# LUTEOLIN AND ITS 7-O-GLUCOSIDE FROM THE GENUS Trifolium

A. L. Kazakov, A. L. Shinkarenko,
and É. T. Oganesyan

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The epigeal part of the clover varieties Trifolium trichocephalum M.B., T. canescens Welld., T. caucasicum Tausch. – the section Stenostoma Gib. et Belli. – and T. apertum Bobr. – the section Hiantia Bobr. – family Leguminosae, collected in the flowering period in the Stavropol' and Krasnodar territories was extracted successively with chloroform and 96% ethanol. The resulting ethanolic extracts were evaporated under vacuum, and the residue was diluted with water. After a day, the chloroform-saturated aqueous extract deposited a light yellow precipitate from which two substances of flavonoid nature were isolated by fractional crystallization from aqueous methanol with subsequent chromatography on polyamide.

The first substance had the composition $C_{21}H_{20}O_{11}$, mp 256-258°C (from aqueous methanol) $[\alpha]_D^{20} -53°$ (c 0.57; methanol–pyridine, 5:1). The acetate had mp 237-240°C (from petroleum ether–chloroform, 4:1).

Acid hydrolysis with 10% sulfuric acid showed that its sugar residue was D-glucose. Under the action of the enzyme of Aspergillus oryzae the substance split into the aglycone and the sugar component, which shows the $\beta$ configuration of the glycosidic bond. The aglycone was identified by its melting point and UV and IR spectra as luteolin. Thus, the flavonoid is luteolin 7-O-$\beta$-D-glucopyranoside [1].

The second substance, with the composition $C_{15}H_{10}O_6$, formed crystals with mp 328-330°C (from methanol). Melting point of the acetate 223-225°C (from methanol–chloroform, 4:1). From its UV and IR spectra and a mixed melting point, the substance was identified as luteolin (3',4',5,7-tetrahydroxyflavone).

The flavonoids of these species of clover have not been studied previously.

## LITERATURE CITED

1. V. A. Kompantsev and A. L. Shinkarenko, Khim. Prirodn. Soedin., 380 (1968).

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