

FLAVONOIDS OF *Euphorbia armena*

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With the aim of finding promising sources of biologically active substances among the flora of Georgia, we have made a phytochemical investigation of individual parts of 10 plants of the *Euphorbia* (*E.*) genus: *E. sequieriana*, *E. maculata*, *E. armena*, *E. pontica*, *E. iberica*, *E. glareosa*, *E. macroceras*, *E. boissierana*, *E. nutas*, and *E. letras*. The plants were gathered in various regions of the eastern part of the republic of Georgia in 1989-1992.

The air-dry comminuted raw material was extracted with 70% ethanol, with heating. The concentrated extracts were purified with chloroform, and the chloroform solutions and the aqueous fractions were analyzed separately. Flavonoids, tannins, and tetracyclic triterpenoids were detected [1-3]. Triterpenoids were found in all parts of the plants, but in particularly large amount in the roots. The leaves and flowers were rich in flavonoids but there were none in the roots. Tannins were biosynthesized in considerable amount in all parts of the plants.

We studied *E. armena* for its flavonoid content. An aqueous-alcoholic extract was obtained from 0.5 kg of the epigeal parts of the plant. The aqueous phase remaining after the alcohol had been distilled off was purified with chloroform and extracted with ethyl acetate, and the extract was dried and concentrated. This gave a total of 5 g of extractive substances, which was chromatographed on a column of silica gel (2 × 36 cm) with elution by various concentrations of ethanol. In this way we isolated five flavonoid compounds, four of which were identified by a study of transformation products and from UV and IR spectral analysis.

Substance (1) – C₁₅H₁₀O₇, mp 310-313°C, proved to be quercetin [4].

Substance (2) – C₂₇H₃₀O₁₆, mp 188-190°C, [α]_D²⁰ –32° (c DMFA), was characterized as rutin [4].

Substance (3) – C₂₁H₂₀O₁₂, mp 226-228°C, [α]_D²⁰ –80° (c 0.1; DMFA), was isoquercitrin [5, 6].

Substance (4) – C₁₅H₁₀O₆, mp 273-275°C, was identified as kaempferol [6].

We are the first to have isolated flavonoids from *E. armena*.

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