Glycyrrhiza glabra L. 718 Fabaceae

Nomenclatural reference 1217 Govaerts, R. (2022): The World Checklist of Vascular Plants (WCVP). – Royal Botanic Gardens, Kew. Checklist dataset of 2022-12-08. Retrieved from https://sftp.kew.org/pub/data-repositories/WCVP/, viewed 4.3.2023.

Summary

Intrinsic Traits

Distribution	Glycyrrhiza glabra is native to central and southwestern Asia and to the central and eastern Mediterranean region. It is introduced and established elsewhere, e.g. in the Mediterranean region. Widely cultivated in many countries around the world, often escaped from cultivation and then naturalised.
Abundance	No data found, but has potential to become invasive forming large stands. Therefore it is inferred that populations are often large and spread homogenously.
Habitat	Dry open places in steppes and semi-deserts; also on banks along rivers and near the sea; not very habitat specific.
Regeneration	The plant develops a taproot and an extensive root system with stolons of several meters in length. Once established, it can be difficult to eradicate; it is considered a weed in some parts of its present distribution.
Reproduction	Hermaphrodite flowers, pollinated by insects.
Plant Parts	The rhizomes and roots are used.
Lifeform	Perennial shrub of up to 2m height.
Systematics	The genus Glycyrrhiza comprises 36 species of mostly Eurasian distribution, five of them occur in Europe.

Extrinsic Traits

Threat Status	Assessed globally by IUCN as Least Concern. Assessed nationally as Endangered in Bulgaria (2015), as Critically Endangered in Romania (2009) and in Serbia (1999), also as Least Concern in Armenia, China, and Tajikistan and as Lower Risk in Iran.
Threats	Apart from uncontrolled and destructive harvesting from the wild, the intensification of agriculture, changes in river hydrological regimes, and also desertification processes cause local declines in parts of its range, e.g. Kazakhstan..
Purpose	The roots contain glycyrrhizin, which is 50 times sweeter than cane sugar. Licorice is traditionally used in medicine but has also a range of industrial uses for flavouring beverages. The dried rhizomes and roots are used to flavour candy, chocolate, ice cream, root beer, and tobacco. Plant extracts are also used in cosmetic ingredients. Extracts from the root are also used as foaming agents for fire extinguishers and in beer-making.
Use Fields	15 competing uses are reported [The underlying reference of use types distinguishes a total of 27 use categories. The average number of use types based on 137 well-studied species is 7].
Trade Trend	In 2021, main importing countries were United States (83,820 mT; 13.81% share), Germany (74,500 mt; 12.05%), and Japan (29,410 mt; 7.62%). Import values and import prices in these countries have remained fairly stable in the years 2012-2019. The biggest trade flows are from China to Japan (5.8% share), and from India to United States (3.39%). It is cultivated in ca. 30 countries but a major part of the supply is coming still from wild populations.
Legislation	The species is not protected by CITES. In China, the collection of wild Glycyrrhiza plants has been restricted by the Chinese government. Collection and export also regulated to some extent in Kazakhstan.

Taxonomy and Identification

Taxonomy	*Reference*
Genus: 36 Euras. (Eur. 5) with few in Aus., N Am. & temp. S Am.	3753 Mabberley, D.J. (2017): The plant-book. 4th e

Spanish or Greek licorice is obtained from var. glabra, Russian or Anatolian licorice from var. glandulifera (Waldst. & Kit.) Herd. & Regel and Persian or Turkish licorice from var. violacea (Boiss.) Boiss.	1122	Mansfeld's World Database of Agricultural and
"Glycyrrhiza plants collected in Kazakhstan could be divided into three groups: G. uralensis-type, G. glabra-type and the intermediate-type, by comparison of their morphological characteristics and HPLC profiles of their underground parts and leaves. […] These results suggest that the intermediate plants are hybrids of G. uralensis and G. glabra, which form a mixed population in this region, although further studies are necessary to confirm this hypothesis."	8696	Hiroaki Hayashi, Sayaka Hattori, Kenichiro Inc
"Its scientific name is taken from the Greek for sweet root (glykys, meaning sweet, and rhiza, meaning root)."	1192	Plants of the World Online (POWO). Royal Bo
"Botanically, [G. glabra and G. uralensis] can be told apart by the appearance of their fruit, the shape of their leaves and the size of their flowers, although their main difference is in their seed pods. Those of G. uralensis are rectangular, strongly crescent-shaped, and with thick glandular spines, while those of G. glabra are rectangular, straight or slightly curved, and bare or with sparse glandular spines."	3906	Gemedzhieva, N., Khrokov, A., Heral., E. & Ti

Synonyms

Synonym	Eval	Ref	
Glycyrrhiza glabra subsp. glandulifera (Waldst. & Kit.) Ponert		1217	Govaerts, R. (2022): The World Checklist of Vascular Plants (WCVP). –

Taxon Present in Pharmacopoeias and other References

Name as used in Source	Status	Reference	
Glycyrrhiza glabra L.		2156	FRLHT - Indian Medicinal Plants Database - http://www.medicinalplants.in/
Glycyrrhiza glabra L.		3586	Zhonghua Bencao Editorial Committee, Chinese State Administration of TCM (ed.) (1998): Zhonghua Bencao (Materia Medica of China), Vol. 1-10. Shanghai Scientific and Technical Press, Shanghai. Retrieved from http://www.zysj.com.cn/zhongyaocai/zhonghuabenca
Glycyrrhiza gabra L. var. glandulifera (Waldst. & Kit.) Boiss.		5253	Özhatay, N., Koyuncu, M., Atay, S. & Byfield, A.J. (1997): The wild medicinal plant trade in Turkey. Dogal Hayati Koruma Dernegi, Istanbul.
Glycyrrhiza glabra		3751	van Wyk, B.-E. & Wink, M. (2017): Medicinal plants of the world. 2nd edition. CABI, Wallingford & Boston.
Glycyrrhiza glabra		5641	Lange, D. (1998): Europe's medicinal and aromatic plants. Their use, trade and conservation. Traffic International, Cambridge.
Glycyrrhiza glabra		8394	Therapeutic Goods Administration (ed.) (2007): Substances that may be used in listed medicines in Australia. Therapeutic Goods Administration, Symonston. Retrieved from http://www.tga.gov.au/cm/listsubs.pdf, viewed: 25.01.2009.
Glycyrrhiza glabra L.		1101	Hänsel, R. & al. (1992-1998): Hagers Handbuch der pharmazeutischen Praxis. 5. Auflage.5 volumes [4179, 4180, 4181, 6097, 6098]
Glycyrrhiza glabra L.		1180	GRIN (17.3.2015): Download World Economic Plants report from GRIN Taxonomy for the query. Medizin = 'Alle Nutzungen'. Retrieved from http://www.ars-grin.gov/cgi-bin/npgs/html/taxecon.pl?language=de
Glycyrrhiza glabra L.		1236	United States Pharmacopeial Convention (2024): Dietary Supplements Compendium (DSC). https://www.usp.org/products/dietary-supplements-compendium
Glycyrrhiza glabra L.		1244	United States Pharmacopeial Convention (2024): National Formulary (NF). https://www.uspnf.com/
Glycyrrhiza glabra L.		1246	United States Pharmacopeial Convention (2024): United States Pharmacopeia (USP). https://www.uspnf.com/
Glycyrrhiza glabra L.		2095	Iwu, M.M. (1993): Handbook of African medicinal plants. CRC Press, Boca Raton.
Glycyrrhiza glabra L.		2302	Native American Ethnobotany Database - http://naeb.brit.org/
Glycyrrhiza glabra L.		3091	National Pharmacopoeia Commission (ed.) (2020): Zhōnghuá rénmín gònghéguó yàodiǎn. 2020 Niánbǎn. Yī bù [Pharmacopoeia of the People's Republic of China. 2020 edition. Volume 1; in Chinese]. China Medical Science and Technology Press, Beijing.
Glycyrrhiza glabra L.		3145	Brinckmann, J.A., Kathe, W., Berkhoudt, K, Harter, D.E.V. & Schippmann, U. (2022): A new global estimation of medicinal and aromatic plant species in commercial cultivation and their conservation status. Economic Botany 22(10): 1-15.
Glycyrrhiza glabra L.		3221	Goraya, G.S. & Ved, D.K. (2017): Medicinal plants in India. An assessment of their demand and supply. National Medicinal Plants Board & Indian Council of Forestry Research & Education, New Delhi & Dehradun. Retrieved from http://www.rcfceast.org/wp-conten
Glycyrrhiza glabra L.		3439	Shih-Chung Chen (ed.) (2019): Taiwan Herbal Pharmacopoeia. 3rd edition. English version. Ministry Health and Welfare, Taipei. Retrieved from https://www.mohw.gov.tw/lp-3690-2.html, viewed: 28.04.2020.
Glycyrrhiza glabra L.		3451	United States Pharmacopeial Convention (2020): The United States Pharmacopeia USP 43. The National Formulary 38. 2020. United States Pharmacopeial Convention, Rockwell, MD.

Glycyrrhiza glabra L.	3466	Agência Nacional de Vigilância Sanitária (2019): Farmacopeia Brasileira. 6ª edição. Volume II. Monografias. Plantas Medicinais. Retrieved from https://www.academia.edu/40384927/FARMACOPEIA_BRASILEIRA_Ag%C3%AAncia_Nacional_de_Vigil%C3%A2ncia_Sanit%C3%A1ria
Glycyrrhiza glabra L.	3561	Quattrocchi, U. (2012): World dictionary of medicinal and poisonous plants. Common names, scientific names, eponyms, synonyms, and etymology. CRC Press, Boca Raton.
Glycyrrhiza glabra L.	3800	Committee on Japanese Pharmacopoeia (2016-2019): The Japanese Pharmacopoeia. 17th edition, incl. Supplements I and II. English version. Ministry of Health, Labour and Welfare, sine loco. Retrieved from https://www.pmda.go.jp/english/rs-sb-std/standards-de
Glycyrrhiza glabra L.	5473	Moerman, D.E. (1998): Native American ethnobotany. Timber Press, Portland.
Glycyrrhiza glabra L.	5806	Anon. (1999): WHO monographs on selected medicinal plants 1. WHO, Geneva.
Glycyrrhiza glabra L.	6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. & Tucker, A.O. (2000): Herbs of commerce. 2nd edition. AHPA, Silver Spring, USA.
Glycyrrhiza glabra L.	6796	Arnold, T.H., Prentice, C.A., Hawker, L.C., Snyman, E.E., Tomalin, M., Crouch, N.R. & Pottas-Bircher, C. (2002): Medicinal and magical plants of southern Africa. An annotated checklist. Strelitzia 13: 1-203.
Glycyrrhiza glabra L.	7279	van Wyk, B.-E. & Wink, M. (2004): Medicinal plants of the world. Timber Press, Portland.
Glycyrrhiza glabra L.	8372	Nguyen Dao Ngoc Van & Nguyen Tap (ed.) (2008): An overview of the use of plants and animals in traditional medicine systems in Viet Nam. TRAFFIC Southeast Asia, Greater Mekong Programme, Ha Noi, Viet Nam. Retrieved from http://www.traffic.org/medicinal-re
Glycyrrhiza glabra L.	8374	China Pharmacopoeia Commission (ed.) (2005): Pharmacopoeia of the People's Republic of China 2005. 3 volumes. People's Medical Publishing House, Beijing.
Glycyrrhiza glabra L.	8375	Medicines and Healthcare Products Regulatory Agency (2008): British Pharmacopoeia 2009. 4 volumes. Stationery Office, London.
Glycyrrhiza glabra L.	8380	European Directorate for the Quality of Medicines & Health Care (EDQM) (ed.) (2007-2009): European Pharmacopoeia. 6th edition. 2 volumes and 8 supplements. Council of Europe, Strasbourg.
Glycyrrhiza glabra L.	8396	International Organization for Standardization (s.dat.): ISO Catalogue. Retrieved from http://www.iso.org/iso/iso_catalogue.htm, viewed: 22.01.2009.
Glycyrrhiza glabra L.	8418	Brandão, M.G.L., Cosenza, G.P., Assis Moreira, R. & Monte-Mor, R.L.M. (2006): Medicinal plants and other botanical products from the Brazilian Official Pharmacopoeia. Revista Brasileira de Farmacognosia 16 (3): 408-420.
Glycyrrhiza glabra L.	8429	Fleurentin, J. & Pelt, J.-M. (1982): Repertory of drugs and medicinal plants of Yemen. Journal of Ethnopharmacology 6: 85-108.
Glycyrrhiza glabra L.	8431	Said, O., Khalil, K., Fulder, S. & Azaizeh, H. (2002): Ethnopharmacological survey of medicinal herbs in Israel, the Golan Heights and the West Bank region. Journal of Ethnopharmacology 83 (3): 251-265.
Glycyrrhiza glabra L.	8432	Al-Qura'n, S. (2009): Ethnopharmacological survey of wild medicinal plants in Showbak, Jordan. Journal of Ethnopharmacology 123: 45-50.
Glycyrrhiza glabra L.	8450	Homoeopathic Pharmacopoeia of the United States (s.dat.): HPUS Online Database. Retrieved from http://www.hpus.com, viewed: 26.10.2009.
Glycyrrhiza glabra L.	8547	Ved, D.K. & Goraya, G.S. (2008): Demand and supply of medicinal plants in India. FRLHT, Bangalore.
Glycyrrhiza glabra L.	8871	China Pharmacopoeia Commission (ed.) (2010): Pharmacopoeia of the People's Republic of China. English edition. Ed. 9. Stationery Office Books, s.loc.
Glycyrrhiza glabra L.	8874	Anon. (s.dat. [2008]): Siddha Pharmacopoeia of India. Vol. 1. Ministry of Health and Family Welfare, sine loco. Retrieved from http://www.comsys.com.sg/pdf/Siddha_Herbs.pdf, viewed: 14.05.2012.
Glycyrrhiza glabra L.	8875	European Directorate for the Quality of Medicines & Health Care (EDQM) (2012): European Pharmacopoeia. Pharmacopée Européenne. 7.8 edition. USB stick version. Council of Europe, Strasbourg.
Glycyrrhiza glabra L.	8876	United States Pharmacopeial Convention (2013): The United States Pharmacopeia USP 37. The National Formulary 32. 2014. United States Pharmacopeial Convention, Rockwell, MD.
Glycyrrhiza glabra L.	8913	Anon. (s.dat.): Farmacopea Argentina, edition 8, 4 volumes. Ministerio de Salud, sine loco. Retrieved from http://www.anmat.gov.ar/webanmat/fna/octava_edicion/Primer_Volumen.pdf, viewed: 09.09.2012.
Glycyrrhiza glabra L.	9445	Eisenman, S.W., Zaurov, D.E. & Struwe, L. (ed.) (2013): Medicinal Plants of Central Asia. Uzbekistan and Kyrgyzstan. Springer, New York.
Glycyrrhiza glabra L.	9876	Anon. (2012): Korean Pharmacopoeia. 10th edition. Minstry for Food and Drug Safety, sine loco. Retrieved from https://www.mfds.go.kr/eng/brd/m_18/view.do?seq=70483&srchFr=&srchTo=&srchWord=&srchTp=&itm_seq_1=0&itm_seq_2=0&multi_itm_seq=0&company_cd=&compa

Glycyrrhiza glabra L. var. glabra	5253	Özhatay, N., Koyuncu, M., Atay, S. & Byfield, A.J. (1997): The wild medicinal plant trade in Turkey. Dogal Hayati Koruma Dernegi, Istanbul.
Glycyrrhiza glabra Linn.	8388	Anon. (1999-2011): The Ayurvedic Pharmacopoeia of India. Part I, Vol. I-VII, 1st edition. Government of India, Ministry of Health and Family Welfare, . Retrieved from http://www.ayurveda.hu/api.html, viewed: 14.05.2012.
Glycyrrhiza glabra Linn.	8390	Anon. (2007-2008): The Unani Pharmacopoeia of India. Vols. 1-5. Government of India, Ministry of Health and Family Welfare, New Delhi.
Glycyrrhiza glabra Linne	8379	United States Pharmacopeial Convention (ed.) (2008): The United States Pharmacopeia USP 32. The national formulary NF 27. 2009. 3 volumes. United States Pharmacopeial Convention, Rockwell, MD.
Glycyrrhiza glabra Linné	8382	Committee of the Japanese Pharmacopoeia (ed.) (2006): The Japanese Pharmacopoeia. 15th edition English version. Ministry of Health Labour and Welfare, Tokyo. Retrieved from http://jpdb.nihs.go.jp/jp15e/JP15.pdf.
Glycyrrhiza glabra Linné	8869	Anon. (2007): Korean Pharmacopoeia. 9th edition. Korea Food and Drug Administration, sine loco. Retrieved from http://eng.kfda.go.kr/board/board_view.php?av_seq=23&av_pg=1&board_id=ENG_RULE&textfield=&keyfield=, viewed: 06.08.2015.
Glycyrrhiza glabra Linné	8870	Anon. (2012): The Japanese Pharmacopoeia. 16th edition. English edition. sine loco. Retrieved from http://www.pmda.go.jp/english/pharmacopoeia/pdf/jpdata/JP16eng.pdf, viewed: 07.05.2012.
Glycyrrhiza glabra var. calabria	3145	Brinckmann, J.A., Kathe, W., Berkhoudt, K, Harter, D.E.V. & Schippmann, U. (2022): A new global estimation of medicinal and aromatic plant species in commercial cultivation and their conservation status. Economic Botany 22(10): 1-15.

Common Names

Common Name	Typ	Language	Country	Ref	
alcaçuz				1180	GRIN (17.3.2015): Download World Econo
Fen zao	ver	Chinese		1122	Mansfeld's World Database of Agricultural
lakritsrot	ver	Swedish		1180	GRIN (17.3.2015): Download World Econo
Lakritze	ver	German		1180	
Lakritzenstaude	ver	German		1122	Mansfeld's World Database of Agricultural
licorice	scn			6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. &
licorice-root	ver	English		1180	GRIN (17.3.2015): Download World Econo
liquirizia	ver	Italian		1180	
Liquorice	ver	English		1122	Mansfeld's World Database of Agricultural
orozuz	ver	Spanish		1180	GRIN (17.3.2015): Download World Econo
pau-doce	ver	Portuguese		1180	
Radix Liquiritiae	pha	Latin		1132	Hegi, Illustrierte Fora von Mitteleuropa
regaliz	ver	Spanish		1180	GRIN (17.3.2015): Download World Econo
Réglisse	ver	French		1122	Mansfeld's World Database of Agricultural
Süßholz	ver	German		1122	

Distribution Range

Distribution Range	Ref	
"[...] geographic range spans from Italy to Western Siberia and Mongolia, and south to Saudi Arabia and Pakistan. The species is also present across north Africa, but the origin of the species here is uncertain. In Europe, its natural distribution is predominantly in the southeast [...], from southern France (where its origin is uncertain) through Italy to the Balkans, Ukraine and European parts of Russia. However, it should be noted that it is difficult to accurately determine the native range as it has been widely cultivated as a crop plant, particularly in Russia, Spain and the Middle East."	3968	Plummer, J. & Chadburn, H. (2021): Glycyrr
"Ab(A N) AE(G) Al Ar Bu Cy Gg(G) Gr Ir It Jo Ju Le Mo Rf(C CS E S) Rm Sa Si(S) Sy Tu(A) Uk(K U) [Ag Au(A) Cr Cz Eg He Hu Lu]"	1147	Euro+Med PlantBase - http://ww2.bgbm.org/
"Afghanistan (native); Albania (native); Algeria (introduced); Armenia (native); Australia (introduced); Austria (introduced); Azerbaijan (native); Bulgaria (native); China (native); Cyprus (native); Czechoslovakia (introduced); East Aegean Is(Greek) (native); Egypt (introduced); France (uncertain); Greece (native); Gruzia (native); Hungary (introduced); India (introduced); Iran (native); Iraq (native); Israel (native); Italy (native); Jordan (native); Kazakhstan (native); Kirgizstan (native); Kriti (introduced); Lebanon (native); Libya (native); Maldives (native); Moldova (native); Mongolia (native); Pakistan (native); Portugal (introduced); Romania (native); Russia in Asia (native); Russia in Europe (native); Sardegna (native); Sicilia (native); Spain (uncertain); Switzerland (introduced); Syria (native); Tadzhikistan (native); Turkey in Asia (native); Turkmenistan (native); Ukraine (native); United States (introduced); Uzbekistan (native); Yugoslavia (native)"	8601	Bisby, F.A., Roskov, Y.R., Orrell, T.M., Nicol
"Afghanistan, Albania, Armenia, Australia, Austria, Azerbaijan, Bolivia, China, Czech Republic, Ecuador, France, Georgia, Germany, Greece, Hungary, India, Iran, Israel, Italy, Kazakhstan, Kyrgyzstan, Lebanon, New Zealand, Pakistan, Poland, Russian Federation, Serbia, Spain, Sweden, Tajikistan, Turkmenistan, Ukraine, United States, Uzbekistan"	1121	GBIF - Global Biodiversity Information Facilit
"Europe, Caucasus, Central Asia, West Siberia"	8746	Afonin, A.N., Greene, S.L., Dzyubenko, N.I.

"Medit. to C.As."	8359	Mabberley, D.J. (2008): The plant-book. 3rd
"N. Afr.; Asia-Temp.; Ind. Subcont.; E. Eur., S.E. Eur., S.W. Eur.; widely cult."	1180	GRIN (17.3.2015): Download World Econom
"Native to: Afghanistan, Albania, Bulgaria, Central European Rus, China North-Central, Cyprus, East Aegean Is., East European Russia, Greece, Iran, Iraq, Italy, Kazakhstan, Kirgizstan, Krym, Lebanon-Syria, Mongolia, North Caucasus, Pakistan, Palestine, Romania, Sardegna, Saudi Arabia, Sicilia, South European Russi, Tadzhikistan, Transcaucasus, Turkey, Turkmenistan, Ukraine, Uzbekistan, West Siberia, Xinjiang, Yugoslavia. Introduced into: Algeria, Austria, Bangladesh, Cape Provinces, Czechoslovakia, Egypt, France, Hungary, Maldives, New South Wales, Portugal, South Australia, Spain, Switzerland, Victoria"	1192	Plants of the World Online (POWO). Royal B
"Native: AFRICA: Libya; ASIA-TEMPERATE: Afghanistan; Cyprus; Iran; Iraq; Israel; Jordan; Lebanon; Syria; Turkey; Armenia; Azerbaijan; Georgia; Russian Federation, Dagestan; Kazakhstan; Kyrgyzstan; Tajikistan; Turkmenistan; Uzbekistan; Mongolia; China; ASIA-TROPICAL: India; Pakistan; EUROPE: Moldova; Ukraine; Albania; Bulgaria; Former Yugoslavia; Greece [incl. Crete]; Italy [incl. Sardinia, Sicily]; Romania; France; Cultivated: widely cultivated"	1100	GRIN Database (Germplasm Resources Info
"Wirklich einheimisch wohl nur im östlichen Mittelmeergebiet, nördlich bis Mittelitalien, Dalmatien, Ungarn, bis zur Ukraine, Mittelrussland und zum Kaukasus, in Asien in Kleinasien, Persien, Babylonien, Turkestan, Afghanistan und der Dsungarei. In Istrien, Oberitalien [...], Südfrankreich, Spanien und Nordwestafrika wahrscheinlich nur aus der Kultur verwildert, aber stellenweise völlig eingebürgert."	1132	Hegi, Illustrierte Fora von Mitteleuropa
"A widespread species, it is considered native to north Africa, many parts of the Middle East and eastwards to Russia, Mongolia, China and south to Pakistan and India. In Europe it occurs mainly in the southeast [...] from southern France (origin uncertain) through Italy to the Balkans, Ukraine and European parts of Russia. Although it is difficult to accurately determine the native range as it has been widely cultivated."	3496	Chadburn, H. (2014): Glycyrrhiza glabra. Th
CN: "Xinjiang [Afghanistan, India, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Rus-sia, Tajikistan, Turkmenistan, Uzbekistan; N Africa, SW Asia, E and S Europe, Indian Ocean islands (Maldives); introduced in Australia, C Europe, and North America]"	1117	eFloras. Flora of China. http://www.efloras.or
Südosteuropäisch-ostasiatische Pflanze. Südosteuropa (westwärts bis Mittelitalien; nordwärts bis Dalmatien, Donaubecken, Mittelrußland); Westasien (ostwärts bis Afghanistan); heute im ganzen Mittelmeergebiet eingebürgert.	8701	Heß, H.E., Landolt, E. & Hirzel, R. (1972-197

Distribution

Continent	*Region*	*ICC*	*Status*	*Free Text*	*Ref*
1 Europe	11 Middle Europe	AT	introduced (casual or naturalized)		1147
		AT	introd., established		1192
		AT	introd., established		8601
		CH	introduced (casual or naturalized)		1147
		CH	introd., established		1192
		CH	introd., established		8601
		CS	introduced (casual or naturalized)		1147
		CS	introd., established		1192
		CS	introd., established		8601
		HU	introduced (casual or naturalized)		1147
		HU	introd., established		1192
		HU	introd., established		8601
	12 Southwestern Europe	ES	introd., established		1192
		FR	introd., established		1192
		PT	introd., established		1192
	13 Southeastern Europe	AL	native		1147
		AL	native		1192
		AL	native		8601
		BG	native		1147
		BG	native		1192
		BG	native		8601
		GR	native		1192
		IT	native	Sardinia, Sicily	1147
		IT	native		1192
		IT	native	Sardegna, Sicilia	8601
		RO	native		1147
		RO	native		1192
		RO	native		8601
		YY	native		1147

				YY	native			1192
				YY	native			8601
		14	Eastern Europe	MD	native			1147
				MD	native			8601
				UA	native			1147
				UA	native			1192
				UA	native			8601
2	Africa	20	Northern Africa	DZ	introduced (casual or naturalized)			1147
				DZ	introd., established			1192
				EG	introduced (casual or naturalized)			1147
				EG	introd., established			1192
				EG	introd., established			8601
				LY	native			8601
		21	Macaronesia	PT	introduced (casual or naturalized)			1147
		27	Southern Africa	ZA	introd., established	Cape Provinces		1192
3	Asia-Temporate	32	Middle Asia	KG	native			1192
				KG	native			8601
				KZ	native			1192
				KZ	native	"found in western (Ural and Bolshoi valleys, Maliy Uzen, Kushum, and Ilek rivers), southern (Syrdarya floodplain), south-eastern (Shu and Ili river valleys) Kazakhstan"		3906
				KZ	native			8601
				TJ	native			1192
				TM	native			1192
				TM	native			8601
				UZ	native			1192
				UZ	native			8601
		33	Caucasus	AM	native			1147
				AM	native			8601
				AZ	native			8601
				GE	native			1147
				GE	native			8601
				RU	native			1192
				RU	native			8601
		34	Western Asia	AF	native			1192
				AF	native			8601
				CY	native			1147
				CY	native			1192
				CY	native			8601
				IL	native			8601
				IQ	native			1192
				IQ	native			8601
				IR	native			1147
				IR	native			1192
				IR	native			8601
				JO	native			1147
				JO	native			8601
				LB	native			1147
				LB	native			1192
				LB	native			8601
				PS	native			1192
				SY	native			1147
				SY	native			1192
				SY	native			8601
				TR	native			1147
				TR	native			1192
				TR	native			8601
		35	Arabian Peninsula	SA	native			1192
		36	China	CN	native	North-Central; Xinjiang		1192
				CN	native			8601
				CN	native	Xinjiang Uygur Autonomous region; this province also home of G. inflata and G. uralensis		8697

		37	Mongolia	MN	native			1192
				MN	native			8601
4	Asia-Tropical	40	Indian Subcontinent	BD	introd., established			1192
				IN	introd., established			8601
				PK	native			1192
				PK	native			8601
		43	Papuasia	MV	introd., established			1192
5	Australasia	50	Australia	AU	introd., established	New South Wales, Victoria		1192
				AU	introd., established			8601
7	Northern America	76	Southwestern U.S.A.	US	introd., established	California, Nevada, Utah		1107
		78	Southeastern U.S.A.	US	introd., established			8601

Abundance / Local Population Size

ICC	Abundance	Reference	
	"Difficult to eradicate once it is established."	1123	Plants for a Future - www.pfaf.
	"infolge seiner Bodenausläufer auch als schwer ausrottbares Unkraut"	1132	Hegi, Illustrierte Fora von Mittel
	"can become a weed"	1113	Ecocrop. FAO. - http://ecocrop.
	"can be invasive"	1111	Ecoport. FAO. - https://gaez.fa
RU	"In Central Asia as a weed in crops"	8746	Afonin, A.N., Greene, S.L., Dz
SU	"In central Asia it is a noxious weed in cotton and other cultivated plants"	8699	Komarov, V.L., Shishkin, B.K.

Ecology

TypeEc	ICC	Ecology	Ref	
alti		5-1500m	9774	Allen, D., Bilz, M., Leaman, D.J.
alti	CN	500-1300m	1117	eFloras. Flora of China. http://w
alti	ES	0-1200m	1157	Flora Vascular de Andalucía Oc
alti	SU	"Extends in mountains up to 1800m"	8699	Komarov, V.L., Shishkin, B.K. &
alti	TR	0-1800m	8698	Davis, P.H. (ed.) (1970): Flora o
habit		"An ausgesprochen trockenen Stellen, in trockenen Gebüschen oder zwischen Zwergsträuchern, allg. auf Sand- und Lehmböden, auch [...] an Flussufern"	1101	Hänsel, R. & al. (1992-1998): Ha
habit		"Dry open places, especially in sandy places near the sea"	1123	Plants for a Future - www.pfaf.o
habit		"grows in open areas in woods, scrubland, steppes, semideserts and desert oases, damp ditches, along streams, along farm margins and roadsides, in saline areas, in sandy places near the sea"	3968	Plummer, J. & Chadburn, H. (20
habit	AF	"growing in open fields close to running water"	9657	Tawab Stanikzai, M. (2007): Ma
habit	CN	"Margins of farms, roadsides, saline areas"	1117	eFloras. Flora of China. http://w
habit	ES	"Herbazales de vegas y márgenes de arroyos, frecuentemente en zonas nitrificadas"	1157	Flora Vascular de Andalucía Oc
habit	KZ	"in steppes, semi-deserts and deserts"	3906	Gemedzhieva, N., Khrokov, A.,
habit	RU	"In steppes and semideserts, solonetz meadows, ravines, by roadsides, on banks of canals and trenches"	8700	Fedorov, A.A. (ed.) (2002): Flora
habit	RU	"In steppes on sandy and subsaline sites, in semideserts and deserts in oases"	8746	Afonin, A.N., Greene, S.L., Dzyu
habit	SU	"Steppes, semideserts, desert oases"	8699	Komarov, V.L., Shishkin, B.K. &
regen		"The plant develops a taproot and an extensive root system, the stolons from one plant may extend as much as 7 m in all directions."	1113	Ecocrop. FAO. - http://ecocrop.f
repro		"Flowers are hermaphrodite [...] and are pollinated by insects"	1123	Plants for a Future - www.pfaf.o

Life Form

LF_Standard	Duration	Lifeform	Woodiness	Height	Ref	
shrub					3221	Goraya, G.S. & Ved, D.K. (201
	perennial			40-70cm	8746	Afonin, A.N., Greene, S.L., Dz
	perennial			30-60cm	8698	Davis, P.H. (ed.) (1970): Flora
	perennial			50-80(-150)cm	8699	Komarov, V.L., Shishkin, B.K.
	perennial			120-180cm	8701	Heß, H.E., Landolt, E. & Hirzel,
	perennial			up to 120cm	1123	Plants for a Future - www.pfaf.
perennial herb	perennial			up to 150cm	3968	Plummer, J. & Chadburn, H. (2
perennial herb	perennial			30-80(-159)cm	3906	Gemedzhieva, N., Khrokov, A.,
shrub	perennial	shrub		50-200cm	1113	Ecocrop. FAO. - http://ecocrop.

Threat Situation

ICC	PopulationStatus	Ref	
	"Much of the material used in commerce is harvested from wild plants, and the species is reported to be threatened in multiple countries across its range as a result of this overexploitation. [...] It should be noted that overexploitation of the species for use in food and medicine has been reported in multiple countries; however, it is not thought that this threat is likely to affect the conservation status of the species in the near future, and no further specific threats to the species have been identified."	3968	Plummer, J. & Chadburn, H. (2

	"over-collection from the wild and intensification of agriculture is inferred to be contributing to local declines. For example, in Bulgaria the species has been assessed as Endangered on a national Red List on account of a small, restricted and declining population [...]. In Pakistan and Azerbaijan, the species was formerly considered common in the wild, but is increasingly rare as a result of overexploitation [...]. Despite this, across its wider range, it is suspected that the population trend is fairly stable."	3968	
	"over-collection from the wild and intensification of agriculture may cause local declines"	3496	Chadburn, H. (2014): Glycyrrhi
	Europe: "Decreasing"	9774	Allen, D., Bilz, M., Leaman, D.
CN	risk of desertification	8697	Yamamoto, Y. & Tani, T. (2006
KZ	[G.glabra & G.uralensis] "By 1970, the largest liquorice populations had been identified in the valleys of Kazakhstan's biggest rivers: the Ural, Syrdarya, Ili, Irtysh, Chu, and Karatal and in several regions: West Kazakhstan (now known as the Ural region), Kyzylordy, South Kazakhstan. Estimated stocks of dry liquorice root in Kazakhstan amounted to 175,200 tonnes in an area of 50,200 ha […]. Stocks of liquorice root during the 20-year Soviet rule decreased by almost half and amounted to 78,100 tonnes in an area of 32,500 ha. The period was associated with intensive economic activities of construction of irrigation facilities, ploughing of liquorice meadows for grain and vegetable crops, and intensive livestock raising. In addition, intensive and destructive harvesting of liquorice took place […].After the collapse of the former Soviet Union (USSR), agricultural lands were not used, livestock farming decreased, the demand for liquorice dropped, and liquorice factories in the cities of Uralsk and Chardzhou closed. Consequently, liquorice stands began regenerating, and in some parts of Kyzylordy and South Kazakhstan (now Turkistan), estimated reserves even exceeded their 1970 levels. […] According to data presented […] in 2017 […], reserves of liquorice root in 21 districts within four (out of five key areas) regions of Kazakhstan totalled 120,700 tonnes in a total area of 17,722.9 ha."	3906	Gemedzhieva, N., Khrokov, A.,
KZ	[G.glabra & G.uralensis] "Uncontrolled and destructive harvesting of liquorice root in Kyzylordy, South Kazakhstan (now Turkistan), Zhambyl, West Kazakhstan, and Almaty, for export of raw materials are also current threats to the species. In recent decades, this has been exacerbated by global desertification processes, changes in river hydrological regimes during the construction of dams and other facilities and the ploughing of liquorice stands for agricultural crops."	3906	

Threat Status: Global and Supranational

Glo	Threat Category		Criteria	Ass.	Publ.	Ref	
glo	LC	Least Concern		2020	2023	1223	2023 IUCN Red List of Threatened Species. Version 2023-1. www.iucnredlist.org. Download of plant data received from IUCN website 16.12.2023.
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Name used in redlist: Glycyrrhiza glabra L.
glo	LC	Least Concern		2020	2021	3968	Plummer, J. & Chadburn, H. (2021): Glycyrrhiza glabra. The IUCN Red List of Threatened Species 2021. e.T203353A88313725. Retrieved from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T203353A88313725.en, viewed:
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Name used in redlist: Glycyrrhiza glabra L.
Eur	LC	Least Concern			2014	9774	Allen, D., Bilz, M., Leaman, D.J., Miller, R.M., Timoshyna, A.& Window, J. (2014): European red list of medicinal plants. Publications Office of the European Union, Luxembourg.
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Name used in redlist: Glycyrrhiza glabra L.

Threat Status: Countries

ICC	Region	Threat Category		Assd.	Publ.	Ref	
AM		LC	Least Concern		2012	3236	Tamanyan, K., Fayush, G., Nanagyulyan & Danielya
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Accepted Name: Glycyrrhiza glabra L.
BG		EN	Endangered		2015	3235	Peev, D., Petrova, A.S., Anchev, M., Temniskova, D.
			Name used in redlist: Glycyrrhiza glabra	Accepted			Accepted Name: Glycyrrhiza glabra L.
BG		R	Rare		1997	1109	UNEP-WCMC Threatened Species Database. Downl
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Accepted Name: Glycyrrhiza glabra L.
CH		DD	Data Deficient		2002	8119	Moser, D.M., Gygax, A. & Bäumler, B. (2002): Rote L
			Name used in redlist:				Accepted Name:
CN		LC	Least Concern – 无危		2013	3319	Chinese Academy of Sciences (2013): Chinese biodi
			Name used in redlist: Glycyrrhiza glabra	Accepted			Accepted Name: Glycyrrhiza glabra L.
IR		LR	Lower Risk		1999	5977	Jalili, A. & Jamzad, Z. (ed.) (1999): Red data book of
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Accepted Name: Glycyrrhiza glabra L.
RO		CR	Critically Endangered – Critic periclitata		2009	8949	Dihoru, G. & Negrean, G. (2009): Cartea Rosie a pla
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Accepted Name: Glycyrrhiza glabra L.
RO		I	Indeterminate		1994	5362	Dihoru, G.H. & Dihoru, A. (1994): Plante rare, periclit
			Name used in redlist: Glycyrrhiza glabra L.	Accepted			Accepted Name: Glycyrrhiza glabra L.
RS		CR	Critically Endangered		1999	6374	Stevanovic, V. (ed.) (1999): Crvena Knjiga Flore Srbij
			Name used in redlist: Glycyrrhiza glandulifera	Synonym			Accepted Name: Glycyrrhiza glabra L.
SI		K	Insufficiently Known – Premalo Znana		2010	3460	Anon. (2010): Pravilnik o uvrstitvi ogrozenih rastlinski
			Name used in redlist: Glycyrrhiza glabra	Accepted			Accepted Name: Glycyrrhiza glabra L.

SI	K	Insufficiently Known – Nezadostno Znana Vrsta	1989	2123	Wraber, T. & Skoberne, P. (1989): Rdeci seznam og
		Name used in redlist: Glycyrrhiza glabra L.	Accepted	Accepted Name:	Glycyrrhiza glabra L.
TJ	LC	Least Concern	2020	3438	Nowak, A., Świerszcz, S., Nowak, S., Hisorev, E., Kli
		Name used in redlist: Glycyrrhiza glabra L.	Accepted	Accepted Name:	Glycyrrhiza glabra L.
UA	HE	Indeterminate – неоцінені	2012	3354	Saparenko, S.O. (ed.) (2012): Červona kniga Ukrajini
		Name used in redlist: Glycyrrhiza glabra L.	Accepted	Accepted Name:	Glycyrrhiza glabra L.

Purpose of Use

Purpose		Ref
animal food - general	"can [...] be fed to livestock"	1113
	forage	1110
	forage	8746
	forage	1147
environmental use - general	environmental	1110
	environmental	1147
food - beverage	"brewing stout root beer"	8359
	"tea made from the roots is [a] thirst quencher"	3476
food - general	food	8746
	food and drink	1110
	food and drink	1147
food - sweets	confectionary	8359
food additive - flavouring & spice	"Chinese cuisine uses liquorice as a culinary spice for savory foods [and] to flavor broths and foods simmered in soya sauce"	3476
	"In addition to its medicinal uses, Liquorice has been used as a flavouring ingredient."	9657
	"in plug tobacco"	8359
	"industrial uses for flavouring beverages, chocolate and tobacco (especially in USA)"	1122
	"It has been used for more than 4,000 years as a flavouring agent in foods, beverages, and tobacco."	1111
	"root can have either a salty or sweet taste [...] flavor is common in medicines to disguise unpleasant flavors"	3476
	"The dried rhizomes and roots are used to flavor candy, chocolate, maple and tobacco. The roots contain glycyrrhizin, which is 50 times sweeter than cane sugar."	1113
	"The root powder has been widely used as a flavouring and ingredient, for example, in sweets, baked goods, ice cream, root beers etc., and is also used to flavour medicinal products."	3968
	Additive (flavoring)	1180
	Food additives: flavoring (for candies fide Crops US; Herbal Drugs)	1100
material - fiber	fibre	1110
	fibre	1147
material - general	"as stabilizer in fire extinguishers"	1122
	"shoe polish, fire-extinguishers, fibre for plastic & fibreboard (US)"	8359
	"The manufactured excess is used as fire extinguishing agents, insulation for fiberboards, or compost for mushrooms"	1113
	"use in shoe polish, as a fibre in fibreboard and insulation, and in etching steel sections in photomicrography"	3968
	Chemical products	1110
	chemical products, domestic	1147
	Mater. (essential oils)	1180
	Materials: essential oils (used in pharmacy fide Ency CNatIn)	1100
material - timber, wood products	wood	1110
	wood	1147
medicine - general	"Ayurveda […] considers Glycyrrhiza glabra to be a tonic, expectorant and a demulcent. A demulcent has soothing, coating properties, while an expectorant eliminates phlegm and mucous from the respiratory tract. These properties account for the traditional use of licorice as a cough reliever and an asthma treatment"	3476
	"Chinese use liquorice to treat tuberculosis"	3476
	"cough mixtures, lozenges & other medicine esp. for sore throats & mouth ulcers"	8359
	"expectorant, anti-inflammatory, antispasmodic"	3751
	"glycyrrhizic acid, found in liquorice, is used throughout Japan for the treatment and control of chronic viral hepatitis"	3476

	"inhibits Helicobacter pylori, aiding in healing stomach and duodenal ulcers, and may sooth an upset stomach, as it is antispasmodic in the bowel [...] used for auto-immune conditions including lupus, scleroderma, rheumatoid arthritis [...] shown to modulate airway constriction, lung inflammation and infiltration of eosiniphils in bronchial areas"	3476
	"It is also used as an alternative medicine for the treatment of gastric and duodenal ulcers, sore throat, bronchitis, cough, arthritis, adrenal insufficiency, and allergic diseases."	1111
	"slows tooth decay"	3753
	"The underground peeled or unpeeled stems or roots are used for the treatement of upper respiratory tract ailments including coughs, hoarseness, sore throat and bronchitis"	8727
	"wood [is used] for teething children and also used as a tooth cleaner"	3476
	[Roots and rhizomes] "find wide application in medicine preparation, for relief of sore throats but also to disguise unpleasant flavours of certain medicine."	9657
	medicine	1110
	medicine	8746
	medicine	1147
medicine - source of pharmaceutical agent	Medic. (source of glycyrrhizin)	1180
medicine - traditional herbal medicine	"Licorice is traditionally used in medicine."	1122
	"Liquorice has been widely employed in herbal medicine [...]. The root is antispasmodic, demulcent, diuretic, emollient, expectorant, laxative, moderately pectoral and tonic"	3968
	"Liquorice root is one of the most commonly used herbal medicines and flavourings in the temperate zone."	3968
	"traditionally used in medicine""	1122
	"used as an alternative medicine for the treatment of gastric and duodenal ulcers, sore throat, bronchitis, cough, arthritis, adrenal insufficiency, and allergic diseases."	1111
	Traditional European medicine	3751
	Traditional Indian medicine	3751
social use - cosmetics	"in cosmetics"	1122
	"Plant extracts are also used in cosmetic ingredients such as skin conditioners, emollients, moisturisers, bleaches, perfumes and antioxidants."	3968
	"The application of liquorice extract in cosmetics is relatively small. In cosmetics, liquorice is used primarily in skincare and haircare products, as it has several properties."	3489
	soap	8359
social use - general	"roots are often chewed with betel quids in India"	1113
social use - stimulants	used a as a conditioning and flavouring agent in tobacco products"	9657

Purpose: Standardized Use Fields

Purpose: Fields of Use	Frequency
animal food - general	4
environmental use - general	2
food - beverage	2
food - general	3
food - sweets	1
food additive - flavouring & spice	10
material - fiber	2
material - general	8
material - timber, wood products	2
medicine - general	14
medicine - source of pharmaceutical agent	1
medicine - traditional herbal medicine	7
social use - cosmetics	4
social use - general	1
social use - stimulants	1

Purpose: Number of Use Fields

Purpose: Number of use fields

Taxon used in 15 different standardized use categories (max. 27 categories possible).

Plant Parts Used

Plant Part (standardized)	Plant Part (free text)	Remark	Ref	
root	Root		3221	Goraya, G.S. & Ved, D.K. (2017): Medicinal p
root	"rhizome"		3751	van Wyk, B.-E. & Wink, M. (2017): Medicinal
root	"rhizome"		8701	Heß, H.E., Landolt, E. & Hirzel, R. (1972-197
root	"rhizome"		8359	Mabberley, D.J. (2008): The plant-book. 3rd e

stem	Stem	3221	Goraya, G.S. & Ved, D.K. (2017): Medicinal p
stem	"underground peeled or unpeeled stems or roots"	8727	Saxena, S. (2005): Glycyrrhiza glabra. Medic

Scale and Trend of Trade

ICC	Trade Trend	Ref	
	2021 data: Main importing countries are United States (83,820 mT; 13.81% share), Germany (74,500 mt; 12.05%), and Japan (29,410 mt; 7.62%). Import values and import prices in these countries have remained fairly stable in the years 2012-2019. The biggest trade flows are from China to Japan (5.8% share), and from India to United States (3.39%).	3490	Tridge Market Intelligence (2020): Licorice Root. Retrieved from https://www.tridge.com/intelligences/licorice-root2/import, viewed: 25.01.2021.
	Between 2001-2005 annual growth of trade in roots was zero, annual growth in extracts trade was 6%.	9657	Tawab Stanikzai, M. (2007): Market report Liquorice. Retrieved from http://www.tloafghanistan.org/Liquorice%20Market%20Report.pdf, viewed: 22.08.2014.
DE	"German imports of liquorice extract increased in volume and value between 2011 and 2018. The volume of liquorice extracts to Germany reached 43,200 tonnes in 2018, an increase of 3% from 2011. The value of imports increased by 13% over the same period."	3489	Ecovia Intelligence (2020): The European market potential for liquorice. Updated on 18 March 2020. Retrieved from https://www.cbi.eu/market-information/natural-ingredients-cosmetics/liquorice/market-potential, viewed: 26.01.2021.
JP	"Although the total amount of licorice imported in Japan was 10,723,342 kg in 1987, it decreased to 1,377,213 kg in 2007. Currently, a major proportion of glycyrrhizin is extracted and then purified in manufacturing plants in China and other licorice-producing countries; therefore, the import of licorice for glycyrrhizin production has decreased in Japan. A proportion of the licorice imported from China is medicinal licorice, which is used in Kampo medicines. Medicinal licorice is more expensive than licorice used for the production of glycyrrhizin and other licorice products; the latter is imported from other licorice-producing countries such as Afghanistan and Australia."	3488	Hayashi, H. & Sudo, H. (2009): Economic importance of licorice. Plant Biotechnology 26: 101-104.

Utilization: Commodity, Cultivation, Harvest, Sustainability, Trade

Type	ICC	Utilization	Ref	
com		"Liquorice extract is produced by boiling liquorice root and subsequently evaporating most of the water, and is traded both in solid and syrup form."	1135	Wikipedia. www.wikipedia.org
com		Spanisches Süßholz (var. glabra) kommt hauptsächlich aus Tartosa in Katalonien und Alicante in Valencia, ferner aus IT, S-FR, DE (?), russisches Süßholz (var. glandulifera-tax. Status unsicher) aus dem Wolgagebiet, Batum oder dem Ural, IR, CN	2049	Wagner, H. (1985): Pharmaze
com		Spanish or Greek licorice is obtained from var. glabra, Russian or Anatolian licorice from var. glandulifera (Waldst. & Kit.) Herd. & Regel and Persian or Turkish licorice from var. violacea (Boiss.) Boiss.	1122	Mansfeld's World Database of
cul		"average yield per acre is from 4 to 5 tons"	9657	Tawab Stanikzai, M. (2007): M
cul		"content of much of the cultivated root is not matching that of wild quality and thus is usually diverted to non-medicinal, food, or confectionary uses"	3803	Brinckmann, J.A. (2020): The l
cul		"Cultivated in the Mediterranean basin of Africa, in southern Europe, and in India"	5806	Anon. (1999): WHO monograp
cul		"cultivation is now established in central Asia, Australia, Brazil, Southern France, Italy and Spain [...] most Liquorice is produced in Italy, Spain, Greece, Turkey, and Asia"	9657	Tawab Stanikzai, M. (2007): M
cul		"Cultivations on a larger scale are reported from different Mediterranean countries, from Near and Middle East (Turkey, Syria, Iraq, Afghanistan, Turkmenia, Uzbekistan, Kazakhstan), Australia, Brazil, California, more recently also from N India, E Africa etc."	1122	Mansfeld's World Database of
cul		"In southern Italy, large quantities of Liquorice root are grown, but it is chiefly converted into extract, though some of the root is exported. Spain is the main supplier of dried liquorice. [...] In Asia, Pakistan, India, China, Iran and Turkmenistan are the main producers of liquorice extracts." roots"	9657	Tawab Stanikzai, M. (2007): M
cul		"licorice is being cultivated […] in China (about 20% of China's annual licorice usage of about 300 million kg is now cultivated), […] Italy, Egypt, Tajikistan, Turkey, Uzbekistan, South Africa, and Australia"	3803	Brinckmann, J.A. (2020): The l
cul		Cultivated in C Asia	2032	Mansfeld, R. (1986): Verzeichr
cul		Cultivated in CN, ES, GR, IQ, IT, SU, SY, TR	2011	Bajaj, Y.P.S. (ed.) (1991): Med
cul		esp. Russia, Spain, Middle E	8359	Mabberley, D.J. (2008): The pl
cul	AF	cultivated	3145	Brinckmann, J.A., Kathe, W.,
cul	AU	cultivated	3145	
cul	BR	Cultivated	2032	Mansfeld, R. (1986): Verzeichr
cul	BT	cultivated	3145	Brinckmann, J.A., Kathe, W.,
cul	CL	cultivated: Villarrica, Región de la Araucanía	3145	
cul	CN	cultivated: Natural Fostering	3145	
cul	CY	cultivated	3145	

cul	DE	cultivated: Controlled Cultivation	3145	
cul	EG	cultivated	3145	
cul	ES	Natural Fostering; Aragon	3145	
cul	FR	cultivated: Maine-et-Loire	3145	
cul	GB	cultivated	3145	
cul	GE	cultivated: Natural Fostering	3145	
cul	IL	cultivated	3145	
cul	IN	cultivated: Himachal Pradesh	3145	
cul	IQ	cultivated	3145	
cul	IR	cultivated: Khorasan Razavi province	3145	
cul	IT	cultivated: Sardegna	3145	
cul	IT	Extensive Farming; Calabria	3145	
cul	LB	cultivated	3145	
cul	MN	cultivated	3145	
cul	NZ	Extensive Farming; Pigeon Bay, Akaroa	3145	
cul	RS	cultivated	3145	
cul	RU	cultivated: Natural Fostering	3145	
cul	SY	cultivated	3145	
cul	TR	cultivated: Natural Fostering	3145	
cul	US	cultivated	3145	
cul	ZA	cultivated	3145	
har		"harvested in the autumn, two to three years after planting"	3476	Rahman, I.U., Sher, H. & Buss
har		"the majority of licorice root in global trade is harvested from wild populations situated in extremely remote areas within republics of the former Soviet Union (e.g. especially Uzbekistan and Azerbaijan, but also Armenia, Georgia, Tajikistan, Turkmenistan, Kazakhstan, and Kyrgyzstan); frontier areas of the People's Republic of China (e.g. Inner Mongolia Autonomous Region, Ningxia Hui Autonomous Region, and Xinjiang Uyghur Autonomous Region); and other major licorice-producing countries […], especially Afghanistan, Pakistan, Iran, Iraq, and Syria […].There is […] some wild collection of licorice in parts of Europe (e.g. Italy, Spain, and Turkey)"	3803	Brinckmann, J.A. (2020): The l
har		"The yield of fresh root is 20-50 t/ha per harvest."	1113	Ecocrop. FAO. - http://ecocrop
har		Major part of the supply is coming still from wild populations	1122	Mansfeld's World Database of
har		Ready to harvest in 3-5 year	1113	Ecocrop. FAO. - http://ecocrop
har		Wildvorkommen werden auch heute noch z.T. stark genutzt (TR, GR, ES IQ)	1101	Hänsel, R. & al. (1992-1998):
har		Wildvorkommen werden trotz Kultur immer noch sehr stark genutzt.	2032	Mansfeld, R. (1986): Verzeichr
har	IR	Wild collection	2032	
har	KZ	[G.glabra & G.uralensis] "Commercial harvesting of liquorice root is carried out mechanically with a plantation plough pulled by a tractor. Ploughing for liquorice root harvesting must be carried out to a depth of 40 cm in river floodplains, to 60 cm in steppe depressions while for small liquorice stands the roots are dug out by hand, with shovels. […] The harvested roots and rhizomes should be 5 to 50 mm (or more) thick and the length can also vary."	3906	Gemedzhieva, N., Khrokov, A.
imp	FR	imports 3500 t/a	2011	Bajaj, Y.P.S. (ed.) (1991): Med
imp	IN	imported	3221	Goraya, G.S. & Ved, D.K. (201
imp	JP	"China is by far the largest exporter. This indicates that Japan is highly dependent on China for its supply of licorice. […] the volume of Japanese imports of licorice from China peaked in 2012. This is likely an indication of a decrease in the supply of licorice in China. […] in the period between 2007 and 2015, Japanese reliance of China to procure licorice became stronger."	3491	Oishia, R. (2017): Trading of Li
imp	JP	"Japan imports large quantities of licorice derived from G. glabra and G. inflata (Xinjiang-Gancao) as raw materials for the production of glycyrrhizin, cosmetics, and food additives. On the other hand, Dongbei-Gancao (Tohoku-Kanzo in Japanese) and Xibei-Gancao (Seihoku-Kanzo in Japanese), which are imported from China, are mainly used in the preparation of Japanese Kampo medicines; these medicinal licorices are derived from G.uralensis."	3488	Hayashi, H. & Sudo, H. (2009)
imp	JP	„licorice used in Japan is imported from countries such as China, Afghanistan, Turkmenistan, Uzbekistan, and Pakistan"	3488	
imp	US	"Millions of pounds of licorice are imported into the United States each year, about 90% for use in flavoring tobacco products"	3829	American Botanical Council (2
imp	US	main importer with 20,000 t/a directly from Syria, TR and SU or after 1st extraction in CN	2011	Bajaj, Y.P.S. (ed.) (1991): Med
price	JP	"the import price of licorice from China has been increasing for several years. In particular, the dramatic rise in the price of imported Chinese licorice after 2012 is remarkable, with the price in 2015 being nearly three times that in 2007."	3491	Oishia, R. (2017): Trading of Li

socu		"A man died after eating a bag of Black Licorice every day. Doctors at Massachusetts General Hospital said the unusual case highlighted the risk of consuming too much glycyrrhizic acid, which is found in black licorice."	3832	Cramer, M. (26.9.2020): A mar
socu		"Short-term use (not more than 4-6 weeks) of liquorice preparations is safe. Serious side effects reported following chronic use of high dose of liquorice root are: hypokalaemia and hypertension. More rarely cardiac rhythm disorders can occur."	3831	Delbò, M. (2013): Assessment
socu		"The FDA has issued warnings about the rare but serious effects of too much black licorice, advising that people avoid eating more than two ounces of black licorice a day for two weeks or longer. The agency states that if you have been eating a lot of black licorice and experience an irregular heart rhythm or muscle weakness, stop eating it immediately and contact your health care provider."	3833	Sullivan, B. (27.10.2020): The
socu		"used by Roman soldiers to combat thirst (steroid causing water retention)"	3753	Mabberley, D.J. (2017): The pl
sus		[G.glabra & G.uralensis] "Only three-quarters of all the roots and rhizomes should be selected, leaving a quarter of rhizomes in the soil to regenerate the liquorice population by vegetative propagation."	3906	Gemedzhieva, N., Khrokov, A.
sus		Die Hauptwurzel bleibt i.d.R. stehen; es kommen nur Nebenwurzeln zur Ernte. Diese werden mit dem Messer abgeschnitten und mit der Hand aus der Erde herausgezogen. Geerntet wird regelmäßig in dreijährigem Turnus.	1101	Hänsel, R. & al. (1992-1998):
sus		If only the offshoot roots are harvested, the taproot will regenerate the plant in 2-3 years.	1113	Ecocrop. FAO. - http://ecocrop
sus	KZ	[G.glabra & G.uralensis] "In Kazakhstan, most wild liquorice harvesters are from rural villages, typically with low income, where yearly harvest of the wild root is the only source of stable income. The only option to maximise income is to harvest as much as possible, at highly unsustainable rates, much of which is traded internationally through illegal supply chains."	3906	Gemedzhieva, N., Khrokov, A.
tra		"Spain and Italy have long been major producers of Licorice."	1136	EoL - Encyclopedia of Life. htt
tra		"The value of the licorice trade in 2007 was estimated at 42 million US$."	3488	Hayashi, H. & Sudo, H. (2009)
tra		Global exports of liquorice in 2005 were 23 204 tons in roots and 29 960 tons of extracts. [G. glabra & G. uralensis]	9657	Tawab Stanikzai, M. (2007): M
tra	IN	Estimated annual trade: 2000-5000 metric tonnes	3221	Goraya, G.S. & Ved, D.K. (201
tra	US	"sold in this country"	6369	McGuffin, M., Kartesz, J.T., Le

Legislation

Regulation

ICC	Regulation	Ref	
CN	"Because of the risk of desertification in the northern region of China and the need to protect wild medicinal plant resources, the collection of wild Glycyrrhiza plants has recently been restricted by the Chinese government."	8697	Yamamoto, Y. & Tani, T. (2006
KZ	[G.glabra & G.uralensis] "export of liquorice root is subject to mandatory licensing"	3906	Gemedzhieva, N., Khrokov, A.,
KZ	[G.glabra & G.uralensis] "The collection of medicinal plants such as liquorice in Kazakhstan is regulated only on state-owned lands of the Forest Fund and protected areas. On state-owned lands the harvest is regulated through specific legislation [Forest Code of the Republic of Kazakhstan» from 08.07.2003], for example there is resource monitoring by state forest service control and designation of sustainable harvest volumes of liquorice root. […] The measures applied in the state-owned lands cannot be implemented for the agricultural lands, since there is no legislative document to reference. […] harvesting liquorice on agricultural lands is considered to be an agricultural resource use."	3906	

Bibliography

1100 GRIN Database (Germplasm Resources Information Network). USDA-ARS. Retrieved from https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch.aspx

1101 Hänsel, R. & al. (1992-1998): Hagers Handbuch der pharmazeutischen Praxis. 5. Auflage.5 volumes [4179, 4180, 4181, 6097, 6098]

1107 USDA Plants Database (27.4.2009): Download of Pteridophyte, Gymnosperm, Monocot and Docot data with infromation on state and province distribtion, duration, growth form and native status from http://plants.usda.gov, accessed 27.4.2009.

1109 UNEP-WCMC Threatened Species Database. Download of 1997 regional threat assessments sent 15.6.2011 by H. Gillett. Cambridge, UK (cf. Walter & Gillett, 1997 IUCN Red List of threatened plants)

1110 ILDIS - International Legume Database & Information Service. University of Reading, UK. http://www.ildis.org/

1111 Ecoport. FAO. - https://gaez.fao.org/pages/ecocrop

1113 Ecocrop. FAO. - http://ecocrop.fao.org/

1117 eFloras. Flora of China. http://www.efloras.org/flora_page.aspx?flora_id=2

1121 GBIF - Global Biodiversity Information Facility. http://data.gbif.org/welcome.htm

1122 Mansfeld's World Database of Agricultural and Horticultural Crops. mansfeld.ipk-gatersleben.de/pls/htmldb_pgrc/f?p=185:3:3650108710811243

1123 Plants for a Future - www.pfaf.org

1132 Hegi, Illustrierte Fora von Mitteleuropa

1135 Wikipedia. www.wikipedia.org

1136 EoL - Encyclopedia of Life. http://www.eol.org/

1147 Euro+Med PlantBase - http://ww2.bgbm.org/EuroPlusMed/query.asp

1157 Flora Vascular de Andalucía Occidental - http://www.floravascular.com/index.php

1180 GRIN (17.3.2015): Download World Economic Plants report from GRIN Taxonomy for the query. Medizin = 'Alle Nutzungen'. Retrieved from http://www.ars-grin.gov/cgi-bin/npgs/html/taxecon.pl?language=de

1192 Plants of the World Online (POWO). Royal Botanic Gardens, Kew - http://plantsoftheworldonline.org/

1217 Govaerts, R. (2022): The World Checklist of Vascular Plants (WCVP). – Royal Botanic Gardens, Kew. Checklist dataset of 2022-12-08. Retrieved from https://sftp.kew.org/pub/data-repositories/WCVP/, viewed 4.3.2023.
1223 2023 IUCN Red List of Threatened Species. Version 2023-1. www.iucnredlist.org. Download of plant data received from IUCN website 16.12.2023.
1236 United States Pharmacopeial Convention (2024): Dietary Supplements Compendium (DSC). https://www.usp.org/products/dietary-supplements-compendium
1244 United States Pharmacopeial Convention (2024): National Formulary (NF). https://www.uspnf.com/
1246 United States Pharmacopeial Convention (2024): United States Pharmacopeia (USP). https://www.uspnf.com/
2011 Bajaj, Y.P.S. (ed.) (1991): Medicinal and aromatic plants 3. Springer, Berlin (Biotechnology in Agriculture and Forestry 15).
2032 Mansfeld, R. (1986): Verzeichnis landwirtschaftlicher und gärtnerischer Kulturpflanzen (ohne Zierpflanzen), 4 volumes. Springer, Berlin.
2049 Wagner, H. (1985): Pharmazeutische Biologie. 2. Drogen und ihre Inhaltsstoffe, 2. ed. Stuttgart.
2095 Iwu, M.M. (1993): Handbook of African medicinal plants. CRC Press, Boca Raton.
2123 Wraber, T. & Skoberne, P. (1989): Rdeci seznam ogrozenih praprotnic in semenk SR Slovenije [Red data list of threatened vascular plants in the Socialist Republic of Slovenia; in Slovenian with English summary]. Varstvo Narave 14-15: 1-429.
2156 FRLHT - Indian Medicinal Plants Database - http://www.medicinalplants.in/
2302 Native American Ethnobotany Database - http://naeb.brit.org/
3091 National Pharmacopoeia Commission (ed.) (2020): Zhōnghuá rénmín gònghéguó yàodiǎn. 2020 Niánbǎn. Yī bù [Pharmacopoeia of the People's Republic of China. 2020 edition. Volume 1; in Chinese]. China Medical Science and Technology Press, Beijing.
3145 Brinckmann, J.A., Kathe, W., Berkhoudt, K, Harter, D.E.V. & Schippmann, U. (2022): A new global estimation of medicinal and aromatic plant species in commercial cultivation and their conservation status. Economic Botany 22(10): 1-15.
3221 Goraya, G.S. & Ved, D.K. (2017): Medicinal plants in India. An assessment of their demand and supply. National Medicinal Plants Board & Indian Council of Forestry Research & Education, New Delhi & Dehradun. Retrieved from http://www.rcfceast.org/wp-conten
3235 Peev, D., Petrova, A.S., Anchev, M., Temniskova, D., Denchev, C.M. Ganeva, A., Gussev, C. & Vladimirov, V. (ed.) (2015): Red data book of the Republic of Bulgaria. Vol. 1. Plants and fungi. Bulgarian Academy of Sciences, Sofia.
3236 Tamanyan, K., Fayush, G., Nanagyulyan & Danielyan, T. (ed.) (2012): Red Book of plants of the Republic of Armenia. Higher plants and fungi. 2nd edition. s.pub., Yerevan.
3319 Chinese Academy of Sciences (2013): Chinese biodiversity red list for higher plants. Ministry of Environmental Protection of the People's Republic of China, Beijing. Retrieved from http://www.mee.gov.cn/gkml/hbb/bgg/201309/t20130912_260061.htm, viewed: 08
3354 Saparenko, S.O. (ed.) (2012): Červona kniga Ukrajini. Voni čekajut' na nasu dopomogu [Red Book of Ukraine. They are waiting for our help. 4th edition; in Ukrainian]. Torsinh Pljus, Charkiv.
3438 Nowak, A., Świerszcz, S., Nowak, S., Hisorev, E., Klichowska, E., Wróbel, A., Nobis, A. & Nobis, M. (2020): Red List of vascular plants of Tajikistan. The core area of the Mountains of Central Asia global biodiversity hotspot. Scientific Reports 10: 6235.
3439 Shih-Chung Chen (ed.) (2019): Taiwan Herbal Pharmacopoeia. 3rd edition. English version. Ministry Health and Welfare, Taipei. Retrieved from https://www.mohw.gov.tw/lp-3690-2.html, viewed: 28.04.2020.
3451 United States Pharmacopeial Convention (2020): The United States Pharmacopeia USP 43. The National Formulary 38. 2020. United States Pharmacopeial Convention, Rockwell, MD.
3460 Anon. (2010): Pravilnik o uvrstitvi ogrozenih rastlinskih in zivalskih vrst v rdeči seznam. Priloga 1. Rdeči seznam praprotnic in semenk (Pteridophyta & Spermatophyta) [Red list of ferns and seed plants (Pteridophyta & Spermatophyta); in Slovenian]. Offic
3466 Agência Nacional de Vigilância Sanitária (2019): Farmacopeia Brasileira. 6ª edição. Volume II. Monografias. Plantas Medicinais. Retrieved from https://www.academia.edu/40384927/FARMACOPEIA_BRASILEIRA_Ag%C3%AAncia_Nacional_de_Vigil%C3%A2ncia_Sanit%C3%A1ria
3476 Rahman, I.U., Sher, H. & Bussmann, R.W. (2019): Reference guide on high value medicinal and aromatic plants. Sustainable management and cultivation practices. s.pub., s.loc. Retrieved from https://www.researchgate.net/publication/343829335_Reference_Guide
3488 Hayashi, H. & Sudo, H. (2009): Economic importance of licorice. Plant Biotechnology 26: 101-104.
3489 Ecovia Intelligence (2020): The European market potential for liquorice. Updated on 18 March 2020. Retrieved from https://www.cbi.eu/market-information/natural-ingredients-cosmetics/liquorice/market-potential, viewed: 26.01.2021.
3490 Tridge Market Intelligence (2020): Licorice Root. Retrieved from https://www.tridge.com/intelligences/licorice-root2/import, viewed: 25.01.2021.
3491 Oishia, R. (2017): Trading of Licorice between Japan and China. Future market prospects. In: Sakagami, H. (ed.): Biological activities and action mechanisms of Licorice ingredients. pp. 37-56. - IntechOpen, s.loc. Retrieved from https://www.intechopen.com
3496 Chadburn, H. (2014): Glycyrrhiza glabra. The IUCN Red List of Threatened Species 2014. e.T203353A2764319. Retrieved from https://www.iucnredlist.org/species/203353/2764319, viewed: 22.02.2021.
3561 Quattrocchi, U. (2012): World dictionary of medicinal and poisonous plants. Common names, scientific names, eponyms, synonyms, and etymology. CRC Press, Boca Raton.
3586 Zhonghua Bencao Editorial Committee, Chinese State Administration of TCM (ed.) (1998): Zhonghua Bencao (Materia Medica of China), Vol. 1-10. Shanghai Scientific and Technical Press, Shanghai. Retrieved from http://www.zysj.com.cn/zhongyaocai/zhonghuabenca
3751 van Wyk, B.-E. & Wink, M. (2017): Medicinal plants of the world. 2nd edition. CABI, Wallingford & Boston.
3753 Mabberley, D.J. (2017): The plant-book. 4th edition. Cambridge University Press, Cambridge.
3800 Committee on Japanese Pharmacopoeia (2016-2019): The Japanese Pharmacopoeia. 17th edition, incl. Supplements I and II. English version. Ministry of Health, Labour and Welfare, sine loco. Retrieved from https://www.pmda.go.jp/english/rs-sb-std/standards-de
3803 Brinckmann, J.A. (2020): The long road to sustainable licorice. Journal of Medicinal Plant Conservation 2020: 19-21. Retrieved from https://unitedplantsavers.org/wp-content/uploads/2020/06/20123-UpS-Journal-2020-for-web.pdf, viewed: 01.03.2021.
3829 American Botanical Council (2021): Expanded Commission E Monographs. Licorice root. Retrieved from https://www.herbalgram.org/resources/expanded-commission-e/licorice-root/, viewed: 01.03.2021.
3831 Delbò, M. (2013): Assessment report on Glycyrrhiza glabra L. and/or Glycyrrhiza inflata Bat. and/or Glycyrrhiza uralensis Fisch., radix. Retrieved from https://www.ema.europa.eu/en/documents/herbal-report/final-assessment-report-glycyrrhiza-glabra-l/glycy
3832 Cramer, M. (26.9.2020): A man died after eating a bag of Black Licorice every day. In: New York Times. Retrieved from https://www.nytimes.com/2020/09/26/health/black-licorice-death-boston.html, viewed: 01.03.2021.
3833 Sullivan, B. (27.10.2020): The spooky and dangerous side of black licorice. Retrieved from https://medicalxpress.com/news/2020-10-spooky-dangerous-side-black-licorice.html, viewed: 01.03.2021.

3906 Gemedzhieva, N., Khrokov, A., Heral., E. & Timoshyna, A. (2021): Sweet dreams. Assessing opportunities and threats in Kazakhstan's wild liquorice root trade. Traffic, Cambridge. Retrieved from https://www.traffic.org/site/assets/files/14086/sweet-dreams-e

3968 Plummer, J. & Chadburn, H. (2021): Glycyrrhiza glabra. The IUCN Red List of Threatened Species 2021. e.T203353A88313725. Retrieved from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T203353A88313725.en, viewed: 06.07.2023.

5253 Özhatay, N., Koyuncu, M., Atay, S. & Byfield, A.J. (1997): The wild medicinal plant trade in Turkey. Dogal Hayati Koruma Dernegi, Istanbul.

5362 Dihoru, G.H. & Dihoru, A. (1994): Plante rare, periclitate si endemice in flora Romaniei. Lista rosie [Red list of rare, threatened and endemic plants from Flora Romania; in Romanian with English summary]. Acta Botanica Horti Bucurestiensis 1993-1994: 173

5473 Moerman, D.E. (1998): Native American ethnobotany. Timber Press, Portland.

5641 Lange, D. (1998): Europe's medicinal and aromatic plants. Their use, trade and conservation. Traffic International, Cambridge.

5806 Anon. (1999): WHO monographs on selected medicinal plants 1. WHO, Geneva.

5977 Jalili, A. & Jamzad, Z. (ed.) (1999): Red data book of Iran. A preliminary survey of endemic, rare and endangered plant species in Iran. Research Institute of Forests and Rangelands, Tehran.

6369 McGuffin, M., Kartesz, J.T., Leung, A.Y. & Tucker, A.O. (2000): Herbs of commerce. 2nd edition. AHPA, Silver Spring, USA.

6374 Stevanovic, V. (ed.) (1999): Crvena Knjiga Flore Srbije 1. Iscezli i Krajnje Ugrozeni Taksoni [The Red data book of the flora of Serbia 1. Extinct and Critically Endangered taxa; in Serbian and English]. Ministry of Environment of the Republic of Serbia,

6796 Arnold, T.H., Prentice, C.A., Hawker, L.C., Snyman, E.E., Tomalin, M., Crouch, N.R. & Pottas-Bircher, C. (2002): Medicinal and magical plants of southern Africa. An annotated checklist. Strelitzia 13: 1-203.

7279 van Wyk, B.-E. & Wink, M. (2004): Medicinal plants of the world. Timber Press, Portland.

8119 Moser, D.M., Gygax, A. & Bäumler, B. (2002): Rote Liste der gefährdeten Arten der Schweiz. Farn- und Blütenpflanzen. Bundesamt für Umwelt, Wald und Landschaft, Bern. Retrieved from http://www.bafu.admin.ch/publikationen/publikation/00911/index.html?lang=d

8359 Mabberley, D.J. (2008): The plant-book. 3rd edition. Cambridge University Press, Cambridge.

8372 Nguyen Dao Ngoc Van & Nguyen Tap (ed.) (2008): An overview of the use of plants and animals in traditional medicine systems in Viet Nam. TRAFFIC Southeast Asia, Greater Mekong Programme, Ha Noi, Viet Nam. Retrieved from http://www.traffic.org/medicinal-re

8374 China Pharmacopoeia Commission (ed.) (2005): Pharmacopoeia of the People's Republic of China 2005. 3 volumes. People's Medical Publishing House, Beijing.

8375 Medicines and Healthcare Products Regulatory Agency (2008): British Pharmacopoeia 2009. 4 volumes. Stationery Office, London.

8379 United States Pharmacopeial Convention (ed.) (2008): The United States Pharmacopeia USP 32. The national formulary NF 27. 2009. 3 volumes. United States Pharmacopeial Convention, Rockwell, MD.

8380 European Directorate for the Quality of Medicines & Health Care (EDQM) (ed.) (2007-2009): European Pharmacopoeia. 6th edition. 2 volumes and 8 supplements. Council of Europe, Strasbourg.

8382 Committee of the Japanese Pharmacopoeia (ed.) (2006): The Japanese Pharmacopoeia. 15th edition English version. Ministry of Health Labour and Welfare, Tokyo. Retrieved from http://jpdb.nihs.go.jp/jp15e/JP15.pdf.

8388 Anon. (1999-2011): The Ayurvedic Pharmacopoeia of India. Part I, Vol. I-VII, 1st edition. Government of India, Ministry of Health and Family Welfare, . Retrieved from http://www.ayurveda.hu/api.html, viewed: 14.05.2012.

8390 Anon. (2007-2008): The Unani Pharmacopoeia of India. Vols. 1-5. Government of India, Ministry of Health and Family Welfare, New Delhi.

8394 Therapeutic Goods Administration (ed.) (2007): Substances that may be used in listed medicines in Australia. Therapeutic Goods Administration, Symonston. Retrieved from http://www.tga.gov.au/cm/listsubs.pdf, viewed: 25.01.2009.

8396 International Organization for Standardization (s.dat.): ISO Catalogue. Retrieved from http://www.iso.org/iso/iso_catalogue.htm, viewed: 22.01.2009.

8418 Brandão, M.G.L., Cosenza, G.P., Assis Moreira, R. & Monte-Mor, R.L.M. (2006): Medicinal plants and other botanical products from the Brazilian Official Pharmacopoeia. Revista Brasileira de Farmacognosia 16 (3): 408-420.

8429 Fleurentin, J. & Pelt, J.-M. (1982): Repertory of drugs and medicinal plants of Yemen. Journal of Ethnopharmacology 6: 85-108.

8431 Said, O., Khalil, K., Fulder, S. & Azaizeh, H. (2002): Ethnopharmacological survey of medicinal herbs in Israel, the Golan Heights and the West Bank region. Journal of Ethnopharmacology 83 (3): 251-265.

8432 Al-Qura'n, S. (2009): Ethnopharmacological survey of wild medicinal plants in Showbak, Jordan. Journal of Ethnopharmacology 123: 45-50.

8450 Homoeopathic Pharmacopoeia of the United States (s.dat.): HPUS Online Database. Retrieved from http://www.hpus.com, viewed: 26.10.2009.

8547 Ved, D.K. & Goraya, G.S. (2008): Demand and supply of medicinal plants in India. FRLHT, Bangalore.

8601 Bisby, F.A., Roskov, Y.R., Orrell, T.M., Nicolson, D., Paglinawan, L.E., Bailly, N., Kirk, P.M., Bourgoin, T. & Baillargeon, G. (2010): Species 2000 & ITIS Catalogue of Life. 2010 Annual Checklist. Retrieved from http://www.catalogueoflife.org/annual-chec

8696 Hiroaki Hayashi, Sayaka Hattori, Kenichiro Inoue, Kanata Sarsenbaev, Michiho Ito & Gisho Honda (2003): Field survey of Glycyrrhiza plants in Central Asia (1). Characterization of G. uralensis, G. glabra and the putative intermediate collected in Kazakhsta

8697 Yamamoto, Y. & Tani, T. (2006): Brief survey of Glycyrrhiza plant resources in Xinjiang, China. Journal of Traditional Medicines 23: 27-35.

8698 Davis, P.H. (ed.) (1970): Flora of Turkey and the Agean islands. University Press, Edinburgh.

8699 Komarov, V.L., Shishkin, B.K. & Bobrov, E.G. (ed.) (1934-1964): Flora of the USSR (Flora SSSR) [English version. Vols 1-2 & 24 reprinted, vols. 22, 23, 25-30 translated 1986-1994, Index volume 2006]. Bishen Singh Mahendra Pal Singh & Koeltz, Dehra Dun.

8700 Fedorov, A.A. (ed.) (2002): Flora of Russia. The European part and bordering regions. Volume 6 (englsih version). Balkema, Rotterdam.

8701 Heß, H.E., Landolt, E. & Hirzel, R. (1972-1977): Flora der Schweiz und angrenzender Gebiete. 3 volumes. Birkhäuser, Basel.

8727 Saxena, S. (2005): Glycyrrhiza glabra. Medicine over the millenium. Natural Product Radiance 4 (5): 358-367. Retrieved from http://nopr.niscair.res.in/bitstream/123456789/8122/1/NPR%204(5)%20358-367.pdf, viewed: 11.07.2011.

8746 Afonin, A.N., Greene, S.L., Dzyubenko, N.I. & Frolov, A.N. (2008): Interactive Agricultural Ecological Atlas of Russia and Neighboring Countries. Economic Plants and their Diseases, Pests and Weeds [Online]. Retrieved from http://www.agroatlas.ru, viewed:

8869 Anon. (2007): Korean Pharmacopoeia. 9th edition. Korea Food and Drug Administration, sine loco. Retrieved from http://eng.kfda.go.kr/board/board_view.php?av_seq=23&av_pg=1&board_id=ENG_RULE&textfield=&keyfield=, viewed: 06.08.2015.

8870 Anon. (2012): The Japanese Pharmacopoeia. 16th edition. English edition. sine loco. Retrieved from http://www.pmda.go.jp/english/pharmacopoeia/pdf/jpdata/JP16eng.pdf, viewed: 07.05.2012.

8871 China Pharmacopoeia Commission (ed.) (2010): Pharmacopoeia of the People's Republic of China. English edition. Ed. 9. Stationery Office Books, s.loc.

8874 Anon. (s.dat. [2008]): Siddha Pharmacopoeia of India. Vol. 1. Ministry of Health and Family Welfare, sine loco. Retrieved from http://www.comsys.com.sg/pdf/Siddha_Herbs.pdf, viewed: 14.05.2012.

8875 European Directorate for the Quality of Medicines & Health Care (EDQM) (2012): European Pharmacopoeia. Pharmacopée Européenne. 7.8 edition. USB stick version. Council of Europe, Strasbourg.

8876 United States Pharmacopeial Convention (2013): The United States Pharmacopeia USP 37. The National Formulary 32. 2014. United States Pharmacopeial Convention, Rockwell, MD.

8913 Anon. (s.dat.): Farmacopea Argentina, edition 8, 4 volumes. Ministerio de Salud, sine loco. Retrieved from http://www.anmat.gov.ar/webanmat/fna/octava_edicion/Primer_Volumen.pdf, viewed: 09.09.2012.

8949 Dihoru, G. & Negrean, G. (2009): Cartea Rosie a plantelor vasculare din Romania [Red Book of vascular plants in Romania; in Romanian]. Editura Academiei Romane, Bucarest.

9445 Eisenman, S.W., Zaurov, D.E. & Struwe, L. (ed.) (2013): Medicinal Plants of Central Asia. Uzbekistan and Kyrgyzstan. Springer, New York.

9657 Tawab Stanikzai, M. (2007): Market report Liquorice. Retrieved from http://www.tloafghanistan.org/Liquorice%20Market%20Report.pdf, viewed: 22.08.2014.

9774 Allen, D., Bilz, M., Leaman, D.J., Miller, R.M., Timoshyna, A.& Window, J. (2014): European red list of medicinal plants. Publications Office of the European Union, Luxembourg.

9876 Anon. (2012): Korean Pharmacopoeia. 10th edition. Minstry for Food and Drug Safety, sine loco. Retrieved from https://www.mfds.go.kr/eng/brd/m_18/view.do?seq=70483&srchFr=&srchTo=&srchWord=&srchTp=&itm_seq_1=0&itm_seq_2=0&multi_itm_seq=0&company_cd=&compa

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Abbreviations and Standards

ICC = ISO Country Codes Ref = literature reference

Altitude: Low / High = minimum and maximum limits of altitude range [m]

Legislation: Source Taxon = name of taxon as contained in legislation

Utilization: TypeUtil

TypeUtil	*TypeUtilLong*
com	commodity
cul	cultivation
exp	export
har	harvest
imp	import
man	management
price	price
rem	remark
socu	socio-cultural significance
sus	sustainability
tra	trade
trend	trend and scale of trade

Distribution Status: Standard

Status	*Explanation*
chk	check entry
nat	native
int	introd., established
adv	introduced, not established
ocd	occurrence doubtful
unc	status unclear
ext	extinct
cul	cultivated
sou	source doubtful
ica	introduced (casual or naturalized)
don	doubtfully native
pex	(presumably) extinct
ali	casual alien
nzd	naturalized
nna	not native
dpn	status doubtful, possibly native
abs	absent but reported in error

Common names: Type

TypeShort	*Type*
?	<unknown>
ayn	ayurvedic name
hom	homoeopathic name
pha	pharmaceutical name
scn	standardized common name
tra	trade name
ver	vernacular name

Ecology: TypeEcol

TypeEcol	*Explanation*
alti	altitude
grow	growth rate
habit	habitat
morph	morphology
regen	regeneration
repro	reproduction