Plant Diversity Website

Ampelopsis brevipedunculata (Maxim.) Trautv.

Common Names: Amur peppervine, porcelain-berry, wild grape (1,8)

Etymology: *Ampelos* is the Greek word for vine, and *opsis* is Greek for "sight", "appearance", or "likeness." *Brevis* is Latin for "short" or "abridged," and *pedunculata* is the Latinized form of "peduncle" (2).

Botanical synonyms (1,8):
Cissus brevipedunculata Maxim;
Ampelopsis heterophylla (Thumb.) Siebold & Zucc.
*Ampelopsis glandulosa (*Wall) Momiy. v.
brevipedunculata (Maxim.) Momiy.

FAMILY: Vitaceae (the grape family)

Quick Notable Features:
¬ Berries can turn any shade of pastel yellow, blue, pink, green, or purple, all on the same plant
¬ Leaf-opposed tendrils, borne on stems with smooth (non-shredding) bark
¬ Leaves range from unlobed to deeply 3-5 lobed

Plant Height: Climbs to a height of 5m (9)

Subspecies/varieties recognized (1,7,11,12)**:**
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *ciliata* (Nakai) F.Y. Lu
Ampelopsis brevipedunculata (Maxim.) Trautv. f. *citrulloides* (Lebas) W. Lee
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *citrulloides* (Lebas) W. Lee
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *elegans* Rehder
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *glabrifolia* Honda
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *hancei* (Planch.) Rehder & Li.
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *heterophylla* (Thunb.) H. Hara
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *kulingensis* Rehder
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *maximowiczii* Regel (Rehder)
Ampelopsis brevipedunculata (Maxim.) Trautv. f. *puberula* W.T.Wang
Ampelopsis brevipedunculata (Maxim.) Trautv. var. *vestita* (Rehder) Rehder

Most Likely Confused with: various *Vitis* species, *Hedera helix*, *Menispermum canadense, Parthenocissus tripcuspidata, Parthenocissus vitacea*

Habitat Preference: *A. brevipedunculata* can grow in a variety of habitats, including forest edges, riparian areas, thickets, and waste places. It prefers full to partial sunlight, and is less tolerant of heavy shade (6,15).

Geographic Distribution in Michigan: Introduced and probably rarely escaped in Michigan, but the University of Michigan Herbarium has two specimens collected in Wayne Country along the River Rouge in Detroit (R. Sonday pers. obs.).

Known Elevational Distribution: In the Himalayas, *A. brevipedunculata* grows up to 2200m a.s.l. (7).

Complete Geographic Distribution: Native to East Asia, *A. brevipedunculata* has become invasive throughout the eastern United States. The species is found in New Hampshire east to Michigan and Wisconsin and as far south as Georgia. The only states west of the Mississippi in which *A. brevipedunculata* can be found are California and Iowa (12, 17). It has been cultivated since the 1870's (17).

Vegetative Plant Description: *A. brevipedunculata* is a deciduous, woody, perennial vine with a large, deep taproot and longitudinal ridges on branching stems. The bark has lenticels and does not peel or shred, while the stems bear white, continuous pith. Young twigs are usually glabrous to hairy. The petioles are 1-7cm long and sparsely hairy. The alternate, simple leaves have shallowly cordate bases, toothed margins, and acute apices. They range from unlobed to deeply 3-5 lobed, 3.5-14cm long and 3-11cm wide, and have hairy to glabrous undersurfaces (6,7,9,14,15).

Climbing Mechanism: Individuals climb with branched tendrils borne opposite the leaves (7).

Flower Description: The perfect flowers are protandrous (anthers open before stigma is receptive), borne in cymes opposite the leaves on peduncles 1-2.5cm long and pedicels 1-3mm long. There are 5 green sepals. The 5 free greenish-white petals are 0.8-1.8mm long and ovate-elliptic. There are 5 stamens. The ovary is adnate to an enlarged disk and the style is described as "conspicuous", whereas the stigma is "inconspicuous" (5,6,7,14,15).

Flowering Time: In most of the United States, flowering is June-August (6,15).

Pollinator: Zomlefer (4) notes that "cross-pollination is…generally promoted by protandry." No other pollination information was found.

Fruit Type and Description: The yellow, blue, pink, purple, or green subglobose berries are 2-8mm in diameter and contain two to four seeds each. On herbarium specimens and in images the fruits have a speckled appearance (pers. obs.). *Ampelopsis brevipedunculata* bears fruit in most of the United States from September to October (6,7,9,14,15, 17).

Seed Description: Seeds are “narrowly elliptic” (7). Zomlefer (5) notes “the seeds of the Vitaceae have a distinctive morphology.” The seed coat has two deep grooves on the adaxial surface, molding the endosperm into “a characteristic three-lobed configuration.” A distinct ridge begins between these two grooves and ends on the abaxial side of the seed in a raised area or a depression. No additional detail for the species was found.

Dispersal Syndrome: Birds and small mammals eat the berries, which can also be dispersed by water (6,7,18).

Distinguished by: *A. brevipedunculata* can be distinguished from species of *Vitis* by the stem pith. *Vitis* species bear brown pith that is not continuous at the nodes, whereas *A. brevipedunculata* bears white pith that is continuous at the nodes. *Vitis* species have bark that shreds, whereas the bark of *Ampelopsis* species does not (6,7,9,15).

A. brevipedunculata can be distinguished from *Hedera helix* by the habit. *Hedera helix* is most often observed in the eastern United States as a groundcover, but when it does climbs it uses adventitious roots, rather than tendrils. Additionally, *Hedera helix* is evergreen, while *A. brevipedunculata* sheds its leaves in autumn (6,9,14).

Leaves of *Menispermum canadense* are not as deeply lobed as those of *A. brevipedunculata* and *M. canadense* climbs using apical twining rather than tendrils. The seeds of *Menispermum canadense* are shaped like a crescent moon (hence its Latin and common name: moonseed), while those of *A. brevipedunculata* are narrowly elliptic (9,14,15, R. Sonday pers. obs.).

Both Parthenocissus vitacea and *P. quinquefolia* almost always have five leaflets, and the petioles are usually glabrous. *A. brevipedunculata* has leaves that vary from being shallowly lobed to deeply lobed, but it is not noted in the literature to ever have distinct leaflets, and its petioles are sparsely hairy (6,15, R. Sonday pers. obs.). *Parthenocissus tricuspidata* climbs using adhesive tendrils whereas *A. brevipedunculata* bears twining tendrils.

Other members of the family in Michigan: *Ampelopsis* (2), *Parthenocissus* (2), *Vitis* (4) [8,9,16].

Ethnobotanical Uses: Stems and roots were traditionally used as anti-inflammatories, diuretics, and anti-hepatotoxins by the Chinese. A study from 2004 noted that several compounds in the species are in fact anti-hepatotoxic and anti-inflammatory (4). The leaf buds, stems, and leaves are all edible when cooked, and the fruit is edible raw or cooked, although described as “not very palatable” (10).

Phylogenetic Information: Vitaceae is a core eudicot recently added to the Rosids, which are now placed in the order Vitales (APGIII). Vitales may be a sister group to all Rosids. Vitaceae is most closely related to the Crossosomatales, Geraniales, and Myrtales (13).

Interesting Quotation or Other Interesting Factoid not inserted above: The European grapevine moth, *Lobesia botrana*, is a common vineyard pest in Europe that uses members of

Vitaceae, including *A. brevipedunculata*, as host plants for oviposition, despite study findings that both larvae and adults of *L. botrana* have increased fitness when raised on alternative (non-Vitaceae) host plants (3). Under the right conditions, porcelain berry stems can grow up to 6m during the growing season. A cutting of porcelain berry can grow roots 46-59cm long in 7 weeks, depending on competition with other species (18).

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