

# Plant Diversity Website

## *Ipomoea x multifida* (Raf.) Shinnery

**Common Names:** Cardinal climber, morning glory, hearts and honey vine, cypress vine (5,8,17).

**Etymology:** The genus name *Ipomoea* is from the Greek *ipso*, which means “a worm,” and *homoios* which, means “resembling,” referring to the wormlike twining habit. The letter “x” before the species name means “hybrid”, and *multifida* in Latin means “splintered”, probably referring to the deeply lobed leaves (1,6).

**Botanical synonyms** (5,11,15):

*Quamoclit multifida* Raf.

*Quamoclit x sloteri* (Nieuw.) House

*Ipomoea x sloteri* (Nieuw.) Ooststr.

**FAMILY:** Convolvulaceae, the bindweed or morning glory family

**Quick Notable Features** (11,12):

- Twining vine with alternate, simple, deeply lobed leaves
- Each leaf has 3-7 pairs of narrow-lanceolate lobes
- Flowers are tubular, scarlet red, with a yellowish to white throat
- Fruit is an ovoid capsule bearing  $\leq 4$  dark, tufted seeds

**Plant Height:** The cardinal climber grows up to 6-7m tall (12,18).

**Subspecies/varieties recognized:** none found.

**Most Likely Confused with:** *Ipomoea pandurata*, *I. hederacea*, *I. purpurea*, *Citrullus lanatus*.

**Habitat Preference:** The cardinal climber prefers dry to moist, well-drained soils with full sun exposure (3).

**Geographic Distribution in Michigan:** *I. x multifida* was collected in Jackson Co., escaped from cultivation (8).

**Known Elevational Distribution:** No information was found.

**Complete Geographic Distribution:** The cardinal climber was developed as a hybrid in the United States and thus has no natural range. It is only found escaped from cultivation in Texas, Florida, and Michigan (2). The hybrid is cultivated ornamentally throughout the world (11).



**Vegetative Plant Description:** The stems of the annual cardinal climber are glabrous with linear ridges. The stipules are 0.5-2 mm long, and the petioles are 1-3cm long. The simple, alternate leaves are glabrous, 2-12.7cm long and 2.5-5.5cm broad (or slight broader in leaves longer than 5cm) with 3-7 pairs of narrowly lanceolate, deep, pinnate lobes, and one terminal lobe that is the broadest; the sinuses reach 2/3-3/4 of the way to the midrib or base of the segments. Each leaf is broadly ovate to oblong, and pinnately veined (8,10,11,12,20,21).

**Climbing Mechanism:** Stem twining (3,12,17), with a dextrally oriented direction (see habit image).

**Flower Description:** The cymose inflorescence is composed of 1-5 perfect actinomorphic flowers. The peduncles are 4-8.5cm long. The calyx has 5 elliptic to oblong sepals that are apically obtuse with long appendages, glabrous, and 0.6-0.8cm long. *I. x multifida* has a salverform corolla that is 4-5cm long and 2.5cm broad, scarlet red with yellow or white in the tube. The 5 epipetalous stamens are exerted well beyond the tube, and are about 2.3cm long. The bi-carpellate ovary is superior with 4 ovules. The single filiform style is exerted from the tube and topped with a 1 to 2-lobed, globular stigma. The hypogynous disk produces nectar (8,10,11,12,19,20).



**Flowering Time:** *I. x multifida* flowers from June-September in Illinois (3).

**Pollinator:** The cardinal climber is autogamous (11,14) but attracts hummingbirds and butterflies that may serve as pollinators (12).



**Fruit Type and Description:** *I. x multifida* bears an ovoid capsule 0.7-0.9cm in length (11).

**Seed Description:** The seeds are dark brown to black, hard, and glabrous or with tufts of short pubescence. Seeds must be scarred or soaked in water prior to sowing to germinate (3,11).

**Dispersal Syndrome:** No dispersal method was found in the literature, but the species is likely dispersed by humans in trade, as it is treasured for its flowers.

**Distinguished by:** No other species of *Ipomoea* in Michigan has a) leaves that are deeply and narrowly lobed, b) red

salverform corollas with long exerted stamens and c) exerted style and stigma. *Ipomoea pandurata* has cordate-ovate leaves and white flowers with purple in the tube. *I. hederacea* and *I. purpurea* have pubescent (not glabrous) stems. *I. hederacea* has 3-lobed leaves and blue to

purple flowers. *I. purpurea* has cordate, unlobed leaves, with a white, pink, purple or bluish corolla. *Citrullus lanatus* also has alternate, deeply pinnately lobed leaves; however it is usually a creeping vine that climbs using its tendrils, unlike the apical twiner *I. x multifida*. Further, the whole plant is covered in hairs, the yellow flowers are solitary and unisexual, and the fruit is a large berry commonly known as watermelon (8,16,22).

**Other members of the family in Michigan (number species):** *Calystegia* (5), *Convolvulus* (1), *Cuscuta* (9), and *Ipomoea* (4) (source 8).

**Ethnobotanical Uses:** The plant is used worldwide as an ornamental plant (11). As a hybrid created by humans and cultivated for ornamental purposes (13), it does not have ethnobotanical history beyond its floral attractiveness in gardens. The seeds are toxic (10).

**Phylogenetic Information:** The Convolvulaceae is a member of the order Solanales. Solanales forms a monophyletic group with Lamiales and belongs to the Asterid I clade. Within Convolvulaceae there are two groups: Humbertioidae, the rare large trees, and Convolvuloideae, comprising both woody and herbaceous vines. Edible and ornamental members of this family are found worldwide, with the exception of polar regions and deserts of Patagonia, Sahara, and Taklimaka (4).

**Interesting Quotation or Other Interesting Factoid not inserted above:** *I. x multifida* is a hybrid of *I. coccinea* and *I. quamoclit* created by L. Slotter. It took 11 years of crossing to create one successful seed that became the source of all cultivated *I. x multifida* (8,13). If ingested, the seeds of several *Ipomoea* species are poisonous to humans and livestock (7). Symptoms include: hallucinations, dilated pupils, nausea, vomiting, diarrhea, drowsiness, numbness of extremities, and muscle tightness upon ingestion (9). Species of *Ipomoea* are considered noxious weeds in Arkansas and Arizona, where the genus is prohibited (2). A few problems that may afflict cultivated *I. x multifida* are "white blister, rust, fungal leaf spots, stem rot, thread blight, charcoal rot, and wilt" (10).

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