by emulsin. Its IR spectra had bands at 1080, 1055, 1028 and 890 cm^{-1} (β-pyranose form of the sugar) [3]. This compound was identified as isoquercitrin.

The second glycoside of the same fraction was also a quercetin glycoside. Its IR spectrum had two maxima at 350 and 256 mμ. It gave a characteristic bathochromic shift for the presence of an ortho-dihydroxy grouping in position 3' and 4' [4]. Complete hydrolysis yielded quercetin and D-glucose, and partial hydrolysis gave quercimeritrin (quercetin 7-O-β-glucopyranoside). Because of the small amounts available, it was impossible to identify the substance in more detail.

The third compound of the ethyl acetate fraction was also a glycoside. Hydrolysis gave an aglycone which, from its Rf values in various systems and its UV spectra, is apigenin. The carbohydrate moiety of the glycoside is being studied.

The fourth compound of this fraction was identified as scutellarein.

We have isolated scutellarin from the flowerheads of Centaurea depressa previously [2].

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PROANTHOCYANIDINS OF POLYGONUM CORIARIUM

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We have previously [1, 2] reported the isolation and identification of the catcheins of the roots of Polygonum coriarium. In this paper we give the results of a study of the proanthocyanidins.

A concentrated methanolic extract of the roots of P. coriarium was treated sucessively with chloroform, ether, ethyl acetate, and acetone. From the ethyl acetate extract, in addition to catechins, we obtained leucodelphinidin and leucocyanidin.

The acetone extract was concentrated and the residue was treated repeatedly with butan-1-ol–acetic acid–water (4 : 12 : 28). The upper layer was chromatographed on a column of cellulose. The mobile phase was the same solvent. Three fractions were obtained. Paper chromatography showed that the first contained a mixture of (–)-epigallocatechin, leucodelphinidin, and leucocyanidin, while the second appeared in the form of a band, and the third remained stationary at the starting line. The third fraction was treated with a small amount of water and the solvent was distilled off under vacuum in the form of the azeotrope at 40–45° C. The concentrated butanolic solution was treated with a threefold volume of petroleum ether. The precipitate that deposited—a gray powder with a pinkish tinge—was dissolved in water, and gave all the reactions of phenols. Hydrolysis with 0.5 M HCl formed delphinidin, (–)-epigallocatechin gallate, (±)-epigallocatechin, and (–)-epigallocatechin. Enzymatic hydrolysis with tannase led to the formation of gallic acid, and alkaline cleavage to the formation of gallic acid and phloroglucinol.

The lower aqueous layer obtained in the treatment with butan-1-ol–acetic acid–water mixture was treated with butan-1-ol, and the solvent was distilled off under vacuum in the form of the azeotrope. The concentrate was treated with petroleum ether. The precipitate that then deposited was filtered off and was washed successively with hot ethyl acetate and butan-1-ol. The substance obtained, with mp 192–193° C, gave the same products as the first substance on acid and enzymatic hydrolysis and also on alkaline cleavage.

Consequently, the main components of the substances isolated—the proanthocyanidins of the roots of Polygonum coriarium are leucodelphinidin, (–)-epigallocatechin gallate (±)-gallocatechin, and (–)-epigallocatechin.

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A TRITERPENE GLYCOSIDE FROM ACANTHOPHYLLUM ANDENOPHORUM

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From an ethanolic extract of the air-dry roots of A. adenophorum Freyn (family Caryophyllaceae) collected in Central Kopetday, TurkmSSR, we have obtained an individual triterpene glycoside which proved to be homogeneous on chromatography on paper and in a thin layer of silica gel in systems 1) butan-1-ol–acetic acid–water (4 : 1 : 5) and 2) butan-1-ol–ethanol–25% ammonia (7 : 2 : 5).

The glycoside was purified on a column of cellulose being eluted with solvent system 1. The yield of pure glycoside was 3% of the air-dry weight of the roots, mp 212–218° C (decomp.) $[\alpha]_D^{20}$ +19.7 ± 2° [c 1.6; water–ethanol (1 : 1)], mp of the acetate 151–154° C (decomp.), $[\alpha]_D^{20}$ +12 ± 2° (c 1.0; chloroform).

Hydrolysis of the glycoside with 2% sulfuric acid gave vacaroside [1], which was identified by its melting point, chromatographic behavior, a mixed melting point, and its IR spectrum. In the hydrolysate after neutralization of the sulfuric acid with EDE-10P anion-exchanger (OH^- form), paper chromatography in system 1 showed the presence of D-galactose, D-xylose, L-rhamnose, L-arabinose, and D-fucose.

Hydrolysis with a 3% hydrochloric acid gave the aglycone, with mp 269–271° C $[\alpha]_D^{20}$ +91.4 ± 1.5° (c 1.45; ethanol). The substance obtained was identified by a chromatographic comparison in various systems as gypsogenin.

The same composition of sugars and aglycone as that of the glycoside we have isolated is possessed by gypsoside—a triterpene glycoside from Gypsophila pacifica [3]. Gypsoside has also been found in several species of plants: G. paniculara [4, 6], G. patrinii [5], G. captata [7], G. trihotoma [6], and Acanthophyllum gypsophiloides [2]. A chromatographic comparison in a thin layer of silica gel of the glycosides from A. adenophorum and A. gypsophiloides in the systems described showed their identity.

The raw material was collected and identified by A. S. Moshchenko.

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