

THE STUDY OF CHEMICAL COMPOSITION OF *POLYGONUM AMPHIBIUM*

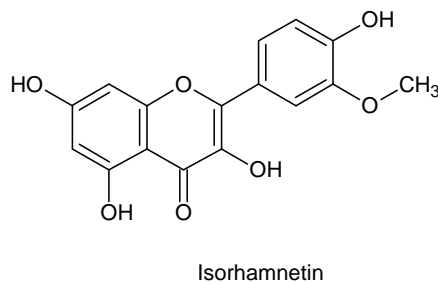
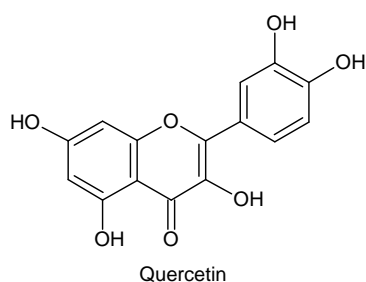
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As a part of our ongoing phytochemical investigation of plants from *Polygonum* genus (*Polygonaceae*), we investigated the chemical composition of *Polygonum amphibium* collected on Pervomay Lake in Almaty, Kazakhstan. Plants from this genus are used in traditional medicine, diet, and as ornamental plants [1].

Phytochemical analysis showed the presence of flavonoids (1,75%), triterpene saponins (0,78%), coumarins (0,33%), tannins (2,37%) and polysaccharides (4,46%) in its composition, Their quantification was held according to the methods of State Pharmacopoeia of the Republic of Kazakhstan [2].

Were isolated and identified by TLC and PC individual components from herb of *Polygonum amphibium* L. Flavonoids (quercetin and quercetin glycosides in addition to isorhamnetin), triterpenoid saponins (hederagenin, oleanolic acid), phenolic acids (caffeic acid, cinnamic acid), phenols (catechol, pyrogallol) from ethanolic extract.



Previously reported in the literature about the manifestation of antileukemic activity of two new flavonoid glucuronides, quercetin-3-*O*- β -glucuronide and quercetin-3-*O*- α -rhamnosyl-(1 \rightarrow 2)- β -glucuronide, and kaempferol-3-*O*- α -rhamnosyl-(1 \rightarrow 2)- β -glucuronide, were isolated from *Polygonum amphibium* L. It was demonstrated that the glucuronides of quercetin are able to induce apoptosis in the tested human leukaemic cells. These compounds penetrate through cytoplasm to the cellular nucleus of the cultured cells, and give intensive apoptotic responses in the stimulated leukaemic cells [3].

References

1. Pavlov N.V. Flora of Kazakhstan. - Alma-Ata: Academy of Sciences of the USSR, 1961, Volume 1, 147 p.
2. State Pharmacopoeia of the Republic of Kazakhstan. Almaty: Publishing House "Silk Joly." - 2008. - Vol.1, 2. - 592 p.
3. H. D. Smolarz, J. Budzianowski, A. Bogucka-Kocka, J. Kocki, E. Mendyk. Flavonoid glucuronides with anti-leukaemic activity from *Polygonum amphibium* L. // Phytochem. Analysis.- Vol. 19, Is. 6, p. 506–513,