MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION OF THE REPUBLIC OF UZBEKISTAN

MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN

TASHKENT PHARMACEUTICAL INSTITUTE

INNOVATIVE ACADEMY

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

OCTOBER 17, 2025

TASHKENT - 2025

O'ZBEKISTON RESPUBLIKASI SOG'LIQNI SAQLASH VAZIRLIGI
TOSHKENT FARMATSEVTIKA INSTITUTI

THE MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN
TASHKENT PHARMACEUTICAL INSTITUTE

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»

Conference materials are indexed in the following databases:

«Innovative Academy RSC»
Tashkent – 2025

ON THE STUDY OF THE FLAVONOIDS OF LADIGINIA BUCHARICA LIPSKIYI

Komilov Kh.M.
Ikramova M.Sh.
Mukhitdinova M.K.
Tashkent Pharmaceutical Institute, Tashkent city, Republic of Uzbekistan
https://doi.org/10.5281/zenodo.17333616

Background. Within the flora of Uzbekistan, many wild-growing plants remain insufficiently and unevenly studied. Conducting in-depth pharmacognostic and pharmacological investigations and introducing the results into medical practice are important tasks. One such plant is the Bukhara Ladiginia. This species occurs in Central Asia (southern Pamir–Alay) and in Uzbekistan's Kashkadarya Region (Kaypantog'lik area). Earlier, scientists of the Institute of the Chemistry of Plant Substances, Academy of Sciences of Uzbekistan, in the Glycosides Laboratory (M. Pathullaeva, N.K. Abubakirov), studied triterpene saponins from the underground parts of this plant. However, the bioactive compounds of the aerial parts (flavonoids) have not been investigated.

Objective. Ladiginia bucharica belongs to the genus Ladiginia of the family Apiaceae (celery family), which in Uzbekistan comprises 73 genera and 203 species. It is a perennial plant 80–150 cm tall. The study focused on the aerial parts (stems, leaves, and flowers), collected during flowering and dried in the shade. The dried, crushed raw material was examined for flavonoids.

Preliminary paper chromatography was carried out after heating the material with 95% ethanol in a water bath and filtering. The concentrate was developed in the system n-butanol–acetic acid–water (5:1:4). After spraying with 3% ethanolic $AlCl_3$ and drying at 105 °C, spots characteristic of flavonoids were observed under a UV lamp at Rf 0.46 and 0.94.

Materials and Methods. To elucidate the chemical structures of the flavonoids, 1.0 kg of dried, powdered raw material was extracted three times at room temperature with 95% ethanol. The concentrated extract was diluted with water (1:2) and defatted/dechlorophyllized by five successive extractions with 100 mL portions of extraction-grade petroleum ether, removing ballast substances (chlorophyll). The purified aqueous phase was then extracted three times with 100 mL portions of n-butanol. The combined butanolic fraction was evaporated in vacuo to yield 100 g of dry extract.

A capron (nylon) powder–packed chromatography column was loaded with 35.0 g of this extract. The column was eluted first with water and then with 5%, 10%, and 20% aqueous ethanol. Fractions (150 mL each) were collected. The presence of flavonoids in fractions was monitored by spotting on filter paper, spraying with 3% ethanolic $AlCl_3$, heating, and examining under UV light.

Results. Fractions displaying flavonoid-characteristic spots were evaporated in a water-bath under reduced pressure; some were further purified by rechromatography. Two compounds were isolated:

• Substance A: m.p. 278–279 °C; formula $C_{15}H_{10}O_6$; M^+ 286; Rf 0.94 in n-butanol–acetic acid–water (5:1:4). Identification was performed using the reference compound kaempferol and by comparing mass and UV spectra.

• Substance B: m.p. 316–317 °C; formula $C_{15}H_{10}O_7$; M^+ 302; Rf 0.46. Identification was carried out with the reference compound quercetin, also by comparison of mass and UV spectra.

Kaempferol and quercetin were thus isolated from Ladiginia bucharica Lipskiyi and identified for the first time.

Conclusion. The aerial parts of this wild-growing plant widespread in Uzbekistan contain the flavonoids kaempferol and quercetin. Further work will continue on comprehensive investigation of its bioactive constituents and on evaluating their biological activities.