

Plant Diversity Website

***Vincetoxicum nigrum* (L.) Moench.**

Common Names: Louis' swallow-wort, black swallow-wort, climbing milkweed, black dog-strangling vine, Louise's swallow-wort, climbing poison, and dark vincetoxicum. The French common name is *dompte-venin noir*, which translates roughly to "black venom-subduer" (1,4,7,15).

Etymology: Two explanations exist for "*Vincetoxicum*". DiTommaso et al. (7) explain that it comes from the Latin *Vinco* and *toxicum*, and means "to overcome or subdue [with] poison." Fernald (13) says that *Vincetoxicum* is "an ancient name, meaning rope-like poison." The common name possibly refers to a possible past use of the plant as an animal poison. Still, it was once said to be an antidote for poisons (7). The generic synonym *Cynanchum*, comes from the Greek words *kyon*, meaning "dog", and *anchein*, meaning "strangle" or "poison." *Nigrum* is Latin for "black" (7).

Botanical synonyms: *Cynanchum nigrum* (L.) Pers., non Cav., *Cynanchum louiseae* Kartesz & Gandhi (1), *Asclepias nigra* L. (3)

FAMILY: Apocynaceae (the Dogbane family), formerly separated as the Asclepiadaceae (Milkweed family) (1,12). Here we accept the larger Apocynaceae.

Quick Notable Features:

- Deep purple flowers borne in axillary cymes
- Adaxial petal surfaces covered in hairs
- Simple, opposite, petiolate leaves
- Stems reddish where exposed to constant sunlight

Plant Height: Stems typically grow 0.4-2m long, and can twine to a height of 0.6-1.5m (3,4,7).

Subspecies/varieties recognized:
none (5)

Most Likely Confused with: *Lonicera* spp., *Solanum dulcamara*, *Vincetoxicum rossicum*



Habitat Preference: Fields, thickets, roadsides, fencerows, and waste areas (4). The species thrives under low or high light exposure (7). "Well-drained, stony soils are often densely colonized" (7).

Geographic Distribution in Michigan: Previously reported in only seven counties in the Lower Peninsula: Genesee, Hillsdale, Ingham, Kalamazoo, Lenawee, St. Joseph, and Washtenaw (1). *V. nigrum* was recently (2014) confirmed in five additional counties: Calhoun, Cheboygan, Clinton, Emmet, and Oakland (14).

Known Elevational Distribution: In the European Pyrenees, *V. nigrum* has been observed to grow up to elevations of 500m (7). In Spain, it was collected at 1980m above sea level on Pico de los Tejos, in the Sierra de Castril (15).

Complete Geographic Distribution: Native to southwestern Europe (Portugal, Spain, France, and Italy) (7), *V. nigrum* is now found in all of the Great Lakes states, as well as Maine, Vermont, New Hampshire, Connecticut, Massachusetts, Rhode Island, Maryland, Kentucky, Missouri, Kansas, Nebraska, and California. In Canada, it is found in Ontario and Quebec (1). There are also occurrences of the species in Albania, Germany, Mexico, Netherlands, and Sweden (15).



Vegetative Plant Description: A perennial herbaceous scrambler, erect forb, or twining vine that over-winters as short, horizontal rhizomes. The roots are pale and fleshy, and the stems are slender, with latex. The stem pubescence may be arranged in lines. The stems are usually green but can turn reddish-brown when exposed to constant light. The opposite leaves are ovate or lanceolate with acuminate tips and round bases, 3-12cm long and 1.5-7.5cm wide, borne on petioles 10-20mm long. Leaves are dark green with red, pubescent, pinnate veins, surfaces glabrous above and pubescent below (especially along midrib). Leaf margins are entire; they are usually flat but sometimes slightly revolute, and ciliate. Leaves are described as largest and roundest in the center of the vine, with basal leaves and apical leaves tending to be smaller and narrower (2,3,4,6,7,8).

Climbing Mechanism: Stem apices twine or scramble (4,7). Although no literature on twining direction was found, photographs (13) suggest *V. nigrum* twines dextrally (left to right).

Flower Description: The fragrant 5-merous flowers (5-9mm across) are borne in axillary cymes. The peduncles are typically curved, pubescent (pubescence sometimes arranged in linear bands), 0.5-4cm long, bearing 4-12 flowers each. The pedicels are slender, glabrous or densely pubescent, and up to 4mm long. The sepals are ovate or triangular, 1-2mm long. The deep purple or brown petals are 1.5-3mm long and broad, and the adaxial surfaces are coated in fine white hairs. The petals are not twisted within the bud, unlike many Apocynaceae. *V. nigrum* has a corona (staminal crown); it is approximately 0.5mm tall, 5-lobed, and often grows higher than the superior, sessile, yellowish-green, 5-staminate gynostegium (a fusion of the androecium that covers the gynoecium). The anthers are inconspicuously winged. The ovary is two-carpellate (2,3,4,6,7,8,12).

Flowering Time: In New York, *V. nigrum* flowers from May through mid-June (7), while throughout the range the flowers can be seen through September (13).

Pollinator: *V. nigrum* is pollinated by flies and selfing (7). One study found that flowers visited by flies produced more viable seeds than self-pollinated flowers (7).

Fruit Type and Description: The species bears glabrous or pubescent follicles 4-8cm in length, slender or plump, occasionally paired, and without nodules on the exocarp. *V. nigrum* fruits in early August to early October in the northern U.S. (4,6,7,8).

Seed Description: Seeds are produced from August to October in the northern U.S. Seeds are small, brown, flat, ovoid, 6-8mm long and 3-5mm wide, and tipped in silky hairs 2-3cm long (4,7).



Dispersal Syndrome: The follicles open; the silky seeds are carried away on the wind (4).

Distinguished by: Many Apocynaceae, including *Vincetoxicum* can easily be distinguished from most other families by the presence of milky latex in the stems, and no climbing *Lonicera* species found in Michigan has latex in its stem. *V. nigrum* may be distinguished from *Solanum dulcamara* by its opposite, entire leaves (*Solanum* has alternate, serrated leaves) and fruit (*V. nigrum* has a follicle; *S. dulcamara* has a bright red berry). In contrast to *V. nigrum*, *V. rossicum* has pale pink, occasionally maroon flowers, with glabrous petals at least twice as long as wide. *V. nigrum* bears dark purple petals that are as long as wide, with adaxially pubescent surfaces). The flower buds of *V. rossicum* are conical, whereas the flower buds of *V. nigrum* are globose. Finally, the linear bands of hair on the stems of *V. rossicum* are much more distinct and dense than the bands of pubescence on *V. nigrum*.

Other members of the family in Michigan: *Asclepias* (12) and *Vincetoxicum* (2) in the subfamily, and *Apocynum* (3) and *Vinca* (1) in the s.l. Apocynaceae (source: 1).

Ethnobotanical Uses: None found, although the synonym *Cynanchum* possibly refers to a possible past use of the plant as an animal poison. Interestingly, the Latin *Vinco* and *toxicum*, from which came the name *Vincetoxicum*, roughly means “to overcome or subdue with poison”; *V. nigrum* was once said to be an antidote for poisons (7,10,11).

Phylogenetic Information: Apocynaceae and Asclepiadaceae are sometimes treated as distinct families, but have been merged by many workers since 1962, with Asclepiadoideae as one of five subfamilies within Apocynaceae. Several differences exist (as well as similarities) between the two old families, but a few distinguishing characters may be useful in the field: corolla shape (generally rotate in Asclepiadoideae and funnelform or salverform in Apocynaceae, and filament fusion (typically connate in Asclepiadoideae, and distinct in Apocynaceae). The Apocynaceae is placed in the Gentianales, within Asterid I group of the angiosperms (12).

Interesting Quotation or Other Interesting Factoid not inserted above: Several species of butterfly, including North American monarchs (*Danaus plexippus*), lay their eggs only on

members of the Asclepiadoideae. Although some butterfly species show a clear preference for non-toxic Asclepiadoideae members (primarily *Asclepias*) when they are available, some butterflies have been observed to lay eggs on *V. nigrum*, raising concerns about the survival of the populations due to the toxic nature of compounds within *V. nigrum* and its recent rapid spread (9). The species is listed as an invasive weed in many parts of its current range (13).

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- 4) Image of fruit with seeds dispersing courtesy Leslie J. Mehrhoff, University of Connecticut/bugwood.org (<http://www.invasive.org/browse/detail.cfm?imgnum=5275020>)

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