The relative retention times of the phenolic acids and flavonoids investigated coincided with those of authentic samples. It must be mentioned that, of the phenolic acids, p-hydroxybenzoic, protocatachuic, and p-coumaric predominated quantitatively, while the others were present in only small amounts. Among the flavonoids, the flavones apigenin and luteolin predominated.

In contrast to the herbage of *Equisetum arvense*, no flavonols were detected in the spore-bearing stems.

LITERATURE CITED

1. A. I. Syrchina, M. G. Voronkov, and N. A. Tyukavkina, Khim. Prirodn. Soedin., 416 (1975).
2. A. I. Syrchina, M. G. Voronkov, and N. A. Tyukavkina, Khim. Prirodn. Soedin., 424 (1975).

FLAVONOIDS FROM *Phlomis agraria*

T. A. Khokhrina, V. A. Peshkova, and N. I. Shergina

UDC 547.972

Continuing a study of the composition of the flavonoids of Siberian species of Jerusalem sage, from the herbage of *Phlomis agraria* Bge. (family Labiatae) we have isolated three flavonoids.

Substance (I): composition $C_{21}H_{18}O_{12}$, mp 190-192°C; UV spectrum, nm: λ_{max}^{init} 350, 276, 255; $\lambda_{max}^{+CH_3COONa}$ 352, 256; $\lambda_{max}^{+C_2H_5ONa}$ 410, 265 nm; $\lambda_{max}^{+AlCl_3}$ 390, 267; $\lambda_{max}^{+H_3BO_3+CH_3COONa}$ 372, 258. In the products of enzymatic hydrolysis we detected β-glucuronic acid. On the basis of these facts substance (I) was identified as luteolin 7-β-glucuronide [1, 3].

Substance (II): had the composition $C_{21}H_{20}O_{11}$, mp 255°C. UV spectrum, nm: λ_{max}^{init} 249, 268, 255; $\lambda_{max}^{+CH_3COONa}$ 352, 268, 257; $\lambda_{max}^{+C_2H_5ONa}$ 404, 263; $\lambda_{max}^{+AlCl_3}$ 416, 278; $\lambda_{max}^{+H_3BO_3+CH_3COONa}$ 374, 259. β-Glucose was detected in the products of enzymatic hydrolysis. These facts permitted substance (II) to be identified as luteolin 7-β-glucoside [2, 3].

Substance (III) is also a luteolin O-glycoside, and its study is continuing.

LITERATURE CITED

1. V. I. Glyzin, V. A. Peshkova, and T. A. Khokhrina, Khim. Prirodn. Soedin., 802 (1972).
2. T. A. Khokhrina, V. A. Peshkova, and V. I. Glyzin, Khim. Prirodn. Soedin., 802 (1973).
3. T. J. Mabry, K. R. Marcham, and M. B. Thomas, The Systematic Identification of Flavonoids, Springer, New York (1970).

Tyumen' Medical Institute. Irkutsk Institute of Organic Chemistry, Siberian Branch of the Academy of Sciences of the USSR. Translated from Khimiya Prirodnykh Soedinenii, No. 6, p. 804, November-December, 1978. Original article submitted July 5, 1978.

 0009-3130/78/1406-0686$07.50