

We have studied the polyphenol and triterpene composition of Xeranthemum annuum L. (common immortelle), family Asteraceae, collected in the flowering period in July, 1978, in the Crimea.

The epigeal part was exhaustively extracted with 70% ethanol, and the resulting extract was concentrated in vacuum to 1/3 of its initial volume. Analysis with the aid of two-dimensional chromatography and the results of qualitative reactions [1] showed that the extract obtained included six substances of polyphenolic nature. In the products of the acid hydrolysis (7% H₂SO₄, 6 h on the water bath) of the total extract we detected 3',4',5,7-tetrahydroxyflavone (luteolin) and 3,3',4',5,7-pentahydroxyflavone (quercetin).

The concentrated extract was exhaustively treated with ethyl acetate and the concentrated ethereal solution was left for crystallization at +2 to +4°C. After three days, a pale yellow precipitate deposited which, after recrystallization from methanol, melted at 256-258°C. From its IR and UV spectra and the results of acid and alkaline cleavage, the compound isolated was identified as luteolin 7-O-β-D-glucopyranoside [2].

A methanolic extract of the epigeal part was analyzed for the presence of triterpenes. Thin-layer chromatography on Silufol UV-254 plates in various systems [petroleum ether-benzene-acetic acid (5:20:2 and 5:10:1); chloroform-methanol (3:1), and butan-1-ol-acetic acid-water (4:1:2)] showed the presence of four compounds which, from the results of color reactions [3, 4], were assigned to the triterpenoids. The triterpenoids were isolated by exhaustive extraction with methanol in an apparatus of the Soxhlet type followed by concentration and chromatography (chloroform-methanol (3:1)) on a column of type KSK silica gel. After concentration of the fractions with the same composition, a precipitate deposited which melted at 280-283°C. Its IR spectrum contained the following absorption bands (cm⁻¹): 3300, 2750, 2400, 1800 (-OH); 1730 (>C=O); 1610 (>C=C<); 1550, 1520, 1420, 1390, 1358, 1312, 1250 (which are characteristic for ursolic acid) [5]. In the UV region with concentrated H₂SO₄ absorption spectra were obtained that are characteristic for α-amyrin derivatives [6].

On the basis of the results obtained, the compound isolated was characterized as ursolic acid.

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