compounds by paper chromatography (FN-16 paper) [1]. In D. martiniciensis Kr. et Urb. three substances were found; in D. teesmanii, three; in D. coriacea Pierce, one; in D. mexicana (Standl.) Harms., two; and in D. lehmanii Harms., two. The flavonoid nature of the substances detected on the chromatograms was shown by qualitative color reactions [2].

From D. martiniciensis and D. coriacea we isolated a flavonoid with mp 189–190° C.