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POLYPHENOLS OF GERANIUM COLLINUM. II

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We have studied the leaves of Geranium collinum Steph. (upland geranium) [1] collected at the beginning of July in the little Alma-Ata gorge of the Trans-Ili Ala-Tau. The freshly collected material was treated with methanol. The extract was concentrated under vacuum at 40-50° C, acidified with acetic acid to pH 3, and exhaustively treated first with petroleum ether and chloroform to eliminate the essential oils and resins, and then with ether to extract the polyphenols. Concentration of the ethereal extract yielded a precipitate with mp 350° C which proved, on the basis of its IR spectrum, elemental analysis, and qualitative reactions, to be ellagic acid [2]. The solution was subjected to partition in the ether-water system. The ethereal fraction was evaporated to dryness, and the residue was dissolved in methanol and chromatographed on Kapron. The first fractions, which contained two phenolic acids, were rechromatographed on Kapron in water and the following acids were isolated: gallic with mp 236-238° C, and 3-methoxygallic with mp 197-199° C. The identification of the latter was confirmed by qualitative reaction [3], elemental analysis, IR spectrum, and a determination of the equivalent.

On further chromatography of the ethereal extract, methanol eluted quercetin (mp 303-305° C), kaempferol (mp 278-280° C), and 3,7,8,4'-tetrahydroxyflavone (mp 310-315° C) [4]. The substances were identified from the results of alkaline fusion, a spectroscopic and chromatographic study of the anthocyanidin derivatives, and the UV spectra with ionizing and complex-forming additives. 3,7,8,4'-Tetrahydroxyflavone has λ_{\max} 370, 268 m μ . The spectra with additives showed that it contained OH groups at C-3 and C-7 and ortho- and C-3, 4'-di-OH groupings [5] and lacked a C-5-OH [6]. The methylation of 3,7,8,4'-tetrahydroxyflavone with dimethyl sulfate gave the tetramethyl ether with mp 145-147° C. The identification was confirmed by the results of elemental analysis and by the IR spectrum.

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A CHEMICAL STUDY OF EUPHORBIA SERAWCHANICA

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The milky juice and hypogean organs of some species of Euphorbia contain compounds specific for these plants (euphorbone, euphorbol, and biglandulinic and ferganic acids) [1-3].

We have studied Euphorbia serawchanica Rgl. [4]. A qualitative analysis showed the presence in it of glycosides, flavonoids, and coumarins.

The roots and epigeal part of E. serawchanica were steeped in 8% sulfuric acid and the acid extract was shaken with ether; the ethereal extract was evaporated to dryness. The residue was treated with ether and the ether-insoluble part was dissolved in acetone. The acetone solution was passed through a layer of alumina. This gave crystals with mp