Solanum sisymbriifolium 简体中文 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Solanales	Solanaceae

Common name

manacader (English), wild tomato (English), pilkalapis baklazanas (Lithuanian), viscid nightshade (English, United States, Australia), ocote mullaca (Spanish), dense-thorn bitter apple (English), alco-Chileo (Spanish), sticky nightshade (English, United States, United Kingdom), red buffalo-burr (English, British Isles), liuskakoiso (English), tutia o Espina Colorada (English), doringtamatie (Afrikaans, South Africa), raukenblatt-nachtschatten (English, Austria), klebriger nachtschatten (German), wildetamatie (Afrikaans, South Africa), tomatillo (Spanish), jeweelie (English, Argentina), tutia (Spanish), arrabenta cavalo (English), puca-puca (Spanish), espina colorada (Spanish), revienta caballo (Spanish), mullaca espinudo (English), jua de roca (Portuguese), uvilla (English), jua das queimadas (Portuguese), morelle de balbis (French), litchi tomato (English), fire and ice plant (English), joão bravo (English)

Synonym

Solanum sisymbrifolium , Lam.
Solanum decurrens , Balb.
Solanum formosum , Weinm.
Solanum brancaefolium , Jacq.
Solanum thouinii , C.C. Gmel.
Solanum viscidum , Schweigg.
Solanum balbisii , Dunal.
Solanum inflatum , Hornem.
Solanum viscosum , Lag.
Solanum mauritianum , Willd.
Solanum subviscidum , Schrank, Denkschr.
Solanum balbisii , var. *purpureum* Hook.
Solanum edule , Vell.
Solanum balbisii , var. *bipinnata* Hook.
Solanum balbisii , var. *oligospermum* Sendtn.
Solanum sisymbriifolium , var. *heracleifolium* Sendtn.
Solanum sisymbriifolium purpureiflorum , Dunal.
Solanum sisymbriifolium , var. *bipinnatipartitum* Dunal.
Solanum sisymbriifolium , var. *brevilobum* Dunal.
Solanum sisymbriifolium , var. *oligospermum*
Solanum sabeanum , Buckley.
Solanum sisymbriifolium , forma *lilacinum* Kuntze.
Solanum sisymbriifolium , var. *macrocarpum* Kuntze.
Solanum sisymbriifolium , forma *albiflorum* Kuntze.
Solanum rogersii , S.Moore.
Solanum bipinnatifidum , Larra&#65533;aga.
Solanum sisymbriifolium , var. *gracile* Mattos.
Solanum xanthacanthum , Willd.
Solanum opuliflorum , Port.

Similar species

Solanum linnaeanum

Summary

Solanum sisymbriifolium is a viscid, hairy herb native to South America that is currently distributed throughout the world. It is valued for its many uses, which include its use as a trap crop for potato cyst nematodes, and the use of its fruit as both a source of solasodine (used to synthsise hormones) and as a food for birds and humans. However, it acts as an invasive weed in some parts of its range by out-competing local vegetation. Biological control methods for Solanum sisymbriifolium have been determined and applied in some regions.

view this species on IUCN Red List

Species Description

Solanum sisymbriifolium is an annual or perennial erect, rhizomatous herb about 1 metre in height. The stem and branches are viscid, hairy, and armed with flat, orange-yellow spines up to 15mm in length. The ovate to lanceolate leaves are borne on petioles 1-6cm long and are pubescent both above and below with stellate and glandular hairs. The leaves are pinnately divided into 4-6 coarse lobes and may be up to 40cm long and 25cm wide. Inflorescences emerge from the foliage and are internodal, unbranched racemes composed of 1-10 perfect or staminate flowers. The 5-parted flowers are white, light blue, or mauve, about 3cm in diameter, and are subtended by a hairy calyx 5-6mm long. Erect, converging anthers are 8-10mm long, and ovary is puberulent with a style 1cm long. Red, succulent, globular berries are 12-20mm in diameter with pale yellow seeds 2.9-3.2mm long (Bean, 2006; D'arcy, 1974; Radford *et al*., 1968).

Notes

In Florida *Solanum sisymbriifolium* is well established in local populations but apparently has difficulty expanding past those sites (D'arcy, 1974).

Lifecycle Stages

When planted in the field, *Solanum sisymbriifolium* germinates in 2-4 weeks. It may grow slowly for the first 4-6 weeks, but growth following that period can be vigorous (PCN Control Group, 2004).

Uses

Solanum sisymbriifolium is best known for its use as a trap crop for potato cyst nematodes (PCN), such as *Globodera rostochiensis* and *G. pallida*. Using *S. sisymbriifolium* in potato fields helps prevent the potato crop from being infested with PCN, and has been shown to reduce populations of PCN by 50–80% (Timmermans *et al*., 2006). *S. sisymbriifolium* is an excellent trap crop because it stimulates the hatching of juvenile PCN from their cysts by root diffusates, yet is completely resistant to infestation by the juveniles once they hatch, preventing reproduction of the pests (PCN Control Group, 2004; Scholte, 2000; Timmermans *et al*., 2006). The species is also highly resistant to the nematodes *Meloidogyne*, *Trichodorus*, and *Pratylenchus* (PCN Control Group, 2004). Additionally, the roots of*S. sisymbriifolium* are resistant to a number of strains of the bacterica wilt pathogen *Pseudomonas solanacearum*.

The fruits of *S. sisymbriifolium* are edible and are consumed regularly by indigenous birds (Hill & Hulley, 1995) and infrequently by the Chorote Indians of Gran Chaco, Argentina (Arenas & Scarpa, 2007). The fruit is also a source of solasodine, a glycoalkaloid used in the synthesis of corticosteroids and sex hormones, and a large component of oral contraceptives (Hill & Hulley, 1995). *S. sisymbriifolium* is cultivated as an ornamental in Rurope (Shaw, 2000).

Habitat Description
Solanum sisymbriifolium is found along roadsides and in waste places, landfills, and plowed fields both in its native South America (Hill and Hullley, 1995) as well as most of its nonnative range. In Australia it is found in shrubby eucalypt woodlands (Bean, 2006). It is able to succeed in any type of soil and soil pH, but requires moisture and thrives in peat and sandy soils. It is tolerant of low-light situations (PCN Control Group, 2004; Plants For a Future, 2004)

Reproduction
Sexual reproduction resulting in seeds is the predominant means of reproduction for *Solanum sisymbriifolium* (Hill & Hulley, 1994), but the species may also reproduce asexually by the growth of its rhizomes (Bean, 2006). It is believed to be self-incompatible (D'arcy, 1974).

General Impacts
Solanum sisymbriifolium may compete with local vegetation to their exclusion. It is declared a Category 1 alien invader plant in South Africa, and it may not be planted, propogated, imported, or sold in the country (SANBI, 2001.

Management Info
Preventative measures: As *Solanum sisymbriifolium* tends to be invasive, its introduction as a trap crop or cultivated plant into a new region should be considered thoroughly before implementation.
Mechanical: Mechanical means of control are difficult due to the species' ability to coppice after cutting and to reproduce prolifically by seed and rootstock (Byrne, Currin, and Hill 2002).
Biological: Biological control methods for *Solanum sisymbriifolium* include the leaf-feeding tortoise beetle *Gratiana spadicea* and the flower-feeding weevil *Anthonomus sisymbrii*. *G. spadicea* was released in South Africa in 1994 for control of *S. sisymbriifolium*, and *A. sisymbrii* has been considered for introduction there as well (Olckers, Medal, and Gandolfo, 2002).

Pathway
Solanum sisymbriifolium may have been introduced unintentionally to South Africa with imported horse fodder (Byrne, Currin, and Hill, 2002).Introduced to new areas for use as a trap crop for potato cyst nematodes.

Principal source: Bean, 2006 *Solanum* species of Eastern Australia. Version: 8th October 2006.
D'arcy, 1974. *Solanum* and Its Close Relatives in Florida.
PCN Control Group, 2004. SA-LINK 112 Projects: Introducing *Solanum sisymbriifolium* as a trap crop for potato cyst nematodes in the UK. Nematode Interaction Unit at Rothamsted Research.

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Filip Verloove, National Botanic Garden of Belgium\ National Botanic Garden of Belgium, Belgium

Pubblication date: 2010-03-29

ALIEN RANGE

[2] AUSTRALIA
[1] AUSTRIA
[1] BELGIUM
[1] BRITISH ISLES
[1] CANADA
[1] CHILE
[2] CHINA
[1] CONGO
[1] CZECH REPUBLIC
[1] DENMARK
[1] FINLAND
[1] FRANCE
[1] GERMANY
[1] HUNGARY

[1] INDIA
[2] ITALY
[1] KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF
[1] LATVIA
[1] MEXICO
[1] NEW ZEALAND
[1] SPAIN
[1] SWEDEN
[1] TURKEY
[17] UNITED STATES
[1] IRELAND
[1] JAPAN
[1] KOREA, REPUBLIC OF
[1] LITHUANIA
[1] NETHERLANDS
[1] SOUTH AFRICA
[1] SWAZILAND
[1] TAIWAN
[1] UNITED KINGDOM

BIBLIOGRAPHY

41 references found for **Solanum sisymbriifolium**

Managment information

Hill, M.P. and P.E. Hulley. 1995. Biology and Host Range of *Gratiana spadicea* (Klug, 1829) (Coleoptera: Chrysomelidae: Cassidinae), a Potential Biological Control Agent for the Weed *Solanum sisymbriifolium* Lamarck (Solanaceae) in South Africa. Biological Control, 5: 345-352.
Summary: This article reviewd the biology and host range of *Gratiana spadicea*, a biological control agent for *Solanum sisymbriifolium* in South Africa.

Mito, T. & T. Uesugi 2004. Invasive Alien Species in Japan: The Status Quo and the New Regulation for Prevention of their Adverse Effects. Global Environmental Research 8(2): 171-191
Summary: Available from: http://www.airies.or.jp/publication/ger/pdf/08-02-08.pdf [Accessed 23 April 2009]

New Zealand Plant Conservation Network. 2005. Exotic plant list.

PCN Control Group. 2004. SA-LINK 112 Projects: Introducing *Solanum sisymbriifolium* as a trap crop for potato cyst nematodes in the UK. Nematode Interaction Unit at Rothamsted Research. Last updated 3 August 2004.
Summary: This webpage covers general information about introducing *S. sisymbriifolium* as a trap crop for potato cyst nematodes. Available from: http://www.rothamsted.bbsrc.ac.uk/ppi/pcncontrol/SA%20project%20sisym.htm [Accessed 16 August 2007].

Scholte, K. 2000. Screening of non-tuber bearing Solanaceae for resistance to and induction of juvenile hatch of potato cyst nematodes and their potential for trap cropping. Annals of Applied Biology, 136: 239-246
Summary: This article examines non-tuber bearing Solanaceae for resistance to and induction of juvenile hatch of potato cyst nematodes and their potential for trap cropping.

South African National Biodiversity Institute. 2001. Declared Weeds & Alien Invader Plants of South Africa list.
Summary: This list provides the species and invasiveness category for alien invader plants of South Africa. Available from: http://www.plantzafrica.com/miscell/aliens1.htm [Accessed 31 August 2007].

USDA, ARS, National Genetics Resources Program. *Germoplasm Resources Information Network - (GRIN)* [Online Database]. 10 August 2007. *Solanum sisymbriifolium* Lam. National Germoplasm Resources Laboratory, Beltsville, Maryland.
Summary: GRIN taxonomic data provide the structure and nomenclature for accessions of the National Plant Germplasm System (NPGS), part of the National Genetic Resources Program (NGRP) of the United States Department of Agriculture s (USDA s) Agricultural Research Service (ARS). In GRIN Taxonomy for Plants all families and genera of vascular plants and over 40,000 species from throughout the world are represented, especially economic plants and their relatives. Information on scientific and common names, classification, distribution, references, and economic impacts are provided. Available from: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?101521 [Accessed 10 August 2007].

USDA, NRCS. 2007. *Solanum sisymbriifolium*. The PLANTS Database (http://plants.usda.gov, 25 July 2007). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
Summary: A website that provides standardized information on the plants of the US. Available from: http://www.plants.usda.gov/java/nameSearch?keywordquery=solanum+sisymbriifolium&mode=sciname&submit.x=11&submit.y=8 [Accessed 20 August 2007].

w&#65533; TROPICOS. 2007. *Solanum sisymbriifolium*. The Missouri Botanical Garden s online VAST (Vascular Tropicos) nomenclature database and associated authority files.
Summary: This database provides nomenclature and distribution information of vascular plant and bryophyte species. Available from: http://mobot.mobot.org/cgi-bin/search_pick?name=Solanum+sisymbrifolium [Accessed 10 August 2007].

General information

Arenas, P. and G. Scarpa. 2007. Edible wild plants of the Chorote Indians, Gran Chaco, Argentina. Botanical Journal of the Linnean Society, 153: 73&#65533;85.
Summary: This article details the wild plants consumed by the Chorote Indians of Gran Chaco, Argentina. Provides edibility information on *Solanum sisymbriifolium*.

Bean, A.R. 2006. *Solanum* species of Eastern Australia. Version: 8th October 2006.
Summary: This webpage gives a description of the morphology of *S. sisymbriifolium*. Available from: http://delta-intkey.com/solanum/www/sisymbri.htm [Accessed 10 August 2007].

Clements, E.J. & Foster, M.C. 1994. *Alien Plants of the British Isles*. London: Botanical Society of the British Isles.

Conti, F., Abbate, G., Alessandrini A. & Blasi C. 2005. *An annotated checklist of the Italian vascular flora*. Palombi Editori, Roma.

D arcy, W.G. 1974. *Solanum* and Its Close Relatives in Florida. Annals of the Missouri Botanical Garden, 61 (3): 819-867.
Summary: This article provides an aid to identification of members of the genus *Solanum* and its close relatives in Flordia. Provides a morphological description of *S. sisymbriifolium*.
Encyclopedia of Life. 2009. *Solanum sisybriifolium* Lam.
Summary: Available from: http://www.eol.org/pages/581198?category_id=13 [Accessed 26 February, 2010]
European and Mediterranean Plant Protection Organization (EPPO), 2008. EPPO Reporting Service, No. 11, Paris, 2008-11-01.
Summary: Available from: http://archives.eppo.org/EPPOReporting/2008/Rse-0811.pdf [Accessed 26 February, 2010]
Flora Italiana. Undated. *Solanum sisymbrifolium* Lam.
Summary: Available from: http://luirig.altervista.org/schedeit2/pz/solanum_sisymbrifolium.htm [Accessed 26 February, 2010]
Flora of China. 2007. *Solanum sisymbriifolium*. Flora of China, Vol. 17, pg. 324. Available from http://www.eFloras.org, an online guide to the floras of the world.
Summary: An online flora of China. Provides a description of *Solanum sisymbriifolium*.
Available from: http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=200020605[Accessed 20 August 2007].
Flora of Taiwan. 2007. *Solanum sisymbriifolium*. Flora of Taiwan. Available from http://www.eFloras.org, an online guide to the floras of the world.
Summary: An online flora of Taiwan. Provides a description of *Solanum sisymbriifolium*.
Available from: http://www.efloras.org/florataxon.aspx?flora_id=100&taxon_id=200020605 [Accessed 20 August 2007].
HEAR. 2007. Global Compendium of Weeds *Solanum sisymbriifolium* (Solanaceae).
Summary: Available from: http://www.hear.org/gcw/species/solanum_sisymbriifolium/ [Accessed 26 Febuary, 2010]
Hill, M.P., Hulley, P.E., Olckers, T., 1993. Insect herbivores on the exotic weeds *Solanum elaeagnifolium* Cavanilles and *S. sisymbriifolium* Lamarck (Solanaceae) in South Africa. *African Entomology 1*: 175-182.
ITIS (Integrated Taxonomic Information System), 2005. Online Database *Solanum sisymbriifolium*
Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=30457 [Accessed 10 August 2007]
Karaer, F. & Kutbay, H.G. 2007. *Solanum sisymbriifolium* Lam. (Solanaceae): a new record for Turkey. *Turkish Journal of Botany 31*: 481-483.
Kil, J.H., Shin, K.C., Park, S.H., Koh, K.S., Suh, M.H., Ku, Y.B., Suh, S.U., Oh, H.K. & Kong, H.Y. 2004. Distributions of Naturalized Alien Plants in South Korea. *Weed Technology 18*: 1493-1495.
Mbale, Henri. 2007. Checklist of Invasive Plants of the Congo. Last updated on 2007-05-07. Discover Life search engine.
Summary: A checklist of the invasive species of the Congo.
Available from: http://www.discoverlife.org/mp/20q?guide=Invasive_plants_of_Congo [Accessed 20 August 2007],
Morley, B. 1975. *Solanum sisymbriifolium* Lam.: An alien in the Irish flora. *The Irish Naturalists' Journal 18*(5): 144-145.
NOBANIS (North European and Baltic Network on Invasive Alien Species) 2010. *Solanum sisymbriifolium*.
Summary: Available from: http://www.nobanis.org/speciesInfo.asp?taxaID=1574 [Accessed 26 February, 2010]
Olckers, T., J.C. Medal, and D.E. Gandolfo. 2002. Insect Herbivores Associated with Species of *Solanum* (Solanaceae) in Northeastern Argentina and Southeastern Paraguay, with Reference to Biological Control of Weeds in South Africa nd the United States of America. Florida Entomologist, 85 (1): 254-260.
Summary: This article reviews the insect herbivores assoicated with members of the *Solanum* genus in N.E. Argentina and S.E. Paraguay.
Ontario Natural Heritage Information Centre. 2005. General Element Report: *Solanum sisymbriifolium*. Ontario Ministry of Natural Resources. Last updated 06-05-2005.
Summary: An element report of *S. sisymbriifolium* in Ontario.
Available from: http://nhic.mnr.gov.on.ca/MNR/nhic/elements/el_report.cfm?elid=152062 [Accessed 20 August 2007].
PIER (Pacific Island Ecosystems at Risk) 1999. *Solanum sisymbriifolium* Lam., Solanaceae
Summary: The PIER website provides an information sheet on *S. sisymbriifolium*.
Available from: http://www.hear.org/pier/species/solanum_sisymbriifolium.htm [Accessed 10 August 2007].
Plants For a Future. 2004. *Solanum sisymbriifolium* Lam. Database for edible, medicinal, and useful plants for a healthier world. Last updated June 2004.
Summary: Plants For A Future is a resource center for rare and unusual plants, particularly those which have edible, medicinal or other uses. Provides general information on *S. sisymbriifolium*.
Available from: http://www.pfaf.org/database/plants.php?Solanum+sisymbriifolium [Accessed 16 August 2007].
Py&#65533;ek, P., S&#65533;dlo, J. & Mand&#65533;k, B. 2002. Catalogue of alien plants of the Czech Republic. *Preslia 74*(2): 97&#65533;186.
Radford, A.E., Ahles, H.E., and Bell, C.R. 1968. Manual of the Vascular Flora of the Carolinas. Chapel Hill, NC: The University of North Carolina Press.
Summary: A dichotomous key and guide to the vascular flora of the Carolinas.
Shaw, J.M.H. 2000. Solanaceae. In J. Cullen, J.C.M. Alexander, C.D. Brickell, J.R. Edmondson, P.S. Green, V.H. Heywood, P.M. Jorgensen, S.L. Jury, S.G. Knees, H.S. Maxwell, D.M. Miller, N.K.B. Robson, S.M. Walters & P.F. Yeo (Eds.), *The European Garden Flora, Volume 6*. New York: Cambridge University Press.
Solanaceae Source. Undated. *Solanum sisymbriifolium* Lam.
Summary: Available from:
http://www.nhm.ac.uk/research-curation/research/projects/solanaceaesource/taxonomy/description-detail.jsp?taxa=5365 [Accessed 26 February, 2010]
Swaziland National Trust Commision, 2007. *Solanum sisymbriifolium*. Swaziland s Alien Plants Database.
Summary: A database of Swaziland s alien plant species.
Timmermans, B.G.H. 2005. *Solanum sisymbriifolium* (Lam.): A trap crop for potato cyst nematodes. PhD Thesis, Wageningen University, the C.T. de Wit Graduate School for Production Ecology and Resource Conservation (PE&RC), Wageningen, The Netherlands.

Timmermans, B.G.H. , J. Vos, T.J. Stomph, J. Van Nieuwburg & P.E.L. Van der Putten. 2007. Growth duration and root length density of *Solanum sisymbriifolium* (Lam.) as determinants of hatching of *Globodera pallida* (Stone). Annals of Applied Biology, 148: 213&#65533;222
Summary: This article examines growth duration and root length density of *Solanum sisymbriifolium* (Lam.) as determinants of hatching of Globodera pallida (Stone). Provides information as to the use of *S. sisymbriifolium* as a trap crop.
Verloove F. 2006. Catalogue of neophytes in Belgium (1800-2005). *Scripta Botanica Belgica 39*: 1-89.
Verloove, F. & Lambinon, J. 2008. Neophytes in Belgium: corrections and adjustments. *Systematics and Geography of Plants 78*: 63-79.
Woys Weaver, W. 2009. *Litchi tomato.*
Summary: Available from: http://www.motherearthnews.com/Real-Food/Litchi-Fruit-Morelle-De-Balbis.aspx [Accessed 26 February, 2010]