

Plant Diversity Website

Adlumia fungosa (Aiton) Greene ex Britton

Common Names: Allegheny vine, Climbing Fumitory, Mountain-fringe (1, 3)

Etymology: *Adlumia* for John Adlum, amateur botanist of the late 18th century and early 19th century; *fungosa*: from the Greek 'fung', meaning spongy or mushroom-like (5, 7).

Botanical synonyms: *Fumaria fungosa* (Aiton), *Bicuculla fungosa* (Aiton) Kuntze, *Adlumia cirrhosa* (Raf.), *Fumaria recta* (Michx.), *Bicuculla fungosa* (Aiton), *Bicuculla fumarioides* (Borkh.), *Corydalis fungosa* (Aiton) (3, 11, 14).

FAMILY: Papaveraceae (the poppy family)

Quick Notable Features:

- Spongy, tube-like flowers, each individual flower lasting all summer
- Prehensile, climbing leaves
- Short, often un-noticeable petiole

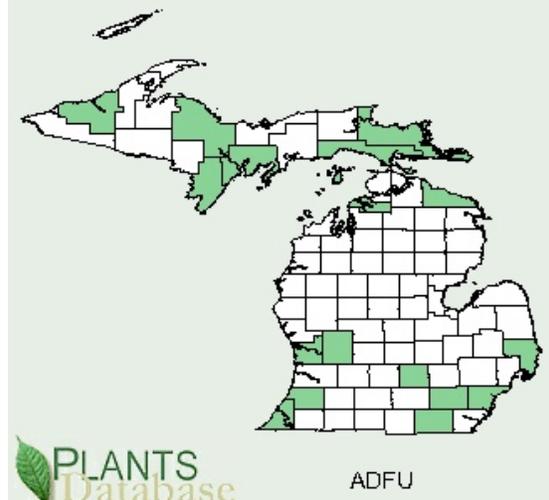
Plant Height: *A. fungosa* can climb to 4m, but averages 3m (4, 8).

Subspecies/varieties: none found (3)

Most Likely Confused with: *Rosa setigera* and *Rubus laciniatus*, as well as other Fumarioideae species, some trifoliolate Fabaceae (most notably *Amphicarpaea bracteata* and *Lespedeza procumbens*), and Ranunculaceae climbers like *Clematis virginiana* and *C. occidentalis*.

Habitat Preference: *A. fungosa* prefers full sun, although it can tolerate shade. It is often found in moist or freshly burned woods, as well on rocky slopes and slightly acidic soils. It prefers sites protected from wind (8, 12). It was reported in 1999 in Great Smoky Mountains National Park growing on *Betula lenta* along streams at 2670m elevation (21).

Geographic Distribution in Michigan: Allegheny-vine is found sporadically in Michigan



(in a geographic sense; habitat analysis may provide some explanation as to why). It is found in the following counties: Berrien, Charlevoix, Chippewa, Delta, Hillsdale, Ingham, Ishpeming, Kent, Luce, Mackinack, Menominee, Muskegon, Ottawa, Presque Isle, St. Clair, Van Buren, Washtenaw, and Wayne (2).

Known Elevational Distribution: 0-1500m (8). It has been reported at 2670m in Great Smoky Mountains National Park (21).

Complete Geographic Distribution: *Adlumia fungosa* is native to the northeastern United States (6). Its range is from Minnesota and Iowa east to Maine, and from Tennessee and North Carolina north to Maine. It is considered threatened or endangered in many of these states (2).

Vegetative Plant Description: *A. fungosa* is biennial and herbaceous. In its first year, it is acaulescent (lacking a stem) with non-prehensile leaves. In its second year, it has “slender, elongate stems” (4) with prehensile leaves and leaflets that become much smaller near the apices of the stems. Its leaves are alternate and twice-compound with three leaflets each. These leaflets are ovate and often have three individual leaflets of their own (thus twice compound). The leaflets are also occasionally lobed. Usually when lobed, the terminal leaflet has two distinct lobes while the lateral leaflets have one lobe (4, 6).



Climbing Mechanism: In its first year, only the leaves “ascend.” In its second year, its new stems and prehensile leaves climb (4). We believe it climbs largely with petioles and petiolules, but this has not been confirmed by direct observation.

Flower Description: The flowers are borne in a panicle, in pairs. They are zygomorphic and perfect. The calyx is very small, and falls off early in the flower’s development. The corolla is 10-17mm long and 3-7mm wide, and anywhere from white to pinkish purple. The two outer petals are connate to the apex, forming a tube that

becomes spongy as the flower ages. Within these petals are two small inner petals, either reflexed or erect. The three stamens have their filaments fused (connate) at the base. The ovary is slender to linear and superior. The style is persistent, stigma is two-lobed (6, 7, 8, 15, 17, 19).

Flowering Time: In Illinois, *Adlumia fungosa* flowers from late June to early September (6).

Pollinator: Fumarioideae’s specialized flowers suggest bee-pollination. Because the flowers are tube-like, visiting bees must “depress the hooded inner petals” to expose the anthers; the bees then become dusted with pollen (17).

Fruit Type and Description: The fruit is a two-valved capsule (6), approximately 10mm long (8). *A. fungosa* fruits from July to October (9), and is “many-seeded” (19).

Seed Description: The seeds are flattened, globose and shiny, and have no crest (7, 8). Unlike the majority of Fumarioideae, seeds of *A. fungosa* do not have an aril (20).

Dispersal Syndrome: “Propagation is by seeds, often self-sown”; no mention was found of a

seed dispersal agent (12).

Distinguished by: While many other species in Fumarioideae have similar leaves and flowers, *Adlumia fungosa* is the sub-family's only vine (4). This immediately distinguishes it from close look-alikes in *Dicentra* and *Corydalis*. Unlike *Rubus laciniatus* and *Rosa setigera*, *Adlumia fungosa* has no spines or prickles, and is not woody or perennial. Furthermore, *Adlumia*'s fruit is a capsule whereas *R. setigera*'s is an achene and *R. laciniatus*'s is an aggregate fruit.

The other herbaceous climbers that might be confused with *Adlumia fungosa* can be distinguished as follows: *Amphicarpaea bracteata* has generally large, unlobed leaves and twining stems, unlike *Adlumia*. *A. bracteata*'s fruit is also a differentiating factor: it is a legume. *Lespedeza procumbens* is a perennial with a permanently creeping habit; it grows most often in dry, sandy sites that are not preferable to *Adlumia*. Its flowers are also borne on long stems, and are not as numerous as those of *Adlumia*. *Clematis* species in Michigan bear opposite leaves, a white or pink-purple rotate flower with all flower parts unfused, a capsular fruit, and can become woody once established.

Other members of the family in Michigan (number species): In the sub-family Fumarioideae, three genera are found in Michigan: *Dicentra* (3), *Corydalis* (3), and *Fumaria* (1). Debate exists over whether Fumarioideae is a distinct family or whether its genera are part of the larger Papaveraceae. Here it is included in Papaveraceae. Thus in addition to the genera mentioned above, Papaveraceae include: *Argemone* (2), *Chelidonium* (1), *Eschscholzia* (1), *Glaucium* (1), *Macleaya* (1), *Papaver* (3), *Sanguinaria* (1), and *Stylophorum* (1).

Ethnobotanical Uses: The genus was thought to have medicinal worth in the early 1800s (12). No specific ethnobotanical information was found however (13).

Phylogenetic Information: The Papaveraceae and Fumariaceae families are systematically closely allied; however, Reference 8 gives this detail:

“Although a few taxa are morphologically intermediate, the members of Fumariaceae generally are quite distinct from those of Papaveraceae in several respects, including floral symmetry, sap character, and stamen number and fusion” (8).

That said, Zomlefer (18) completely disagrees with a separate classification of the families: “both taxa share numerous vegetative, floral, anatomical, chemical, and cytological characters.” The view of Fumariaceae as a separate family “ignores the transitional genera”, and she cites several authorities to support the case for a single family (17). Papaveraceae presents a phylogenetic problem. It is recognized as being part of the order Papaverales, and only shows weak support for an alliance with families within the Ranunculales (the order to which Fumarioideae is often allied) (18).

A common-name list of family members (Fum. and Pap. both) includes Dutchman's Breeches, Bleeding Heart, Poppy, Bloodroot, and Fumewort (2, 6, 8, 16).

Interesting Quotation or Other Interesting Factoid not inserted above: *Adlumia* was recognized as a separate genus as early as 1804 by Major John Adlum. At the time, it was called both *Adlumia* and *Fumaria*, as well as including two different species, *cirrhusa* and *fungosa* (11).

Literature and websites used:

- 1) Connecticut Botanical Society. <http://www.ct-botanical-society.org/galleries/adlumiafung.html>
- 2) USDA Natural Resources Conservation Plants Database. <http://plants.usda.gov/index.html>
- 3) Missouri Botanical Garden VAST Nomenclatural Database.
<http://mobot.mobot.org/W3T/Search/vast.html>

- 4) Gleason, H.A. and A. Cronquist 1991. *Manual of Vascular Plants of the Northeastern United States and Adjacent Canada*. New York Botanical Garden, Bronx, New York.
- 5) Dictionary of Botanical Epithets. <http://www.winternet.com/~chuckg/dictionary.html>
- 6) Illinois Plant Information Network (ILPIN) <http://www.fs.fed.us/ne/delaware/ilpin/ilpin.html>
- 7) Fernald, M.L. 1950 *Gray's Manual of Botany*. American Book Company: United States.
- 8) Flora of North America's eFloras, 2004-2007. Last modified: 2007.
<http://www.efloras.org/index.aspx>
- 9) Ohio Department of Natural Resources: *Adlumia fungosa*.
<http://www.ohiodnr.com/dnap/Abstracts/A/adlufung.htm>
- 10) USDA Germplasm Resources Information Network. <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?1498>
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- 12) Seymour, E.L.D. (ed.) 1946 *The New Garden Encyclopedia*. New York: W.M. H. Wise & Co.
- 13) Moerman, D. Native American Ethnobotany Database. <http://herb.umd.umich.edu>
- 14) Canadian Forest Service: Plant Checklist.
http://www.planthardiness.gc.ca/plant_chklist.pl?speciesid=1001373
- 15) Kentucky State Nature Preserves Commission: Allegheny vine.
<http://eppcapps.ky.gov/nprareplants/details.aspx?species=Adlumia+fungosa>
- 16) Voss, E.G. 1985. *Michigan Flora Part II*. Cranbrook Institute: Ann Arbor, MI.
- 17) Zomlefer, W.B. 1989. *Flowering Plant Families*. Chapel Hill: The University of North Carolina Press.
- 18) Stevens, P.F. Angiosperm Phylogeny Website.
<http://www.mobot.org/MOBOT/research/APweb>
- 19) Wood, A. 1854. *Class-Book of Botany*. Claremont, New Hampshire.
- 20) Fukahara, T. 1999. Seed and funicle morphology of Fumariaceae-Fumarioideae: Systematic Implications and Evolutionary Patterns. *International Journal of Plant Sciences* 160(1):151-180.
- 21) Discover Life in America. TWIG reports. <http://www.discoverlife.org/pa/ev/me/botany.html>

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- 1) Plant Close-up: Photographer Ken Clark for Maryland Chapter of the Sierra Club.
<http://maryland.sierraclub.org/hc/pictures/2005/20050730GreenRidgeSouth.asp>
- 2) Habit: Michael Hough, taken in Central New York
http://web.syr.edu/~mhough/A/Adlumia_fungosa.html
- 3) Michigan distribution map from U. S. Department of Agriculture
<http://plants.usda.gov/java/profile?symbol=ADFU>
- 4) Flowers: Dennis W. Woodland, University of Wisconsin- Stevens Point
<http://wisplants.uwsp.edu/scripts/detail.asp?SpCode=ADLFUN>

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