FLAVONOIDS OF *Colchicum kesselringii*

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In order to study the flavonoid substances of *Colchicum kesselringii* (Rgl.) the epigeal parts of the plant collected in the Syrdar'ya region were extracted with methanol. The extract was evaporated in vacuum to the consistency of a syrup, and this was diluted with water and was treated with petroleum ether and chloroform. Then the flavonoids were extracted with ethyl acetate. In the combined flavonoid substances (yield 1.15%) four compounds were detected by paper chromatography with R_f 0.19, 0.38, 0.80, and 0.94 [BAW (40:10:50)]. When the mixture was treated with methanol, its main component with R_f 0.38 crystallized out. The mother solution deposited crystals of luteolin (R_f 0.80) (I).

The flavone with R_f 0.38 (II) had the composition $C_{21}H_{20}O_{11}$, mp 224-225°C, $[\alpha]_D^{25}$ −100° [c 0.5; pyridine—methanol (1:1)], $\lambda_{max}^{C_2H_5OH}$ 353, 258 nm, $\lambda_{max}^{CH_3COONa}$ 353, 257 nm, $\lambda_{max}^{CH_3COONa/H_3BO_3}$ 373, 257 nm, $\lambda_{max}^{AlCl_3}$ 392, 278 nm; acetyl derivative — mp 243-244°C. Acid hydrolysis (6% HCl, 1 h, 100°C) led to the formation of luteolin and glucose in equimolecular amounts, which shows the monoside nature of this glucoside.

The absence of a shift in the short-wave maximun in the UV spectrum of (II) on the addition of fused sodium acetate shows that the glucose residue is attached to position 7 of the aglucone, which was also confirmed by the PMR spectra of the acetyl derivatives of (I) and (II) [(III) and (IV), respectively]. In the spectrum of (IV), the signals of the aromatic protons H-6 and H-8 (doublets at 6.58 and 6.90 ppm) are shifted upfield as compared with the corresponding signals in (III) (doublets at 6.73 and 7.22 ppm). In the spectrum of (IV), in contrast to that of (III), the signals corresponding to the three acetyl groups of the aglucone appear (9 H, 2.22-2.24 ppm), while in the spectrum of (III) there is one acetyl group more (12 H, 2.22-2.24 ppm), which is explained by the acetylation of the hydroxy group in position C-7. Furthermore, in the PMR spectrum of (IV) there are the signals of four acetyl groups (12 H, 1.95-2.00 ppm) and the protons of a glucose residue (7 H, 4.12-5.20 ppm). The signals of the other protons of (III) and (IV) are practically identical.

The flavone (II) differs from the known luteolin 7-glucosides, including luteolin 7-O-β-D-glucopyranoside (veronicastraside) [1-3]. The considerable ease of its hydrolysis as compared with known 7-glucoside [4, 5] by dilute acids is obviously due to the furanose form of the glucoside residue. The presence of absorption bands at 1046 and 1070 cm⁻¹ in the differential IR spectrum of (II) and the results of a calculation of the molecular rotation by Klyne's method confirms this hypothesis. An absorption band at 844 cm⁻¹ shows an α-glucoside bond of the sugar with the aglycone [6].

On the basis of what has been said above, for the flavone (II) we have proposed the structure luteolin 7-O-α-L-glucofuranoside.

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