GLYCYRRHIZA GLABRA L. O'SIMLIGINING KIMYOVIY TARKIBI VA TIBBIYOTDA QO'LLANILISHI

ХИМИЧЕСКИЙ СОСТАВ РАСТЕНИЯ GLYCYRRHIZA GLABRA L. И ИСПОЛЬЗОВАНИЕ В МЕДИЦИНЕ

CHEMICAL COMPOSITION OF THE PLANT GLYCYRRHIZA GLABRA L. AND MEDICAL USE

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Annotatsiya. *Maqolada Glycyrrhiza glabra L. o'simligining botanik tavsifi, tarqalishi hamda kimyoviy tarkibi yoritib o'tilgan.*

Kalit so'zlar: Glycyrrhiza glabra L, Fabaceae, shirimiya, triterpen saponin, glisterrizin kislota, flavonoid, xalkon, isoflavon, efir moylari va uchuvchan moddalar.

Аннотация. *В статье описано ботанические характеристика, распространение и химический состав растения Glycyrrhiza glabra L.*

Ключевые слова: *Glycyrrhiza glabra L, Fabaceae, солодка, тритерпеновый сапонин, глицерризиновая кислота, флавоноид, халкон, изофлавон, эфирные масла и летучие вещества.*

Annotation. *The article describes the botanical characteristics, distribution and chemical composition of the plant Glycyrrhiza glabra L.*

Key words: *Glycyrrhiza glabra L, Fabaceae, licorice, triterpene saponin, glisterrhizic acid, flavonoid, chalcone, isoflavone, essential oils and volatiles.*

Kirish. Shirinmiya (*Glycyrrhiza glabra* L.)–dukkakdoshlar (*Fabaceae*) oilasiga mansub ko'p yillik o't o'simlik. *Glycyrrhiza glabra* L. foydali dorivor o'simliklardan biridir. *Glycyrrhiza* qadimgi yunoncha *glykos* atamasidan kelib chiqqan bo'lib, *shirin* va *rhiza* atamasi *ildiz* degan ma'noni anglatadi. *Glycyrrhiza glabra* L. Shimoliy Hindistonda *mulaithi* nomi bilan mashhur. *Glycyrrhiza glabra* L., shuningdek, *qizilmiya* va *shirin yog'och* deb ham ataladi, vatani O'rta er dengizi va Osiyoning ayrim hududlari [1].

Dolzarbligi: Hozirgi kunda dori vasitalarini o'rnini bosuvchi tez ta'sir ko'rsatuvchi tabiiy vositalar yaratish dolzarb mavzu hisoblanadi. Bu o'simlikni

tanlaganimiz sababi, Teofrast o’z asarlarida bu o’simlikni *solodkoviy koren, skifskaya trava, pontiyskaya trava* nomi bilan atagan. Uning asosiy ta’siri tomoq og’rig’i, kuchli yo’tal kabi kasalliklariga qarshi zaharsiz kuchli vosita ekanligidadir.

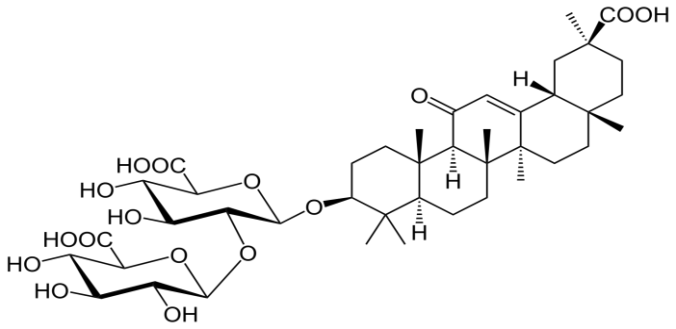
Mazkur o’simlikni rus tilida – *solodka golaya*, o’zbek tilida-*shirinmiya, chuchukmiya, qizilmiya*, Qoraqalpog’iston respublikasida esa *bo’yan* deb atashadi. *Glycyrrhiza glabra* vatani Evroosiyo, Shimoliy Afrika va G'arbiy Osiyo. U Afrikada (Liviya); Osiyo (Armaniston, Ozarbayjon, Gruziya, Rossiya Federatsiyasi, Xitoy, Qozog'iston, Qirg'iziston, Tojikiston, Turkmaniston, O'zbekiston, Mo'g'uliston, Eron, Iroq, Afg'oniston, Falastin,Iordaniya, Livan, Suriya, Turkiya, Hindiston, Pokiston); Evropa va Rossiya Federatsiyasi - Evropa qismida tarqalgan [2]. Respublikamiz hududida shirinmiya tipik to’qay o’simligi hisoblanib, asosan Sirdaryo va Amudaryoning quyi qismlarida uchraydi.

Shirinmiya polikarp o’t o’simlik, poyalari yaxshi rivojlangan bo’lib, silindrsimon tuzilishga ega (1-rasm). Poya yog’ochlangan bo’lib balandligi 150-160sm, ba’zan uning balandligi to’qay sharoitlarda 200 sm va undan ham ortadi. Sho’rlangan tuproq sharoitida bu ko’rsatkichlar 50-70 sm atrofida qayd etiladi.

1-rasm. *Glycyrrhiza glabra* L o’simligini tashqi tuzilishi.

Shirimmiya ildizi triterpen saponinlardan (4–20%), asosan glitserrizin,ya’ni 18β-glisterrizin kislotani kaliyli va kalsiyli tuzlari (o’simlikni yer usti qismi asosan birikmasi bo’lib, glitserrizin kislotasi yoki glitserrizin saqlab, shakarga nisbatan 50 marta shirindir. Shirinmiya ildizi liquiritic kislota, glycyrretol, glabrolide, isoglaborlide va liquorice kislota kabi kislotalarni saqalydi. 18β-glycyrrhizic kislota

(3-O-(2-O-β-d-glucopyranuronosyl–α-dglucopyranurosyl)-3-β-hydroxy-11-oxo-8β,20β-olean-12-en-29-oic acid) Glycyrrhiza glabra *ilsdizi dan ajratib olingandir [3].*



1-jadval

Glycyrrhiza glabra o'simligi uchun fitobirikmalarning sifat analizi

№	Fitobirikmalar	Tajribani o'tkazilishi	Natija
1	Uglevodlar	Molish sinovi	(-)
2	Oqsillar	Mis sulfat sinovi	(-)
3	Flavonoidlar	Qo'rg'oshin asetat sinovi, NaOH eritmasi sinovi	(+)
4	Alkaloidlar	Dragendorf sinovi	(+)
5	Steroidlar	Liberman sinovi	(+)
6	Terpenoidlar	Salkovskiy sinovi	(+)
7	Saponinlar	Ko'pik sinovi	(+)
8	Tanninlar	Temir(III) xlorid sinovi	(+)
9	Flobatanninlar	HCl sinovi	(-)
10	Antraxinonlar	Benzol sinovi	(-)
11	Glikozidlar	Keller-Kiliani sinovi	(+)
12	Fenol birikmalar	Temir sulfat sinovi	(-)

Glycyrrhiza glabra *o'simligidan quidagi f*lavonoid va chalconlar ajartib olingan: liquiritin, liquiritigenin, hamnoliquiritin, neoliquiritin, isoliquiritin, isoliquiritigenin, neoisoliquiritin, licuraside, glabrolide, licoflavonol, 5,8-dihydroxy-flavone-7-O-beta-D-glucuronide, glychionide A va 5-hydroxy-8-methoxylflavone-7-O-beta-D-glucuronide va glychionide B. Flavonoidlar shirinmiyaning sariq rangiga javob beradi (1-jadval).

Glycyrrhiza glabra *o'simligidan quidagi i*soflavonlar ajratib olingan: glabridin, galbrene, glabrone, shinpterocarpin, licoisoflavone A and B, formononetin, glyzarin,

kumatakenin, hispaglabridin A, hispaglabridin B, 4′-O-methylglabridin and 3′-hydroxy-4′-O-methylglabridin, glabroisoflavanone A vad B glabroiso-flavanone B [4].

Glycyrrhiza glabra barglaridan gidrodistillatsiya usuli bilan ajratib olingan efir moylari GC va GC-MS yordamida o'rganilib, quyidagi asosiy uglevodorod va kislorod tutgan birikmalar aniqlangan: isoniazid (13.36%); diethyltoluamide (6.56 %), benzoic kislota (5.37 %), benzene (4.58 %), linalool (2.25 %), prasterone (5.63 %), warfarin (1.43 %), iodoquinol (1.90 %), phenol, 4-(2-aminopropyl) (1.30%). Glycyrrhiza glabra ildizidan ajratib olingan efir moylarida 82 birikma borligi aniqlanib, asosiy birikmalari quyidagilardir: hexanoic kislota (31.57%), hexadecanoic kislota (3.30%), hexanol (1.71%) va octanoic kislota (1.44%). Efir moylarining hidi estragole (methyl chavicol), anethole, eugenol, indole, γ-nonalactone va cumic spirtlarini mavjudligi bilan bog'liqdir [5]. *Misr, Afg'oniston, Suriya, Xitoy va Germaniyada o'suvchi namunalar uchuvchan moddalarning tarkibi va miqdori bilan bir-biridan farq qiladi.*

Glycyrrhiza glabra *o'simligining ildizidan ajratib olingan* uchuvchan moddalari tarkibida quyidagi birikmalar aniqlangan: (E)-2-heptenal, 5-methyl-furfural, (2E, 1E) heptadienol, (E)-2-octen-1-al, o-guaiacol, 2-phenylethanol, (Z)-pinene hydrate, lavandulol, terpinen-4-ol, (E)-linalool oxide, p-cymen-8-ol, α-terpineol, methyl chavicol, (4E)-decenal, decanal, (2E, 4E)-nonadienal, cumin aldehyde, carvone, piperitone, (E)- cinnamaldehyde, (E)-anethole, (2E, 4Z)-decadienal, thymol, indole, carvacrol, (2E, 4Z)-decadienal, p-vinylguaiacol, eugenol, γ-nonalactone, methyl eugenol, β-caryophyllene,β-dihydro-ionone, himachalene epoxide, spathulenol, (1α, 10α)-Epoxy-amorph- 4-ene, β-caryophyllene oxide va humulene epoxide II.

Xulosa. *Glycyrrhiza glabra* L o'simligidan ajratib olingan

- Tabiiy yoki sintetik glikozidlar, ularning tuzlari, oddiy va murakkab efirlari va boshqa hosilalari

– rutin va uning hosilalari

– boshqalar:

– tirnoqgul glikozidlari

– glisirrizin kislotasi va glisirrizinatlar

– boshqalar:

– qizilmiya suvli ekstrakti

– qizilmiya metanolli ekstrakti

– qizilmiya etanolli ekstraktlariga (2- jadval)TIF TN kodlari berildi.

2-jadval

Amalda qo‘llanilayotgan TIF TN kod raqamlari

TIF TN kodlari	Pozitsiyaga izoh
2938	Tabiiy yoki sintetik glikozidlar, ularning tuzlari, oddiy va murakkab efirlari va boshqa hosilalari
2938 10 000 0	– rutin va uning hosilalari
2938 90	– boshqalar:
2938 90 100 0	– tirnoqgul glikozidlari
2938 90 300 0	– glisirrizin kislotasi va glisirrizinatlar
2938 90 900 0	– boshqalar:
2938 90 900 1	– qizilmiya suvli ekstrakti
2938 90 900 2	– qizilmiya metanolli ekstrakti
2938 90 900 3	– qizilmiya etanolli ekstrakti

Foydalanilgan adabiyotlar:

1. J.-M. Mérillon, K.G. Ramawat (eds.), Sweeteners, Reference Series in Phytochemistry, 2018. - pp.112.
2. Ali Esmail Al-Snafi " Glycyrrhiza glabra: A phytochemical and pharmacological
review” IOSR Journal of Pharmacy (IOSRPHR), Vol. 8, №06.2018, pp. 01-17.
3. Isbrucker RA and Burdock GA. Risk and safety assessment on the consumption of Licorice root (Glycyrrhiza sp.), its extract and powder as a food ingredient, with emphasis on the pharmacology and toxicology of glycyrrhizin. Regular Toxicol Pharmacol 2006; 46: 167-192.
4. Li JR, Wang YQ and Deng ZZ. Two new compounds from Glycyrrhiza glabra. J Asian Nat Prod Res 2005; 7: 677–680.
5. Kameoka H and Nakai K. Components of essential oil from the root of Glycyrrhiza glabra. Nippon Nageikagaku Kaishi 1987; 61(9): 1119-1121.
6. Quirós-Sauceda A.E, Ovando-Martínez M, Velderrain-Rodríguez GR, González-Aguilar GA and AyalaZavala JF. Licorice (Glycyrrhiza glabra Linn.)

oils. In: Essential Oils in Food Preservation, Flavor and Safety, Edited by Preedy VR. First Edition 2016; Chapter 60: 523-530.

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