

Medicago sativa L.

Standardized Common Name: Alfalfa

Other Common Name: Lucerne

Family: Fabaceae (Leguminosae)

Taxonomy: *Medicago* comprises about 83 species of legumes, including some two dozen species previously placed within *Trigonella*, which are frequently used as animal fodder or forage. The taxonomy of these species, which are native primarily to Europe, Southwest Asia, and Africa, is difficult. *Medicago sativa* L. is a diverse polyploid hybrid complex, widely cultivated and naturalized in Europe, Asia and North America, that may be divided into about five subspecies. The most important of these are subsp. *sativa* (the most widespread cultivated and feral subspecies), subsp. *falcata* (L.) Arcangeli (a cold-resistant plant of Eurasian origin), and subsp. *×varia* (Martyn) Arcangeli (the hybrid of the previous two, often cultivated). Subsp. *falcata* is distinctive, having yellow flowers and straight or falcate (curved) legumes, and is still treated by some authors as a separate species, *M. falcata* L.

Description: Perennial herb with woody roots, to 1 m tall; stems branching with numerous short lateral branches in upper part, more or less short-pubescent. Leaves alternate, stipulate, trifoliate; leaflets narrowly oblong to obovate; margins denticulate near apex. Inflorescences lateral, racemose. Calyx campanulate, 5-lobed, 4.0–5.5 mm long. Corolla 5-petaled, bilaterally symmetrical, 6–12 mm long; single standard petal outermost, 2 keel petals fused with small apical notch at juncture; color variable from purple to bluish, purple and yellow, yellow or cream. Stamens 10, with 9 forming a single group with attached filaments, 1 separate. Gynoecium of 1 carpel with short style and blunt stigma. Fruit a legume, indehiscent, somewhat flattened, several-seeded, usually coiled for (1–)2–3(–4) turns forming a bur 4–6(–9) mm in diameter, or 5–10 mm long, sickle-shaped or rarely nearly straight in subsp. *falcata*.

Parts in Commerce: Leaves

Identification:

- Trifoliolate
- Central leaflet borne on longer petiolule than lateral leaflets
- Texture thin with thin weak petiole
- Pale or clear green
- Leaflets 1.0–3.5 cm long (usually 0.5–1.2 cm in subsp. *falcata*, very rarely to 5.0 cm in subsp. *sativa*), narrowly oblong-oblongate to obovate or rarely elliptical or narrowly lanceolate
- Margins with a few small teeth near apex, otherwise entire
- Apices rounded to rounded-truncate with a small tooth extending from midrib (mucron), sometimes shallowly emarginate (centrally notched)
- Bases tapering, cuneate to somewhat rounded
- Upper surface glabrous
- Lower surface often weakly pubescent with short, soft white hairs, especially in younger leaves
- Venation pinnate, secondary veins very weak and inconspicuous, at acute angle to midrib and pointing toward apex
- Odor characteristic (at least when fresh)
- Taste mild, grassy, pleasant

References:

Gunn CR, Skrdla WH, Spencer HC. *Classification of Medicago sativa L. Using Legume Characters and Flower Colors*. Washington, DC: United States Department of Agriculture, Agricultural Research Service; 1978. Technical Bulletin No. 1574.

Isely D. *Native and Naturalized Leguminosae (Fabaceae) of the United States (Exclusive of Alaska and Hawaii)*. Provo, UT: Monte L. Bean Life Science Museum; 1998.

Small E. Morphological differentiation in *Medicago sativa* s.l. in relation to ploidy. *Canad J Bot*. 1984 [publ. 1985];63:1747–1752.

Small E, Jomphe M. A synopsis of the genus *Medicago* (Leguminosae). *Canad J Bot*. 1989;67:3260–3294.



Figure 45: a–b, *Medicago sativa* inflorescence and leaf (hairs are borne on lower surface.)