

Myroxylon balsamum (L.) Harms

4290

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	Myroxylon balsamum is a neotropical species. It occurs from southern Mexico through Central America and the Caribbean to northern and western South America and into Brazil. It has been introduced and naturalized in parts of SE Asia and the Pacific.
Abundance	
Habitat	Grows in evergreen tropical humid forests, sometimes associated with disturbed forests, streams, and steeper slopes in valley bottoms.
Regeneration	Fast growing, shade-tolerant tree that can become invasive where naturalized.
Reproduction	Flowers hermaphroditic, fruit a wind-dispersed, winged pod with a single seed and no endosperm. Reproduction frequently in large patches around adult trees, possibly reflecting dispersal limitation. Germination rate up to 80% around the fruiting trees.
Plant Parts	Oleoresin exudated from tree trunks. Also the wood is used as timber.
Lifeform	Deciduous tree with a maximum height of 30-50m.
Systematics	

Extrinsic Traits

Threat Status	Myroxylon balsamum has been assessed as Least Concern (LC) by the authors of a recent taxonomic study. It has been assessed nationally as Endangered in Guatemala and as Near Threatened in Colombia. For El Salvador, a red list assessment of the species does not exist. However, a 1998 report calculates a 40% decline in key habitat over 20 years (1979-1998). Other sources suggest that deforestation is ongoing, so that the rate of habitat decline over 40 years (1979-present) could by now exceed 50%. This tree likely has a generation time of at least 20-30 years. This suggests is that the IUCN Red List criteria that apply to rate of decline over 3 generations could likely result in a threat level of Endangered, or at least Vulnerable, in El Salvador if a red list assessment would be carried out.
Threats	Deforestation and habitat loss are probably the main threat to Myroxylon balsamum, but unsustainable harvest levels and practices are also identified as a threat. A 1998 report claims high deforestation rates and partly unsustainable harvesting practices in El Salvador as threatening the species. A 2003 paper states that no countrywide reforestation policy for the species exists in El Salvador and that harvesters with no land rights show no interest in long-time conservation of the trees. Logging is also regarded as a threat in the Amazon Forest.
Purpose	The main use of Myroxylon balsamum is for its oleoresin (Peru balsam, Tolu balsam) which has antiseptic and expectorant properties und is used in cough and throat syrups and in ointments. The balsam is also used for flavoring, in perfumes and in toiletries for fragrance. The tree also produces a high-quality timber.
Use Fields	Medicine; flavoring & spice; cosmetics; timber; ornamental.
Trade Trend	Both the exudate (balsam) and the wood/timber are used. Main exporter of Peru balsam is San Salvador, exporting mainly to the European Union (Germany, France, United Kingdom) and the USA. Between 1994 and 2002, exports from El Salvador ranged around 80 and 140 t/yr. 90% of medicinal plants exported from El Salvador to the EU are Peru balsam. According to the UN Comtrade Database, El Salvador exported the following volumes under HS 130190 (= all Natural Gums, Resins, Gum Resins and Balsams): 2013: 111t, 2014: 88t, 2015: 70t, 2016: 86t, 2017: 74t. Given the figures above, it can be assumed that the majority of these exports are indeed balsam of Myroxylon balsamum. This shows that export volumes have remained stable over the period 1994 to 2017 or even have slightly decreased. However, it remains unclear what the trade trend in the region for the use of timber of Myroxylon balsamum is.
Legislation	The species is not protected by CITES. The utilization of the species is prohibited in Colombia and

Taxonomy and Identification

Taxonomy

"Historically, infra-specific taxa of *Myroxylon balsamum* have been accepted in a number of treatments [...]. Rudd [...] recognised infraspecific taxa based mostly on differing chemistry of the balsam, as well as the length and width of the fruits. We do not consider these traits to be consistent and thus do not recognise infraspecific taxa in our treatment."

"The taxonomic revision of *Myroxylon* presented [...] re-evaluates the status of the taxa that have been included in the genus, based mainly on morphological characters."

Reference

3757 Bagnatori Sartori, A.L., Lewis, G.P., de Freitas

3757

Synonyms

Synonym

Eval

Ref

Myrospermum pereirae Royle

1217

Govaerts, R. (2022): The World Checklist of Vascular Plants (WCVP). –

Myroxylon balsamum var. *pereirae* (Royle) Harms

1217

Myroxylon pereirae (Royle) Klotzsch

1217

Taxon Present in Pharmacopoeias and other References

Name as used in Source

Status

Reference

Myrospermum pereirae Royle

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.

Myroxylon pereirae (Royle) Klotzsch

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/zhonghuabencan>

Myroxylon balsamum

3751

van Wyk, B.-E. & Wink, M. (2017): *Medicinal plants of the world*. 2nd edition. CAB International, Wallingford & Boston.

Myroxylon balsamum

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.

Myroxylon balsamum (L.) Harms

1246

United States Pharmacopeial Convention (2024): *United States Pharmacopeia* (USP). <https://www.uspnf.com/>

Myroxylon balsamum (L.) Harms

3451

United States Pharmacopeial Convention (2020): *The United States Pharmacopeia USP 43. The National Formulary 38. 2020*. United States Pharmacopeial Convention, Rockville, MD.

Myroxylon balsamum (L.) Harms

3561

Quattrocchi, U. (2012): *World dictionary of medicinal and poisonous plants. Common names, scientific names, eponyms, synonyms, and etymology*. CRC Press, Boca Raton.

Myroxylon balsamum (L.) Harms

6358

Mors, W.B., Toledo Rizzini, C. & Alvares Pereira, N. (2000): *Medicinal plants of Brazil*. Reference Publications, Algonac (Medicinal Plants of the World 6).

Myroxylon balsamum (L.) Harms

7279

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

Myroxylon balsamum (L.) Harms

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.

Myroxylon balsamum (L.) Harms

8545

Anon. (2009): *International Standard ISO 4720. Third edition 2009-08-15. Essential oils. Nomenclature (in English and French)*. International Organization for Standardization, Geneva.

Myroxylon balsamum (L.) Harms

8865

ANVISA (2010): *Farmacopeia Brasileira*. 5th edition. 2 vols. Agência Nacional de Vigilância Sanitária, Brasília.

Myroxylon balsamum (L.) Harms

8876

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

Myroxylon balsamum (L.) Harms

8913

Anon. (s.dat.): *Farmacopeia 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.

Myroxylon balsamum (L.) Harms var. *balsamum*

1101

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

Myroxylon balsamum (L.) Harms var. *balsamum*

1180

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Myroxylon balsamum (L.) Harms var. *balsamum*

6369

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

Myroxylon balsamum (L.) Harms var. *balsamum*

8375

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

<i>Myroxylon balsamum</i> (L.) Harms var. <i>balsamum</i>	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.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>balsamum</i>	8747	Duke, J.A. (ed.) (2009): Duke's handbook of medicinal plants of Latin America. CRC Press, Boca Raton.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>balsamum</i>	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.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>balsamum</i>	8876	United States Pharmacopeial Convention (2013): The United States Pharmacopeia USP 37. The National Formulary 32. 2014. United States Pharmacopeial Convention, Rockwell, MD.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	1101	Hänsel, R. & al. (1992-1998): Hagers Handbuch der pharmazeutischen Praxis. 5. Auflage. 5 volumes [4179, 4180, 4181, 6097, 6098]
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	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
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. & Tucker, A.O. (2000): Herbs of commerce. 2nd edition. AHPA, Silver Spring, USA.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	8395	Comisión Permanente de la Farmacopea de los Estados Unidos Mexicanos (ed.) (2001): Farmacopea herbolaria de los Estados Unidos Mexicanos. Secretaría de Salud, México D.F.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	8747	Duke, J.A. (ed.) (2009): Duke's handbook of medicinal plants of Latin America. CRC Press, Boca Raton.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	8865	ANVISA (2010): Farmacopeia Brasileira. 5th edition. 2 vols. Agência Nacional de Vigilância Sanitária, Brasília.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	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.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms	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.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms.	8375	Medicines and Healthcare Products Regulatory Agency (2008): British Pharmacopoeia 2009. 4 volumes. Stationery Office, London.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms.	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.
<i>Myroxylon balsamum</i> (L.) Harms var. <i>pereirae</i> (Royle) Harms.	9301	Comisión Permanente de la Farmacopea de los Estados Unidos Mexicanos (ed.) (2013): Farmacopea herbolaria de los Estados Unidos Mexicanos. Ed. 2. Secretaría de Salud, México D.F.
<i>Myroxylon balsamum</i> (L.) Harms.	8424	Sanz-Biset, J., Campos-de-la-Cruz, J., Epiquién-Rivera, M.A. & Cañigueral, S. (2009): A first survey on the medicinal plants of the Chazuta valley (Peruvian Amazon). Journal of Ethnopharmacology 122 (2): 333-362.
<i>Myroxylon balsamum</i> (Linné) Harms	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.
<i>Myroxylon balsamum</i> var. <i>pereirae</i> (Royale) Harms	8865	ANVISA (2010): Farmacopeia Brasileira. 5th edition. 2 vols. Agência Nacional de Vigilância Sanitária, Brasília.
<i>Myroxylon balsamum</i> var. <i>pereirae</i> (Royle) Harms	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%A2ncia_Nacional_de_Vigil%C3%A2ncia_Sanit%C3%A1ria
<i>Myroxylon balsamum</i> var. <i>pereirae</i> (Royle) Harms	3561	Quattrocchi, U. (2012): World dictionary of medicinal and poisonous plants. Common names, scientific names, eponyms, synonyms, and etymology. CRC Press, Boca Raton.
<i>Myroxylon pereirae</i>	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.
<i>Myroxylon pereirae</i> (Royle) Klotzsch	8545	Anon. (2009): International Standard ISO 4720. Third edition 2009-08-15. Essential oils. Nomenclature (in English and French). International Organization for Standardization, Geneva.
<i>Myroxylon pereirae</i> (Royle) Klotzsche	1236	United States Pharmacopeial Convention (2024): Dietary Supplements Compendium (DSC). https://www.usp.org/products/dietary-supplements-compendium
<i>Myroxylon pereirae</i> (Royle) Klotzsche	1237	United States Pharmacopeial Convention (2024): Food Chemicals Codex (FCC). https://www.foodchemicalscodex.org/
<i>Myroxylon pereirae</i> Klotzsch	8450	Homoeopathic Pharmacopoeia of the United States (s.dat.): HPUS Online Database. Retrieved from http://www.hpus.com , viewed: 26.10.2009.
<i>Myroxylon pereirae</i> Royle Klotzsche	8378	United States Pharmacopeia (ed.) (2008): Food Chemicals Codex. 6th edition. U.S. Pharmacopeia.

Common Names

Common Name	Typ	Language	Country	Ref
bálsamo blanco				1180
bálsamo del Perú				1180
balsam-of-Peru				1180
balsam-of-Peru tree	scn	English		6369
balsam-of-Peru-tree		English		1180
baumier du Pérou		French		1180
Peru balsam				1180
Perubalsambaum				1180
perubalsamträd				1180

Distribution Range

Distribution Range	Ref
"Native: Northern America: Southern Mexico; Caribbean: Cuba; Central America: Belize, El Salvador, Honduras, Nicaragua, Panama; Northern South America: Guyana , Venezuel; Western South America: Bolivia, Colombia, Ecuador, Peru; Southern America: Brazil"	1100
"occurs in Central America, and northern and western South America"	3757
"se distribuye de manera natural a lo largo de vertiente pacífica de Mesoamérica, encontrándose desde México hasta Perú"	3768
"The tree has also been introduced to several Pacific islands such as Fiji and to Indonesia, and is a potential ecological threat there"	1135
S. Mex.; Mesoamer., W. S.Amer.; also cult.	1180

Distribution

Continent	Region	ICC	Status	Free Text	Ref
7	Northern America	79	Mexico	MX	1106
				MX	1109
				MX	3757
				MX native	1100
8	Southern America	80	Central America	BZ	1109
				BZ	3757
				BZ native	1100
				CR	1109
				CR	2049
				CR	3757
				CR native	1100
				GT	1109
				GT	2049
				GT	3757
				GT native	1100
				HN	1109
				HN	2049
				HN	3757
				HN native	1100
				NI	1109
				NI native	1100
				PA	1109
				PA	2049
				PA	3757
				PA	8446
				PA	8446
				PA native	1100
				SV	1109
				SV	2049
				SV	3757
				SV native	1100
				SV native	3768
				"ubicada entre la zona central y occidente"	
81	Caribbean			CU	2049
				CU	3757
				CU native	1100
82	Northern South Americ			GY	3757
				GY native	1100
				VE	3757
				VE native	1100

83	Western South Americ	BO		1109
		BO		3757
		BO	native	1100
		CO		1109
		CO		3757
		CO	native	1100
		EC		1109
		EC		3757
		EC	native	1100
		PE		1109
		PE		3757
		PE		8424
		PE		8447
		PE	native	1100
84	Brazil	BR	Minas Gerais	1109
		BR		1109
		BR	"BZC-MG"	1109
		BR	São Paulo	1109
		BR	Goiás	1109
		BR	Espirito Santo	1109
		BR	Paraná	1109
		BR		3757
85	Southern South Ameri	AR		1109
		PY		1109

Abundance / Local Population Size

ICC	Abundance	Reference
	"fairly common"	3757 Bagnatori Sartori, A.L., Lewis,
BR	"In its native range in southern Brazil, M. balsamum has been reported as one of several weeds of managed grasslands"	1154 ISC Invasive Species Compen
LK	"M. balsamum was first reported in Sri Lanka in the 1920s [...] in the Central Province, where it was being grown as a shade tree along roadsides, for windbreaks and in plantations. It escaped cultivation and has now become a naturalized and rapidly spreading species, colonizing natural and semi-natural habitats, forming invasive, monospecific stands covering large parts of Udawatta Kele Nature Reserve in Kandy district [...] and some mixed mahogany forests, reportedly damaging the composition, structure and function of natural ecosystems"	1154

Ecology

TypeEc	ICC	Ecology	Ref
alti		100-1000 m	3758 Navarrete-Tindall, N., Zavaleta,
alti		100-600 m	1154 ISC Invasive Species Compend
alti		100-700m	3772 Anon. (s.dat.): Myroxylon balsan
alti		200-690 m	3757 Bagnatori Sartori, A.L., Lewis, G
alti	SV	300-1000m	3768 Rivera, J.R.A. (2003): Evaluació
habit		"associated with disturbed forests, streams, and steeper slopes in valley bottoms"	3760 Paule Dalle, S., López Domingo
habit		"associated with rivers"	1135 Wikipedia. www.wikipedia.org
habit		"evergreen tropical humid forests"	1154 ISC Invasive Species Compend
habit		"It also occurs spontaneously in its native range on agricultural land and in disturbed areas."	1154
habit		"tropical forest"	3757 Bagnatori Sartori, A.L., Lewis, G
habit	SV	"bosques humedos tropicales y subtropicales"	3768 Rivera, J.R.A. (2003): Evaluació
habit	SV	"wet to dry lowland forests"	3763 Anderson, E.A. (2012): The imp
regen		"fast-growing, nitrogen-fixing, deciduous tree tolerant of shade"	1154 ISC Invasive Species Compend
regen		moderate growth, shade tolerant	3761 Fernandez-Vega, J., Covey, K.F
regen	SV	"grown in El Salvador as a shade tree in coffee plantations, propagated mainly through natural regeneration and growing to 10 m in 10-12 years"	1154 ISC Invasive Species Compend
repro		"En el bosque se ha observado germinación abundante bajo la copa de los ár-boles, de hasta 80%. "	3772 Anon. (s.dat.): Myroxylon balsan
repro		"frequently regenerate[s] in large patches around adult trees, possibly reflecting some form of dispersal limitation"	3760 Paule Dalle, S., López Domingo
repro		flowers hermaphroditic	3757 Bagnatori Sartori, A.L., Lewis, G
repro		fruit "a winged indehiscent pod (samara) [...] with a single seed"	3759 Livingston; R. & Zamora, R. (19
repro		Samen ohne Nährgewebe	1135 Wikipedia. www.wikipedia.org
repro		wind dispersed	3761 Fernandez-Vega, J., Covey, K.F

Life Form

LF_Standard	Duration	Lifeform	Woodiness	Height	Ref
tree				30-40m	3768 Rivera, J.R.A. (2003): Evaluaci
tree				up to 35m	3763 Anderson, E.A. (2012): The im
tree				up to 60m	3758 Navarrete-Tindall, N., Zavaleta,
tree				26m	1101 Hänsel, R. & al. (1992-1998):
tree				up to 16m tall	3751 van Wyk, B.-E. & Wink, M. (20
tree				40-45m tall	1154 ISC Invasive Species Compen
tree				15-50m tall	3757 Bagnatori Sartori, A.L., Lewis,
tree	perennial				6198 Lange, D. (1996): MAPCIS. Me

Threat Situation

ICC	PopulationStatus	Ref
	"Myroxylon balsamum [...] at present it is assessed as being of least concern (LC), although the species is under threat from logging, especially in the Amazon Forest. In remnants of mesophyllous forest it is likely that logging will become a threat to the species in the near future and the conservation assessment would then have to be changed to Vulnerable."	3757 Bagnatori Sartori, A.L., Lewis,
CO	"En Colombia, según las categorías de la UICN [...] el Bálsamo fue categorizado como especie casi amenazada (NT), enfrentándolo a un deterioro poblacional a mediano plazo que lo ubicaría a las puertas de la extinción. [...] dado un alto grado de intervención y degradación de grandes áreas para establecimiento de zonas agrícolas y pecuarias, es de esperarse que las poblaciones naturales hayan sido disminuidas drásticamente."	3771 Payares-Díaz, I., Mario-Contrer
CO	"Esta especie se encuentra en peligro de extinción y su aprovechamiento ha sido prohibido en Costa Rica, pero en muchos de estos países no se conoce el estado real de su conservación."	3771
SV	"Despite the importance of this tree, the Balsam Coast is being deforested at a very fast rate" [...]	3758 Navarrete-Tindall, N., Zavaleta
	"There were 17,500 ha of balsamo in 1979, and now there are only 10,500 ha remaining"	
SV	"Most of the balsameros do not own the land [...]. Landowners supply the trees, and balsameros supply the workforce and provide all the equipment to climb the trees and collect the resin. [...] In most cases the owners do not manage the trees, so balsameros overharvest the trees, which become weak and are felled by strong winds in the higher elevations in the area."	3758
SV	"no hay una política estatal de reforestación para esta especie que garantice su existencia a largo plazo. [...] El obrero balsamero, que es encargado de extraer el bálsamo y por lo general, no es el dueño de la tierra, en muchos casos no esta interesado en la conservación; la técnica tradicionalmente empleada para la extracción no garantiza la buena preservación del árbol"	3768 Rivera, J.R.A. (2003): Evaluaci

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: Myroxylon balsamum (L.) Harms	Accepted		Name used in redlist: Myroxylon balsamum (L.) Harms
glo	LC	Least Concern		2015	3757 Bagnatori Sartori, A.L., Lewis, G.P., de Freitas Mansano, V. & Goulart de Azevedo Tozzi, A.M. (2015): A revision of the genus Myroxylon (Leguminosae, Papilionoideae). Kew Bulletin 70: 48: 1-12.
		Name used in redlist: Myroxylon balsamum (L.) Harms			Name used in redlist: Myroxylon balsamum (L.) Harms

Threat Status: Countries

ICC	Region	Threat Category	Assd.	Publ.	Ref
BO	EN	Endangered		2020	3007 Navarro Sánchez, G., Arrázola Rivero, S., de la Barr
		Name used in redlist: Myroxylon balsamum (L.) Harms	Accepted		Accepted Name: Myroxylon balsamum (L.) Harms
CO	NT	Near Threatened		2014	3771 Payares-Díaz, I., Mario-Contreras, O.A., Medrano-Vé
		Name used in redlist: Myroxylon balsamum			Accepted Name:
CO	NT	Casi Amenazado		2007	3246 Dairon Cardenas, L. & Salinas, N.R. (ed.) (2007): Lib
		Name used in redlist: Myroxylon balsamum	Accepted		Accepted Name: Myroxylon balsamum (L.) Harms
GT	2	Endemica		2009	3272 Consejo Nacional de Areas Protegidas (ed.) (2009):
		Name used in redlist: Myroxylon balsamum (L.) Harms	Accepted		Accepted Name: Myroxylon balsamum (L.) Harms
PE	V	Vulnerable		1997	1109 UNEP-WCMC Threatened Species Database. Downl
		Name used in redlist: Myroxylon balsamum (L.) Harms	Accepted		Accepted Name: Myroxylon balsamum (L.) Harms
VE	EN	En Peligro		2020	3996 Huérfino, A., Fedón, I. & Mostacero; J. (ed.) (2020):
		Name used in redlist: Myroxylon balsamum	Accepted		Accepted Name: Myroxylon balsamum (L.) Harms
VE	EN	En Peligro		2003	8577 Llamozas S., S., Duno de Stefano, R., Meier, W., Rii
		Name used in redlist: Myroxylon balsamum	Accepted		Accepted Name: Myroxylon balsamum (L.) Harms

Purpose of Use

Purpose	Ref
environmental use - general	3759
"provides shade for cultivated crops and it is also used ornamentally"	
"shade"	1122

environmental use - horticulture	"ornamental tree"	1122
	Environ. (ornamental)	1180
food additive - flavouring & spice	"Addit. (flavoring)"	3179
	"flavouring for the alcoholic drink, aguardiente"	3759
	"flavouring in syrups and soaps"	3757
	"food flavouring (wood -> Tolu balsam)"	1122
	"M. balsamum and M. balsamum var. pereirae yield gums known as Tolu balsam and Peru balsam, respectively, which were first brought to Europe in the 1500s. They are used mainly as flavourings in confectionery, baked goods, soft drinks, ice cream, chewing gums, cough syrups and similar products and as incense in churches"	1154
food additive - general	Additive (flavoring)	1180
material - general	"Mater. (essential oils, gum/resin, wood)"	3179
	Mater. (essential oils)	1180
	Mater. (gum/resin)	1180
material - timber, wood products	"high-quality wood"	3758
	"material (wood -> balsam)"	1122
	"production of wood for use in construction and as fuelwood"	1154
	"wood can be used for purposes ranging from railway ties to cabinet work"	3759
	Mater. (wood)	1180
medicine - general	"antiseptic; expectorant; wound healing (used in skin preparations)"	3751
	"included as a component of healing ointments [...]. It is also used as a remedy for nasal congestion, stomach pains and rheumatism"	3757
	"Medic. (source ofbalsam)"	3179
	"Perubalsam hat antibakterielle, entzündungshemmende und wundheilungsfördernde Eigenschaften, auch eine Wirkung gegen Hautparasiten ist erwiesen. Die wohlriechende, nach Vanille und Benzoe duftende, dunkelbraune, dickflüssige Masse wird heute noch in Salben (5-20 %ig) bei infizierten und schlecht heilenden Wunden eingesetzt, bei Verbrennungen, Frostbeulen und Hämorrhoiden. [...] Tolubalsam [...] wirkt schleimlösend und auswurfördernd und war früher häufig, heute seltener in Hustenmitteln enthalten."	8360
	"pharmaceutical industry (wood -> Tolu balsam)", "pharmaceutical industry (wood -> balsam)"	1122
	"Tolu balsam is mainly included in cough and throat syrups. It is antiseptic, expectorant, stimulating and has a pleasant taste. [] Peruvian balsam is rarely taken orally but is used mainly in ointments and preparations to treat slow-healing wounds, burns, ulcers, frostbite, haemorrhoids and bruises caused by prostheses."	3751
medicine - homoeopathy	Used in homoeopathy	6198
medicine - phytomedicinal product	Used in phytomedicinal products	6198
medicine - source of pharmaceutical agent	Medic. (source of balsam)	1180
medicine - traditional herbal medicine	Traditional European medicine	3751
	Traditional South American medicine	3751
social use - cosmetics	"cosmetics (wood -> Tolu balsam)", "cosmetics (wood -> balsam)"	1122
	"manufacture of perfumes"	3757
social use - general	"religious plant (wood -> balsam)"	1122

Purpose: Standardized Use Fields

Purpose: Fields of Use	Frequency
environmental use - general	2
environmental use - horticulture	2
food additive - flavouring & spice	5
food additive - general	1
material - general	3
material - timber, wood products	5
medicine - general	6
medicine - homoeopathy	1
medicine - phytomedicinal product	1
medicine - source of pharmaceutical agent	1
medicine - traditional herbal medicine	2
social use - cosmetics	2
social use - general	1

Purpose: Number of Use Fields

Purpose: Number of use fields

Taxon used in 13 different standardized use categories (max. 27 categories possible).

Plant Parts Used

Plant Part (standardized)	Plant Part (free text)	Remark	Ref
exudate			3751 van Wyk, B.-E. & Wink, M. (2017): Medicinal
exudate	"Oleoresin [...] which oozes out of damaged bark"		3751 van Wyk, B.-E. & Wink, M. (2017): Medicinal
exudate	"Balsam, mainly extracted from the stems"		3757 Bagnatori Sartori, A.L., Lewis, G.P., de Freitas
exudate	"resin from trunk"		3763 Anderson, E.A. (2012): The impact of balsam
exudate	"aromatic wood of Myroxylon, from which both the Balsam of Peru and Tolu balsam of commerce are extracted"		3757 Bagnatori Sartori, A.L., Lewis, G.P., de Freitas
exudate	"gum"		6198 Lange, D. (1996): MAPCIS. Medicinal and Ar
wood			3763 Anderson, E.A. (2012): The impact of balsam

Scale and Trend of Trade

Utilization: Commodity, Cultivation, Harvest, Sustainability, Trade

Type	ICC	Utilization	Ref
com		"Oleoresin (Tolu balsam- Balsamum tolutanum), which oozes out of damaged bark; Peruvian balsam is an aromatic, dark brown oily liquid obtained from smoked trees."	3751 van Wyk, B.-E. & Wink, M. (2017): Medicinal
com		"The exudate obtained from Myroxylon balsamum is chemically characterised by a benjoin or vanillin fragrance and it crystallises [...]. The exudate obtained from M. pereirae [...] stems has been characterised as a mixture of aromatic esters and alcohol, including styracin, nerolidol, vanillin, benzoic and cinnamic acids."	3757 Bagnatori Sartori, A.L., Lewis, G.P., de Freitas
com		Perubalsam: „Zähflüssige, dunkelbraune, in dünner Schicht gelbbraune, durchscheinende Flüssigkeit, die nicht klebrig oder fadenziehend ist und an der Luft nicht eintrocknet. [...] Geruch eigenartig balsamisch, an Vanille und Benzoe erinnernd". Tolubalsam „Zähflüssige bis knetbare, von Kristallen durchsetzte Masse oder rotbraune bis bräunlichgelbe, harte zerreibbare Stücke, die bei 30 °C allmählich erweichen und bei 60 bis 65 °C schmelzen. [...] Geruch eigenartig balsamisch, an Vanillin erinnernd."	1101 Hänsel, R. & al. (1992-1998):
cul		cult.	1180 GRIN (17.3.2015): Download
cul		var. pereira: „Grown mainly as shade tree, often in coffee plantations, in Central America and occasionally in other tropical countries; seldom cultivated for the balsam production, e.g. in Zaire or various other tropical countries of the Old and New World. Most of the balsam of Peru comes too from wild populations (often managed as kind of semi-cultivation) mainly from El Salvador and Belize." var. balsamum: „A pantropical avenue tree, mostly grown as ornamental, much more seldom for the balsam production, e.g. in Brazil, S Asia (Malaysia), the Caribbean isl. Most of Tolu balsam of the trade comes however from wild populations, mainly from Colombia."	1101 Hänsel, R. & al. (1992-1998):
cul	SV	"coffee trees intercropped with the balsamo tree (Myroxylon balsamum L. Harms)" [...] "Although coffee yield is lower under balsamo cover type, farmers still continue to plant and manage coffee under this cover type. Farmers accept a lower coffee yield because balsamo resin provides an important income source."	3763 Anderson, E.A. (2012): The im
cul	SV	"grown in El Salvador as a shade tree in coffee plantations, propagated mainly through natural regeneration and growing to 10 m in 10-12 years"	1154 ISC Invasive Species Compen
exp		"El Salvador is the largest producer of Peru balsam, with annual exports recorded at about 48 t in the late 1970s, while Colombia is the largest producer of Tolu balsam, which is also produced in Venezuela and the West Indies"	1154
exp		var. pereira: "Herkunft San Salvador, von wo aus die Droge ausschließlich exportiert wird [...] Auch auf Jamaika und Sri Lanka werden Kulturen angelegt". var. balsamum: "Herkunft Guatemala, Venezuela, Kolumbien, Ecuador, Brasilien"	1101 Hänsel, R. & al. (1992-1998):
exp	SV	"2006 Peru Balsam exports from SV to: Germany 21%, France 20%, United Kingdom 15%, USA 25%"	3769 Dirección de Comunicaciones,
exp	SV	"a los Estados Unidos, Alemania, Francia e Inglaterra se destina un promedio del 95% (aproximado) siendo Alemania el principal importador"	3768 Rivera, J.R.A. (2003): Evaluaci
exp	SV	"El Salvador es el productor más fuerte de la región"	3769 Dirección de Comunicaciones,
exp	SV	"Estados Unidos y Alemania son los compradores más importantes para la industria del Bálsamo de El Salvador, casi el 50% de la producción se exporta a dichos países, 25% y 21% respectivamente."	3769
exp	SV	"La resina del bálsamo [...] se exporta hoy a todo el mundo, particularmente a Estados Unidos –el mayor importador, país hacia donde se destina el 70% de la oferta exportable de este producto; seguido de los países destino: Alemania, Francia, Inglaterra, España y Perú"	3769
exp	SV	"Las exportaciones de bálsamo [...] entre el 2004 y 2005 [...] se incrementaron en un 78%, pasando de \$738 mil dólares a \$1.3 millones en el año 2005"	3769
exp	SV	"Las exportaciones salvadoreñas de Bálsamo representan el 90% de las expo de plantas medicinales e ingredientes naturales hacia la UE; equivalentes a más de US\$ 1 millón."	3770 Ministerio de Economía de El

exp	SV	El Salvador exported the following volumes under HS 130190 (= all Natural Gums, Resins, Gum Resins and Balsams): 2013: 111t, 2014: 88t, 2015: 70t, 2016: 86t, 2017: 74t. Note: The COMTRADE database does not include a species-specific tariff code for Peru Balsam or Tolu Balsam. It is not known what % of the total export from El Salvador is balsam of Myroxylon balsamum.	1319	UN Comtrade Database - https://comtrade.un.org/
exp	SV	Exports of Peru balsam from El Salvador: 1994: 143t, 1995: 121t, 1996: 89t, 1997: 381t, 1998: 133t, 1999: 80t, 2000: 69t, 2001: 107t, 2002: 69t	3768	Rivera, J.R.A. (2003): Evaluaci
har		"Gum harvesting begins when trees are 20-30 years old with stems 12-15 cm in diameter [...], such trees yielding 1.5 to 3.0 kg of gum per year. In El Salvador, the traditional method of tapping, collecting and extracting Peru balsam is practised by skilled indigenous 'balsameros' [...]. Following removal of strips of bark from the tree, the exposed wood secretes the balsam, which soaks into rags wrapped around the tree, which then are boiled in water. The naturally heavier balsam sinks to the bottom and can be separated [...]. In the process of producing Tolu balsam, as well as Peru balsam in many cases, trees are wounded to stimulate gum exudation and the liquid gum is then collected in cups below V shaped notches cut in the trunk through the bark."	1154	ISC Invasive Species Compen
har		var. pereira: „Etwa 10jährige Bäume [...] werden 1 Fuß über dem Erdboden von der äußeren Rindenschicht befreit (etwa 15 x 25 cm), die Stellen 4 bis 5 min lang mit Fackeln geschwelt und auf die so behandelte Fläche Lappen aufgelegt, in die der Balsam einsickert. Durch Auskochen und Auspressen der getränkten Lappen erhält man den Balsamo de trapo oder Balsam de panal (Lappenbalsam). Nach weiterem Einschneiden der gebrannten Stelle und Abkratzen zu stark gebrannter Stellen wird von neuem mit der Fackel erwärmt, worauf ein neuer Erguß erfolgt. Dieser Balsam wird Balsamo de contrapique genannt. Nach Beendigung der zweiten Ausflußperiode wird das ganze bearbeitete Rindenstück heruntergekratzt, zerstampft, zu Pulver gemahlen und mit Wasser ausgekocht, wobei sich der Balsamo di cascero (Rindenbalsam) abscheidet, der durch Abgießen des Wassers und Auspressen rein erhalten wird. Er ist weniger wertvoll. Im Durchschnitt dauert die Bearbeitung einer einzelnen Rindenpartie etwa 4 Wochen. Starke Bäume werden an verschiedenen Stellen angezapft." var. balsamum: „Die Stämme des Tolubalsambaumes werden an zahlreichen Stellen V-förmig eingeschnitten, an der Basis der Einschnitte angebohrt und der Balsam in kleinen, vor der Öffnung angebrachten Gefäßen aufgefangen. Das Auffangen am Boden in Blättern ist ebenfalls üblich. Der rohe Balsam wird durch Schmelzen und Kolieren gereinigt."	1101	Hänsel, R. & al. (1992-1998):
har	SV	"From October until May or June, farmers extract the resin from the tree and from May until July they process the resin. [...] To begin the extraction process, the farmer first takes a bundle of splintered wood called a hachon [...]. They [...] make a fire and leave the hachon in the fire until the ends catch the flame. [...] To climb the balsamo tree, the farmer needs a plank to sit on while in the tree [...] They place the tip of the flame against the bark until it starts to bubble [...]. This does not harm the bark. If the farmers leaves the flame on the bark too long, the bark dries and no resin will leach out. Depending on the size and diameter of the tree, in a single day, a farmer can work between 10 and 23 balsamo trees. [...] Once the burn is complete, the farmers will return after 20 days when the bark is madurado (ripe) and will stick a pañal (pieces of old fabric) to the burnt part where the resin leaches out. They leave the pañal for 25 days, or until the pañal is saturated with balsamo resin. The farmers scrape the pañal off [...]. In addition, the farmers scrape the burnt bark [...] Eight days later, the farmers return to the same balsamo tree to stick another pañal to the exposed layer where the bark was scraped off. The pañal is left for another 25 days, or until the pañal is saturated with balsamo resin. [...] The pañales are processed by depositing them into a cistern of hot water and heating them for 40 minutes. After, they are taken and deposited into a metal cylinder with tiny holes around the sides. The farmers press the pañales into the cylinder using a heavy, blunt wooden rod. [...] The balsamo resin and water drain [...] into a large metal dish. The water is poured out of the dish and the balsamo resin remains in the dish because the resin weighs more than water [...] The bark is processed by first being placed through a wood chipper that produces finer bark shavings. These shavings are deposited into a large sack [...]. Boiling water is poured into the sack [...]The sack is then twisted from a device called a torcedera pushed by farmers [...] The balsamo resin is leached out from the shavings with the water into a large iron bucket [...]. The balsamo resin is then separated from the water [...]. The shavings are dried and later become estoraque (dried bark shavings used as incense to repel insects)."	3763	Anderson, E.A. (2012): The im
har	SV	"Este bálsamo es exclusivo en el territorio salvadoreño, el cual se localiza desde el puerto de La Libertad hasta el puerto de Acajutla."	3769	Dirección de Comunicaciones,
price	SV	"Although its wood is valued for flooring and furniture, its resin is of higher value"	3763	Anderson, E.A. (2012): The im
sus		"Die Bäume besitzen eine erstaunliche Lebenskraft, bei vernünftiger Behandlung (Ruhezeit von einigen Jahren) ist langdauernde Ertragsfähigkeit zu erzielen."	1101	Hänsel, R. & al. (1992-1998):
sus		considered as multipurpose tree species with the "highest potential of conflict of use"	3762	Herrero-Jáuregui, C., Guarigué
sus	SV	"Most of the balsameros do not own the land [...]. Landowners supply the trees, and balsameros supply the workforce and provide all the equipment to climb the trees and collect the resin. [...] In most cases the owners do not manage the trees, so balsameros overharvest the trees, which become weak and are felled by strong winds in the higher elevations in the area."	3758	Navarrete-Tindall, N., Zavaleta
sus	SV	"The slopes of this humid areas [along the Cordillera del Balsamo] were used for the production of balsam (Myroxylon balsamum), a multi-use aromatic resin of which El Salvador has been the main producer even until present day [...] Both balsam and cacao production were responsible for the retention of a managed tree cover in the southern slopes of the Lempa basin and the western coastal slopes. Later on, these systems would give way to the current shade coffee plantations present today in that same region."	3764	Castaneda, H. (2009): Analysis
tra		"Annual world production (1981) of Tolu balsam is about 65 tonnes of which El Salvador exports 48 tonnes or 74 percent."	3759	Levingston; R. & Zamora, R. (1

tra		"Tolu balsam comes from the town of Tolu in Colombia; Peruvian balsam comes mainly from San Salvador but also Costa Rica, Guatemala and Mexico"	3751	van Wyk, B.-E. & Wink, M. (20
tra	SV	"El Salvador es el único país que explota el árbol en forma comercial y exporta la resina purificada a países como Estados Unidos, España, Inglaterra, y Alemania."	3768	Rivera, J.R.A. (2003): Evaluaci
tra	US	"sold in this country"	6369	McGuffin, M., Kartesz, J.T., Le
tra	US	"sold in this country"	6369	

Legislation

Regulation

ICC	Regulation	Ref
CO	"Esta especie se encuentra en peligro de extinción y su aprovechamiento ha sido prohibido en Costa Rica, pero en muchos de estos países no se conoce el estado real de su conservación."	3771 Payares-Díaz, I., Mario-Contrer
CR	"Actualmente es considerada en peligro de extinción y su aprovechamiento ha sido vedado por el Gobierno de Costa Rica."	3772 Anon. (s.dat.): Myroxylon balsa

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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

<i>TypeUtil</i>	<i>TypeUtilLong</i>
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

<i>Status</i>	<i>Explanation</i>
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

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

Ecology: TypeEcol

<i>TypeEcol</i>	<i>Explanation</i>
alti	altitude
grow	growth rate
habit	habitat
morph	morphology
regen	regeneration
repro	reproduction