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THE ABSTRACT BOOK OF THE VI INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE "MODERN PHARMACEUTICS: ACTUAL PROBLEMS AND PROSPECTS"

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МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ УЗБЕКИСТАН
ТАШКЕНТСКИЙ ФАРМАЦЕВТИЧЕСКИЙ ИНСТИТУТ

"FARMATSEVTIKA SOHASINING BUGUNGI HOLATI: MUAMMOLAR VA ISTIQBOLLAR"

MAVZUSIDAGI VI XALQARO ILMIY-AMALIY ANJUMANI MATERIALLAR TO'PLAMI

ABSTRACT BOOK OF THE 6TH INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE

"MODERN PHARMACEUTICS: ACTUAL PROBLEMS AND PROSPECTS"

МАТЕРИАЛЫ VI МЕЖДУНАРОДНОЙ НАУЧНО-ПРАКТИЧЕСКОЙ КОНФЕРЕНЦИИ

«СОВРЕМЕННОЕ СОСТОЯНИЕ ФАРМАЦЕВТИЧЕСКОЙ ОТРАСЛИ: ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ»

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PHYTOCHEMICAL STUDY OF COUMARINS IN THE AERIAL PARTS OF PRANGOS FEDTSCHENKOI (REGEL ET SCHMALH.) KOROV

Komilov Kh.M.
Ikramova M.Sh.
Mukhitdinova M.K.
Tashkent Pharmaceutical Institute, Tashkent city, Republic of Uzbekistan
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Background. Coumarin compounds are derivatives of cis-ortho-hydroxycinnamic acids. They are known for their biological activities, particularly their anticoagulant effects, while furocoumarins act as photosensitizers, i.e., they increase skin sensitivity to UV radiation (applied in the treatment of vitiligo). From this perspective, the search for coumarin-containing plants, isolation of their bioactive compounds, identification of their chemical structures, and study of their pharmacological activity are highly relevant.

In the flora of Uzbekistan, the genus Prangos L. is represented by 8 species. The coumarins of the studied species have been poorly investigated. The aerial parts of Prangos fedtschenkoi grow in the mountainous regions of the Tian Shan. For the study, the plant was collected in the mountainous areas of Kashkadarya during late flowering (June), dried in the shade, and crushed.

Objective. From 1.0 kg of raw material, extraction was carried out three times with 95% ethanol. The combined extracts were concentrated under vacuum, diluted with water (1:2), and extracted three times with 100 mL portions of diethyl ether. The ether fractions were combined, dried over anhydrous Na_2SO_4, and evaporated. The aqueous phase, which was not transferred to ether, was extracted three times with 100 mL portions of ethyl acetate using a separatory funnel. The ethyl acetate fraction was collected.

Methods. The ether fraction was chromatographed in the solvent system n-hexane–benzene–methanol (5:1:4) (System A) or petroleum ether–benzene–ethanol (5:1:4). The ethyl acetate fraction was chromatographed in n-butanol–acetic acid–water (5:1:4) (System B). Both chromatograms were dried, examined under UV light, sprayed with 10% ethanolic KOH, dried at 105 °C, and treated with freshly prepared diazo reagent. Spots characteristic of coumarins were revealed, and their Rf values were determined.

In the ether fraction, spots at Rf 0.30, 0.62, 0.70, and 0.86 were observed. These spots appeared reddish and showed violet-blue fluorescence under UV light.

In the ethyl acetate fraction, a reddish spot with Rf 0.80 was detected (System C: acetic acid–water, 6:4).

The Rf 0.72 spot from the ether fraction chromatogram corresponded to coumarin, identified by comparison with the reference compound umbelliferone.

The ethyl acetate fraction was evaporated to dryness, and the residue was hydrolyzed by adding 10% sulfuric acid and refluxing with a condenser in a water bath for 5 hours. After cooling, the hydrolysate was extracted three times with 20 mL portions of diethyl ether.

Paper chromatography of the ether-soluble portion revealed a spot at Rf 0.72, which matched umbelliferone as the reference compound.

The water-soluble portion remaining after hydrolysis gave a spot at Rf 0.77, identified as a carbohydrate. Using paper chromatography (System C) and spraying with aniline phthalate reagent, it was identified as D-glucose.

Results and Conclusion. From the ether and ethyl acetate fractions of Prangos fedtschenkoi, the aglycone umbelliferone and D-glucose were identified after hydrolysis. Based on the Rf 0.72 spot corresponding to umbelliferone and the Rf 0.80 spot corresponding to umbelliferone glycoside, the compound present in the aerial parts of the plant was determined to be skimmin (umbelliferone-7-O-β-D-glucoside).