

# *Foeniculum vulgare* Mill.

**Standardized Common Name:** Fennel

**Other Common Names:** Bitter Fennel, Sweet Fennel

**Family:** Apiaceae (Umbelliferae)

**Taxonomy:** *Foeniculum* includes about 4 species, which are native to Asia and the Mediterranean, but have been widely spread through cultivation. *Foeniculum vulgare* is the only species found wild in southern Europe; it has also been naturalized in the United States. Numerous synonyms exist, notably *F. dulce* Mill., *F. officinale* All., and *F. piperitum* (Ucria) DC. Two major cultivated types, differing greatly in chemical composition and flavor, are known as Sweet Fennel and Bitter Fennel. Most older taxonomic literature referred to Sweet Fennel as *F. vulgare* subsp. *vulgare* and to Bitter Fennel as *F. vulgare* subsp. *piperitum* (Ucria) Coutinho. However, recent treatments apply *F. vulgare* subsp. *vulgare* var. *vulgare* to cultivated Bitter Fennel. The name for the cultivated Sweet Fennel is then given as *F. vulgare* subsp. *vulgare* var. *dulce* (Mill.) Thell., and *F. vulgare* subsp. *piperitum* refers only to plants of wild origin, which are generally bitter.

**Description:** Perennial or biennial herb. Stem 1–2(–2.5) m high, much branched. Leaves basal and alternate, with sheathing petioles, 3–4-pinnately compound; basal leaves to 30 cm long, the stem leaves smaller; lobes linear, 0.5–5 cm long, widely separated. Inflorescences compound umbels, borne opposite leaves, long-peduncled, with (4–)10–15(–30) primary rays, bractless; umbellets many-flowered, without bracteoles; flowers small, yellow, without sepals. Fruit a schizocarp of 2 mericarps, 3–10(–15) mm long, oblong; ribs straight, prominent; vallecular vittae 1, commissural vittae 2.

**Parts in Commerce:** Fruits

**Identification:** See appendix for explanation of the technical terms pertaining to umbel fruits.

- Schizocarp usually not separating into mericarps, frequently still attached to delicate pedicel
- Schizocarp oblong, sometimes asymmetrical to banana-shaped when one mericarp fails to develop
- (3–)4–10(–15) mm long
- Light green to straw-colored or brownish (especially in bitter fennel); valleculae darker
- Mericarps broadest at commissure
- Ribs straight, threadlike, prominent, in dried fruits often with two delicate grooves
- Apex with prominent conical stylopodium, without calyx teeth
- Vittae 1 per vallecula, 2 on commissural face, prominent, visible on fruit surface as dark brown

- lines, in cross-section as brown dots
- Odor aromatic, characteristic, similar to anise in sweet fennel
- Taste characteristic, spicy, sweet or pungent; flavor varies greatly between sweet and bitter varieties

**Adulterants:** *Meum athamanticum* Jacq., an ornamental once cultivated for its edible roots, has been reported as an adulterant. The overall shape and appearance of the fruit is similar, but there are 3–4 vittae per vallecula and 6 on the commissural face (the latter being more visible), in contrast to the single conspicuous vittae of fennel.

### References:

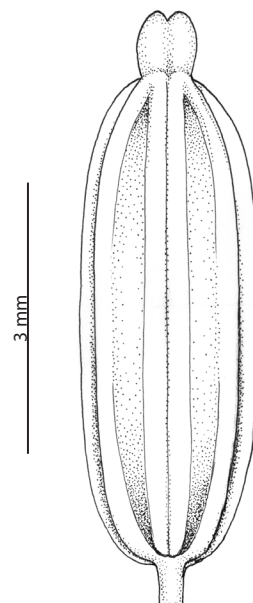
Arenas Posada JA, García Martín F. Atlas carpológico y corológico de la subfamilia *Apioideae* Drude (*Umbelliferae*) en España peninsular y Baleares. *Ruizia*. 1993;12:1–245.

Tutin TG. *Foeniculum*. In: Tutin TG, Heywood VH, Burges NA, et al., eds. *Flora Europaea*. Vol. 2. Cambridge: Cambridge University Press; 1968:341.

Tutin TG. *Umbellifers of the British Isles*. London: Botanical Society of the British Isles; 1980. B.S.B.I. Handbook No. 2.

Wichtl M, ed. *Herbal Drugs and Phytopharmaceuticals*, 3<sup>rd</sup> English ed. Stuttgart: medpharm Scientific Publishers and Boca Raton, FL: CRC Press; 2004:212–215.

Youngken HW. *Text-Book of Pharmacognosy*, 5<sup>th</sup> ed. Philadelphia, PA: The Blakiston Company; 1943:624–627.



**Figure 28:** *Foeniculum vulgare* fruit.