

CUT-LEAVED TOOTHWORT

During your spring wildflower walks, you may notice several plants with small white flowers and finely cut leaves. Those plants could be the Cut-leaved Toothworts (*Cardamine concatenata* [Michaux] Schwein).

Previous scientific synonyms for this plant were *Cardamine laciniata* [Muhlenberg ex Willdenow] Wood, *Dentaria concatenata* Michaux, and *Dentaria laciniata* Muhlenberg ex Willdenow. The current generic name, *Cardamine*, is from the Greek word, *kardamon*, which was named by the ancient Greek pharmacologist and botanist, Pedanius Dioscorides, and is a Cress plant native to both India and Persia. The previous generic name, *Dentaria*, is Latin for “tooth flower”, and is from the Latin words, *dens* or *dent*, which is “tooth”. The current specific epithet, *concatenata*, is from the Latin word, *concatenatus*, which is “joined together”, referring to its segmented rootstocks. The previous specific epithet, *laciniata*, is Latin for “deeply cut”, “slashed” or “torn”, referring to its leaves.

The common name, Toothwort, is “tooth plant”. The suffix, “wort”, is from the Old English word, *wyrt*, which is “herb” or “plant”. Other common names for this plant are Common Toothwort, Crinkleroot, Crow’s Foot, Crow Toes, Cut Leaf, Cutleaf Toothwort, Lady’s Smocks, Milkmaids, Pepper Root, Pepperwort, Purple-flowered Toothwort, Slashed Toothwort, Three-leaved Crinkleroot, Toothache Root, Toothwort, and Wild Horseradish.

The Cut-leaved Toothwort is a member of the Order *Brassicales* (formerly Order *Capparales*), and of the Cabbage or Mustard Family (*Brassicaceae* or *Cruciferae*). *Cruciferae* is from the Latin words, *cruci* or *crux*, which is “cross”, or from *crucifer*, which is “cross-bearing”. These refer to the cross-shaped arrangements of the flower petals. *Brassicaceae* is named from one of its genera, *Brassica*.

DESCRIPTION OF THE CUT-LEAVED TOOTHWORT

Perennial

Height: Their height is about 8-19 inches.

Stem: Their stem is erect or upright, unbranched, smooth below the leaves, and downy above the leaves.

Leaves: The stem leaves are located near the center or the stem and are arranged in whorls of 3 (or sometimes 2). Each leave is palmately compound and is divided into 3-5 narrow, lanceolate, coarsely and deeply lobed or toothed segments or leaflets. The terminal leaflet is more deeply cut. These leaves are about 2-5 inches long and about 2-5 inches wide. The young leaves may have a purple tinge. The basal leaves usually appear after the flowers.

The larvae of a few species of butterflies will feed upon these leaves. Some of these larval species are Spring Azures (*Celastrina ladon* Cramer), West Virginia Whites (*Pieris virginiensis* Edwards), Mustard Whites (*Pieris napi* L.), Checkered Whites (*Pontia protodice* Boisduval & Leconte), and Clouded Sulphurs (*Colias philodice* Godart).

Flowers: The flowers are arranged in small, elongated or rounded, loose, racemous, terminal clusters. Each cluster can have only a few or several flowers. Each flower is

stalked, about ¾ inches long, about ½-1 inches wide, and is radially symmetrical. These flowers are usually nodding. On cloudy days, they may only partially open. These flowers each have 4 separate white petals, 4 separate green sepals, 6 stamens, and 1 pistil. The narrow, oval petals have rounded tips and are all arranged in a crossed shape. The 6 stamens are composed of 4 short inner stamens and 2 long outer stamens. The pistil has a superior, 2-chambered ovary. To encourage cross-pollination, the stigma is located higher than the anthers. All parts of these flowers are attached to the base of the ovary.

These white flowers may turn pink or pale lavender with age. A single flower usually lasts about 4 days. Flowering season is usually March to June.

To facilitate cross-pollination, most of these flowers are insect-pollinated. There is a spot located at the base of each petal and sepal that reflects ultraviolet light and is visible to these insects. These spots guide the insects to the nectar, which is located in sac-shaped structures located at the bases of the sepals. Some of these pollinating insects are Bees (Families *Andrenidae* and *Halicitidae*), Flies (Order *Diptera*), and some butterfly species, such as Mourning Cloaks (*Nymphalis antiopa* L.) and Spring Azures. If the insects fail to pollinate these showy flowers, there are a few non-showy flowers that can self-pollinate.

Fruit: The fruit is a dry, slender, cylindrical, ascending, 1-1½ inch, angled or flat capsule, pod, or siliques. When ripened, these siliques split open lengthwise to release their single rows of small seeds. White-footed Mice (*Peromyscus leucopus* Rafinesque) will sometimes eat these seeds.

Roots: The rootstocks are composed of crispy, fleshy, elongated, jointed or segmented, horizontal white to brown tubers. These joints or segments are small, oval, and can be easily separated. The tubers are about 1½ inch long and are located about 6 inches underground. These tubers have pointed, tooth-shaped swellings or projections. White-footed Mice will also eat these tubers.

Habitat: Cut-leaved Toothworts prefer rich moist woods, woods' edges, thickets, wet meadows, or floodplains. They are one of the few Mustard species that prefer forests to fields. These plants are often found in large colonies.

Range: Cut-leaved Toothworts are found throughout most of the eastern U.S. and in parts of southern Canada.

Uses of the Cut-leaved Toothwort:

The rootstocks of the Cut-leaved Toothwort are edible but taste both peppery and pungent. Both the Native Americans and the early Europeans settlers collected these rootstocks. They are sometimes eaten as a woodland trail nibble or they can be chopped up and used in both salads and sandwiches. These rootstocks can be cooked and added to soups, stews, or meats. They can also be washed, grated, and mixed with vinegar and salt to be used as a substitute for horseradish.

Cut-leaved Toothwort rootstocks were once believed to have medicinal properties. They were chewed for treating common colds, were used as poultices for treating headaches, and were made into tea for treating hoarseness. Jakob Bohme's 17th Century *Doctrine of Signatures*, which states that any plants that resemble parts of human bodies can heal that body part, said that this plant cures toothaches. The mashed rootstocks were used as a poultice for treating toothaches. However, there is no medical evidence to support that belief.

The peppery tasting leaves and stems are also edible. They are can be used as a potherb or as a salad green. The leaves contain vitamin C and a glucoside. These leaves were also used medicinally as a tonic, a stomachic, an expectorant, and an antiscorbutic.

When harvesting Cut-leaved Toothworts, harvest them only in areas where they are abundant and harvest them only in moderation. Over-harvesting them can lead to their depletion.

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