

FLAVONOIDS FROM *Phlomis tuberosa*

T. A. Khokhrina, V. A. Peshkova,
and V. I. Glyzin

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A luteolin glucosiduronic acid has previously been isolated from the leaves of *Phlomis tuberosa* L. (tuber Jerusalem sage) [1]. Continuing a study of the flavonoid composition of the plant, we have isolated and identified four more substances.

Apigenin. mp above 340°C, λ_{\max} 268, 336 nm, R_f 0.9 in the butanol-acetic acid-water (4:1:5) system.

Luteolin. mp 328-330°C, λ_{\max} 257, 268, and 348 nm, R_f 0.82 in the butan-1-ol-acetic acid-water (4:1:5) system.

Apigenin 7-Glucosiduronic Acid. $C_{21}H_{18}O_{11} \cdot H_2O$, mp above 300°C, λ_{\max} 268, 332 nm, R_f 0.30 in 15% acetic acid. On hydrolysis, apigenin and glucuronic acid, identified by paper chromatography, were obtained.

Luteolin 7-Glucoside. $C_{21}H_{20}O_{11}$, mp 195-198°C and 254-255°C, λ_{\max} 255, 268, and 349 nm, R_f 0.16 in 15% acetic acid. Hydrolysis gave luteolin and glucose, identified by paper chromatography.

All the substances isolated were identified by direct comparison with authentic samples and by the NMR spectra of the silylated ethers [2].

LITERATURE CITED

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2. T. J. Mabry, K. R. Marham, and M. B. Thomas, *The Systematic Identification of Flavonoids*, Springer, New York (1970), p. 285.

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