

Intriguing World of Weeds

Fumitory (*Fumaria officinalis* L.)¹

LARRY W. MITICH²

INTRODUCTION AND ETYMOLOGY

Fumitory (*Fumaria officinalis* L.) is a member of Fumariaceae, a family of annual and perennial herbs, whose best-known genera, in addition to *Fumaria*, are *Corydalis* and *Dicentra* (bleeding heart and Dutchman's breeches). Fumariaceae is mainly a temperate family that embraces 16 genera and 400 species. Economically, its use is limited to garden ornamentals (Heywood 1993). Brummitt (1992) and Hyam and Pankhurst (1995) place fumitory in Papaveraceae, but most authorities, including Mabberley (1989), put it in Fumariaceae.



In 1753, Linnaeus established the genus *Fumaria* in his *Species Plantarum*. He derived the name from the Latin *fumus terrae*, "smoke of the earth," alluding to the smoke-like smell of some species or to smoke rising from the ground (Britton and Brown 1897; De Bray 1978; Le Strange 1977). Hyam and Pankhurst (1995) believe that *Fumaria* is so-called because of the diffuse foliage of certain species, which may resemble smoke. This explains one of its early English names, earth-smoke, derived from an early legend that fumitory was created by vapor rising from the earth (De Bray 1978; Le Strange 1977).

Other common names for fumitory include beggary, fume-of-the-earth, fumiterre, fumusterre (directly from *fumus terrae*), God's fingers and thumbs, snapdragon, and wax dolls. And despite fumitory's delicate appearance, it is quite capable of strangling whole crop fields, as the name "beggary" implies (De Bray 1978).

The first written record of the word "fumeterre" (also fumiterre) is found in the work of Geoffrey Chaucer, who wrote in 1386, "Of lauriol, centaure, and fumeterre." The pronunciation and spelling changed over the centuries and finally became established as "fumitory" when John Ray referred to *Fumaria officinalis* as climb-

ing fumitory in 1670 (Simpson and Weiner 1989). The specific epithet *officinalis* is from the Latin and means "of shops," "sold in shops," or "official medicine" (Gledhill 1985).

From the time of the Anglo-Saxons onwards, some species of *Fumaria*, particularly fumitory, became much associated with witchcraft and superstition. The leaves were burned for their smoke, which was firmly believed to possess the power to expel and protect against evil spirits and spells (Allan 1978; Le Strange 1977).

About 55 species of *Fumaria* are known, the majority of which are rather floppy, delicate, hairless annuals with finely divided leaves and small, tubular, red to pink or whitish flowers. It is native mainly to Europe, including the British Isles, Central Asia, and the Himalayas; however, one species is tropical, native to the East African highlands (Hyam and Pankhurst 1995; Le Strange 1977).

Fumitory is ephemeral, disappearing from the fields at a comparatively early date. However, it quite frequently dominates. *Fumaria* includes a number of species which are not particularly weedy, and some of these are more ephemeral than others (Brenchley 1910).

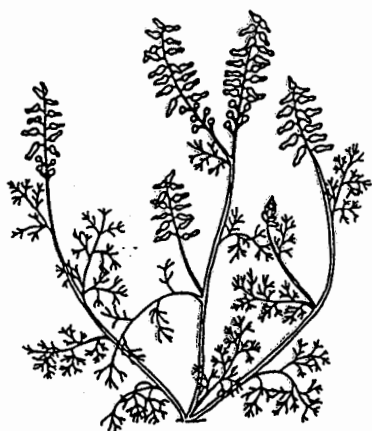
DESCRIPTION

Fumitory is an erect to sprawling, slender, herbaceous, and freely branching annual from 30 to 70 cm tall. Its stems are green, smooth striate to angled, rather succulent, weak, and reclining. The soft, gray-green, finely dissected leaves grow in an almost whorled arrangement and are divided into linear leaflets that are alternate, long-stalked, up to 8 cm long, and deeply lobed.

The inflorescences have 10 to 40 flowers, but usually more than 20. They are borne in long, many-flowered racemes. The irregular flesh-colored to pinkish tubular flowers are darker pink near the tip and are from 8 to 10 mm long. The fruit is a rounded, single-seeded globular capsule, and nutlet-like; the seeds are glabrous, dull, and reddish-brown (Allan 1978; Holm et al. 1997; Montgomery 1964; Le Strange 1977). Fumitory flowers from about April to September, but in some climates it may

¹ No. 59 of the series "Intriguing World of Weeds."

² Extension Weed Scientist Emeritus, Department of Vegetable Crops, University of California, Davis, CA 95616.



Fumitory (*Fumaria officinalis*).

flower nearly all the year, each plant yielding about 800 seeds (Allan 1978; Le Strange 1977).

DISTRIBUTION AND WEEDINESS

Fumitory occurs as a weed of arable land and waste places throughout most of Europe, western Siberia, and western Asia, and is now naturalized elsewhere, as in Canada, China, the United States, South Africa, and Australia (Allan 1978; Le Strange 1977). It occurs as far north as Finland and Sakhalin Island, and in the south to Tasmania and New Zealand (Holm et al. 1997). While there are several species of *Fumaria*, only *F. officinalis* is both widespread and abundant (Salisbury 1961). In North America in the late 19th century, it was found in waste places, on ballast, and occasionally about towns and villages from Nova Scotia to Florida and the Gulf States. It is also found locally in the U.S. interior (Britton and Brown 1897). Muenscher (1948) remarks that it is found mostly in the southern states and locally from western Washington to California.

Fumitory is an economically important weed in cereal crops throughout the world. It is a serious weed in Tunisia; a principal weed in Australia, Finland, New Zealand, Norway, Scotland, Spain, Sweden, and the U.S.; and a common weed in Bulgaria, England, Russia, and Turkey. It is also a cereal weed in Chile, France, Germany, Greece, Italy, Portugal, South Africa, and Yugoslavia (Holm et al. 1997). It is also a weed in 45 other countries, where it is found in 33 crops, often favoring cereals, vegetable crops, and vineyards. It is also a serious weed of flax in Argentina and of sugarbeets in Algeria, Czechoslovakia, England, and Spain (Holm et al. 1997). In England, fumitory is found primarily in crops grown on chalk soils and may become the domi-

nant weed (Holm et al. 1997). Allan (1978) reports that fumitory is an indicator of alkaline soil.

Fumitory grew in England during the last phase of the Stone Age, 8000 to 9000 BC (Salisbury 1961). Soil samples containing fumitory seeds were made from excavation sites in northern Europe once occupied by humans over 2,200 years ago. In greenhouse experiments, germination was obtained from fumitory seeds dating back to AD 1300 (Holm et al. 1997; Odum 1965).

Fumitory continues to grow slowly at near-freezing temperatures, so it is one of the earliest weeds to emerge. In the central states, early planted crops often cannot be cultivated or chemically sprayed because of prolonged cold, wet weather, and fumitory may become strongly competitive.

It is self-fertile and although its seed production is probably not normally large, it can be a most troublesome and abundant weed. Germination normally occurs in spring; the plant is particularly abundant in the lighter types of soil. Its popular name of "beggary" is perhaps due to the association of this weed with the poorer types of land (Salisbury 1961).

MEDICINAL AND OTHER USES

Fumitory has been used medicinally from earliest times as a treatment for arthritis, liver disorders, and gallstones; as a diuretic, a laxative, a tonic, and a digestive; and as an infusion used externally in the treatment of scabies and eczema. A lotion for clearing the skin was made by boiling the plant in milk. And an infusion of the leaves was said to clear the skin of unwanted freckles or banish the last of a summer tan (De Bray 1978). The entire plant has a considerable medicinal reputation as a blood purifier and cosmetic, with the leaves being the most effective part (Brenchley 1910).

The juice from fumitory leaves was once decocted or distilled and added to syrups and essences. These were then prescribed "to open obstructions of liver and spleen; procure an abundance of urine; to help the gout and yellow jaundice; drive forth the plague and pestilence; to clarify the blood of saltish and choleric humours, the cause of leprosy, scabs, tetters [vesicular skin diseases], itchings, scurvy; and eruptive breakings out and similar scorbutic affections of the skin." The distilled water "gargled often therewith," with a little water and honey of roses added, "helps heal sores of the mouth and throat," while the dried herb in a powder, including the seed, "taken for some time together,"

is "effectual for morbidness and melancholia" (Le Strange 1977).

Wrote Culpeper (1922): "The juice dropped into the eyes, clears the sight, and takes away redness and other defects in them. . . The juice of the fumitory and docks mingled with vinegar, and the places gently washed or wet therewith, cures all sorts of scabs, pimples, blotches, wheals [welts], and pushes which rise on the face or hands, or any other part of the body." In the 1750s, John Hill (1820) wrote: "Some smoke the dried leaves in the manner of tobacco for disorders of the head with success" (Le Strange 1977).

In North America, during the late 19th century, the fresh green leaves were prescribed for their tonic principles. The flowers and tops were also taken "macerated in wine" for "dyspepsia, with partial good effect" (Le Strange 1977).

Infusions of fumitory are still prescribed for their aperient, diuretic, and slightly tonic principles, mainly for stomach and liver complaints or in the treatment of skin diseases (Le Strange 1977). The expressed juice is considered an excellent remedy against scurvy (Hill 1820; Salisbury 1961).

Fumitory is readily eaten by cattle (*Bos* spp.) and sheep (*Ovis aries*), but horses (*Equus caballus*) eschew it and goats (*Capra hircus*) dislike it when it is full grown (Brenchley 1910).

Fumitory is used to curdle milk in Picardy, a province

that borders on the English channel north of Normandy (Brenchley 1910). And the flowers were once used to make a yellow dye for wool (Le Strange 1977).

LITERATURE CITED

- Allan, M. 1978. Weeds. New York: Viking Press. 191 p.
- Brenchley, W. E. 1910. Weeds of Farm Land. London: Longmans, Green and Co. 239 p.
- Britton, N. L. and A. Brown. 1897. An Illustrated Flora of the Northern United States, Canada and the British Possessions. Volume 2. New York: Scribner. 643 p.
- Brummitt, R. K. 1992. Vascular Plant Families and Genera. London: Royal Botanic Gardens, Kew. 804 p.
- Culpeper, N. 1652, 1922. The British Herbal and Family Physician. London: W. Nicholson. 349 p.
- De Bray, L. 1978. The Wild Garden. New York: Mayflower Books. 191 p.
- Gledhill, D. 1985. The Names of Plants. 2nd ed. Cambridge, UK: Cambridge University Press. 202 p.
- Heywood, V. H. 1993. Flowering Plants of the World. New York: Oxford University Press. 335 p.
- Hill, J. 1820. The Family Herbal. London: W. Johnson. 404 p.
- Holm, L., J. Doll, E. Holm, J. Pancho, and J. Herberger. 1997. World Weeds, Natural Histories and Distribution. New York: J. Wiley. 1129 p.
- Hyam, R. and P. Pankhurst. 1995. Plants and Their Names, A Concise Dictionary. Oxford, UK: Oxford University Press. 545 p.
- Le Strange, R. 1977. A History of Herbal Plants. London: Angus and Robertson. 304 p.
- Mabberley, D. J. 1989. The Plant-Book. Cambridge, UK: Cambridge University Press. 706 p.
- Montgomery, F. H. 1964. Weeds of Canada and the Northern United States. Toronto: Ryerson Press. 266 p.
- Muenschler, W. C. 1948. Weeds. New York: Macmillan. 579 p.
- Odum, S. 1965. Germination of ancient seeds: floristical observations and experiments with archeologically dated soil samples. Dansk Botanisk Arkiv 24(2):1-70.
- Salisbury, E. 1961. Weeds and Aliens. London: Collins. 384 p.
- Simpson, J. A. and E.S.C. Weiner. 1989. The Oxford English Dictionary. 2nd ed, Volume 6. Oxford, UK: Clarendon Press.