

Plant Diversity Website

Vicia hirsuta (L.) Gray

Common Names: Tiny vetch, hairy vetch, hairy tare (3,8,11).

Etymology: *Vicia* is the Latin word for “vetch”, and *hirsuta* means “hairy, rough” (4).

Botanical synonyms: *Cracca hirsuta*, *C. minor*, *Endiuseria hirsuta*, *Ervilia hirsuta*, *Ervilia vulgaris*, *Ervum filiforme*, *Ervum hirsutum*, *Ervum sardoum*, *Ervum terronii*, *Vicia coreana*, *V. meyeri*, *V. mitchellii*, *V. parviflora*, *V. taquetii*, *V. terronii*, and *Vicioides hirsuta* (2).

FAMILY: Fabaceae, the pea family

Quick Notable Features (7):

- Leaves with 12-16 leaflets, ending in an often-forked tendril
- Racemes of 3-6 small flowers
- The style is apically glabrate
- The pubescent legume bears 2 seeds, each seed with a persistent funiculus

Plant Height: The stems grow up to 70cm long (7).

Subspecies/varieties recognized (2):

V. hirsuta var. *hefeiana* J.Q. He

Most Likely Confused with: *Vicia tetrasperma*, *V. villosa*, *V. caroliniana* or species of *Lathyrus*.

Habitat Preference: The plant grows in open sites, mostly in abandoned fields, and by the sides of roads. *V. hirsuta* prefers moist soils (5,7,11).



Geographic Distribution in Michigan: *V. hirsuta* is only found in Cheboygan, Kent, and Newaygo counties (3).

Known Elevational Distribution: This species has been collected at 3,100m above sea level in Ecuador (2).

Complete Geographic Distribution: Native to Europe, *V. hirsuta* was introduced to the Americas, and has become established in coastal areas of the United States (AL, AR, CA, CT, DC, DE, FL, GA, LA, MA, ME, MI, MS, NC, NH, NJ, NY, OH, OK, OR, PA, RI, SC, TX, VA, WA, WI, WV), Canada (BC, NB, NS, ON, PE, QC), Greenland, Mexico, Leeward Islands, Haiti, Ecuador, Chile, Brazil, Paraguay, and Argentina. Its native range includes Western Europe, most of Northern Europe, half of Southern Europe, and less abundant throughout Eastern Europe. This species is also present on half of South, West and East Asia. In Africa, it is found in Angola, Ethiopia, Kenya, Morocco, Namibia, Rwanda, South Africa, and United Republic of Tanzania. In Oceania, it is found in Australia, New Zealand, and Norfolk Island (2,8,9).

Vegetative Plant Description: *V. hirsuta* is an annual, herbaceous trailing or climbing plant with branching stems that remain green upon drying. The stems are lightly strigose to glabrescent with white trichomes. The minute stipules are serrated and glandless. Each once-pinnately compound leaf bears 4-16 leaflets, with the terminal leaflet modified into a forking tendril; the leaves are arranged alternately along the stem. The leaflets are narrowly elliptical, 0.5-2cm long, basally tapering and rounded, and apically emarginated (5,7,10).



Climbing Mechanism: The plant uses its tendrils at the tips of the leaves to climb (7).

Flower Description: The minute flowers of *V. hirsuta* (3-4mm long) are perfect, zygomorphic, and borne in racemes of 2 to 6 flowers, in the leaf axils. The peduncles are 1-3cm long, and the pedicels are 1-2mm long. The calyx tube (0.8-1mm long) is pubescent and slightly shorter or equal in length to the uniform, linear lobes (5) that are 1-1.5mm long. The petals (5) are whitish-blue, the keel petals rarely apically violet. The standard is 2-5mm long. The wing and keel petals are adnate. The stamens are 10 (fused as 9+1). The pubescent ovary is sessile or nearly so; the style is filiform and glabrate, the stigma globular (5,6,7,10).

Flowering Time: *V. hirsuta* flowers in spring (April-June) (7).



Pollinator: The species is known to self-pollinate, but it is also visited by bees, moths, and butterflies (10,11).

Fruit Type and Description: The fruit of *V. hirsuta* is a flat, pubescent legume that turns from green to dark brown-black at maturity (May-July). The fruits are usually 6-11mm long, 2.5-4mm wide, have nearly rounded ends, and contain 2 seeds (6,10).

Seed Description: The seeds are nearly orbicular, 1.5-2.8mm (usually >2mm), and greenish to reddish with dark spots in varying density. The hilum covers 14-21% of the seed circumference, is darker than the seed coat, and concealed by a persistent brown funiculus (10,12).

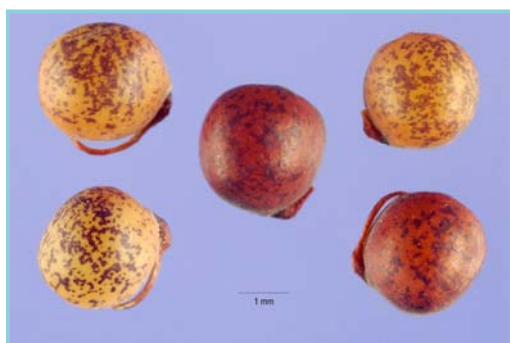
Dispersal Syndrome: The legumes twist open at maturity to release the seeds (10).

Distinguished by: *Vicia tetrasperma* is very similar to *V. hirsuta*, but can be easily distinguished in flowering or fruiting plants. The calyx lobes are irregular and deltoid in *V. tetrasperma* flowers, and much shorter than the calyx tube, while in *V. hirsuta* they are regular, linear, and equal to or longer than the tube. In addition, *V. tetrasperma* legumes are glabrous and bear 3-5 seeds. Sterile plants can be distinguished by the number of leaflets, however *V. hirsuta* is very variable in number of leaflets due to autogamy; *V. tetrasperma* often has about half as many leaflets per leaf as *V. hirsuta*, and they can be up to 5mm longer. *Vicia villosa* has villous stems while *V. hirsuta* has sparingly pubescent to glabrate stems. The many flowered raceme (10-30) and calyx are also villous, the calyx lobes irregular; *V. hirsuta* racemes bear only 2-6 flowers. The legumes are also easily distinguished: *V. villosa* has glabrous legumes, over twice the size of those of *V. hirsuta*, each bearing 4-5 seeds. The leaflets of *V. caroliniana* are in similar number and size to *V. hirsuta*, however, they are covered in soft pubescence. Additionally, the inflorescence of *V. caroliniana* bears more flowers (7-20), that are larger (8-12mm long) than flowers of *V. hirsuta*, but similar in color. *Lathyrus* spp. are generally very similar to *Vicia*. The flowers can be differentiated by the mostly free wings, which are adherent to the keel petals in *Vicia* ssp., and the widened, flattish style with hairs along the inner side, in comparison to the filiform style with apical hairs found in *Vicia* flowers. Without flowers, *Lathyrus* can usually be distinguished from *Vicia* by the size and shape of the stipules. In *Lathyrus*, the stipules are hastate to semi-sagittate and more than 7mm broad, with the exceptions of *L. palustris* and *L. venosus*, which have smaller stipules. Species of *Vicia* have semi-sagittate to lanceolate stipules that are less than 7mm broad (5,6,7,10,15).



Other members of the family in Michigan (number species): *Amorpha* (2), *Amphicarpaea* (1), *Anthyllis* (1), *Apios* (1), *Astragalus* (3), *Baptisia* (3), *Caragana* (1), *Cercis* (1), *Chamaecrista* (2), *Colutea* (1), *Crotalaria* (1), *Cytisus* (1), *Dalea* (2), *Desmanthus* (1), *Desmodium* (12), *Galega* (1), *Gleditsia* (2), *Glycine* (1), *Gymnocladus* (1), *Hedysarum* (1), *Hylodesmum* (2), *Kummerowia* (1), *Lathyrus* (9), *Lespedeza* (9), *Lotus* (1), *Lupinus* (3), *Medicago* (3), *Melilotus* (3), *Mimosa* (1), *Orbexilum* (1), *Phaseolus* (2), *Pisum* (1), *Pueraria* (1), *Robinia* (3), *Securigera* (1), *Senna* (2), *Strophostyles* (1), *Tephrosia* (1), *Trifolium* (10), *Vicia* (9), *Vigna* (1), and *Wisteria* (2) (source 3).

Ethnobotanical Uses: The seeds, leaves, and stem can be cooked and consumed. *V. hirsuta* can also be used as a cover crop to add nitrogen to the soil, which can then be used by other plants. No medicinal uses are known (11).



Phylogenetic Information: The genus *Vicia* is a member of the subfamily Faboideae in the Fabaceae family, of the order Fabales, superorder Rosanae, subclass Magnoliidae. Members of the Fabaceae family are distributed worldwide, and the family contains approximately 9.4% of all eudicots and 16% of all known woody plants found in neotropical rainforests (1). *V. hirsuta* has been placed in 6 other genera because of two traits that set it apart from other *Vicia* species: the apex of the style is glabrate, and the seed has a persistent funiculus (10).

Interesting Quotation or Other Interesting Factoid not inserted above: A study from the mid-1980's concluded that insect herbivory plays a major role in early succession of *V. hirsuta*. This study showed that sap-feeding insects are more abundant in the plant than chewing insects. *V. hirsuta* plants treated with insecticide were able to grow significantly taller, the number of leaves and leaflets was larger, along with leaf longevity. Flower production was also higher in insecticide treated plants. Fruit size and seed number did not vary between control and treated plants, although the seeds were heavier in treated plants. The seeds were germinated, and there was a trend showing higher establishment rates among seeds of treated plants (13).

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