

# POLYPHENOLIC COMPOUNDS OF *Euphorbia*

*kaleniczenkii*

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In a chemical study of the herb *Euphorbia kaleniczenkii* Czern. we established the presence in it of not less than 15 substances of polyphenolic nature consisting of flavonoids, hydroxycinnamic acids, tanning substances, and coumarins (traces).

The raw material was extracted with 80% ethanol, and the extracts were purified with chloroform and treated with hot water. The purified aqueous extract was repeatedly extracted with ethyl acetate, and the evaporation of the extract gave the combined polyphenols with a yield of 1.03%. Part of the polyphenolic compounds remained in the aqueous extract.

When the mixture and the aqueous extract were separated on columns of polyamide sorbent using as eluting solutions water-ethanol and chloroform-ethanol mixtures of different concentrations, five substances of flavonoid nature were isolated in the individual state. On the basis of their physicochemical properties, UV and IR spectroscopy, transformation products,  $R_f$  values in various systems of solvents, and also direct comparison with authentic samples [1-3], these substances were identified as the known phenolic compounds:

Quercetin (3,3',4',5,7-pentahydroxyflavonol),  $C_{15}H_{10}O_7$  (I), mp 310-312° C (mp of the pentaacetate 198-200° C);

Myricetin (3,3',4',5,5',7-hexahydroxyflavone),  $C_{15}H_{10}O_8$  (II), mp 358-360° C (melting point of the hexaacetate 208-210° C);

Hyperoside (quercetin 3- $\beta$ -D-galactopyranoside),  $C_{21}H_{20}O_{12}$  (III), mp 248-250° C,  $[\alpha]_D^{20} - 60.0^\circ$  (c 0.1; dimethylformamide);

Isomyricitrin (myricetin 3- $\beta$ -D-glucopyranoside),  $C_{21}H_{20}O_{13}$  (IV), mp 275-277° C,  $[\alpha]_D^{20} - 36.0^\circ$  (c 0.1; dimethylformamide) [4]; and

Stepposide (steppogenin 7- $\beta$ -D-glucopyranoside),  $C_{21}H_{22}O_{11}$  (V), mp 148-150° C,  $[\alpha]_D^{20} - 52.5^\circ$  (c 0.12; methanol) [5].

Fifteen species of the genus *Euphorbia* L. were investigated in parallel by two-dimensional paper chromatography. It was found preparatively that substances (I), (III), and (IV) are common to *E. angulata*, *E. stricta*, *E. amygdaloides*, *E. helioscopia*, *E. virgultosa*, *E. makroceras*, *E. peoplus*, *E. serawschanika*, *E. semivillosa*, *E. glarleosa*, *E. biglandulosa*, *E. paralias*, *E. cyparissia*, *E. volhynika*, and *E. sequieriana*.

This is the first time that these substances have been isolated from the given species of *Euphorbia*.

## LITERATURE CITED

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