FabaceaeCPea family

Colutea L.

bladder-senna

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Growth habit, occurrence, and use. The genus *Colutea*Cthe bladder-sennasCincludes about 26 species of deciduous shrubs or small trees, with a distribution ranging from the Mediterranean region and southeastern Europe to northwest Africa and the western Himalayas (Browicz 1963, 1967; Hillier 1991; Krüssmann 1984; LHBH 1976). The 3 taxa of interest in the United States are common bladder-senna (*C. arborescens* L.), *C. orientalis* Mill., and *C.* × *media* Willd. (table 1). Bladder-senna species are cultivated in temperate climates primarily for ornamental purposes but may also be used for erosion control (Krüssmann 1984). In Spain, the potential use of common bladder-senna as a forage crop, because of its ligneous nature and summer utility, has been investigated (Allue Andrade 1983a). Antifungal compounds have been isolated from root bark of common bladder-senna (Grosvenor and Gray 1998). The bladder-sennas are very distinct shrubs, and the common name is derived from their large, inflated legumes (seedpods).

Common bladder-senna is a vigorous shrub of bushy habit, with medium to fast growth. It prefers a sunny location (Dirr 1990) but is easily grown in almost any soil type (except waterlogged). The cultivar Bullata is a dwarf form with dense habit (about a to 2 the size of the species at maturity) whose 5 to 7 leaflets are small, rounded, and somewhat bullate (Dirr 1990; Krüssmann 1984). The cultivar Crisp= is a low-growing form with leaflets that are sinuate (Dirr 1990; Krüssmann 1984). *Colutea orientalis* is a rounded shrub with attractive glaucous leaflets (Hillier 1991; Krüssmann 1984). *Colutea* × *media* is a recognized as a hybrid (*C. arborescens* × *C. orientalis*), with bluish green foliage, that originated before 1790 (Dirr 1990; Krüssmann 1984).

Flowering and fruiting. The papilionaceous flowers are about 2 cm in length, bloom from May to July (with scattered blossoms into September), and occur in axillary, long-stalked racemes (Dirr 1990; Krüssmann 1984; LHBH 1976). The pea-shaped flowers of common bladder-senna are yellow, the standard petal having red markings; *C. orientalis* are a reddish brown or copper color; and those of *C. media* range in color from the typical yellow to those which blend through markings or tints of copper, pink, or reddish brown (Krüssmann 1984; LHBH 1976). The fruit is a inflated, bladder-like legume, 6 to 7.6 cm long and 2.5 to 3.8 cm wide, that varies in color from lime green to tints of pink or bronze and is very ornamental (Dirr 1990; Krüssmann 1984). Fruits mature from July to September (Dirr 1990) and each legume contains several small seeds (Rudolf 1974). The legumes of *C. orientalis* dehisce at the tip.

Collection of fruits; extraction, cleaning, and storage of seeds. Ripe legumes can be harvested from the shrubs in late summer or fall and then spread in a shed (with good air

circulation) to dry (Rudolf 1974). The legumes are threshed to remove the seeds and the debris is fanned out (Rudolf 1974). Bladder-sennas average 74,956 seeds/kg (34,000/lb) (Allen 1995). Dry seed stored at 5 °C in glass containers will be viable for 1 to 3 years, depending upon the species. Like most genera in Fabaceae, this genus is orthodox in storage behavior. Seeds can be stored in liquid nitrogen without a significant loss in germination percentage (Gonzalez-Benito and others 1994; Iriondo and others 1992).

Pregermination treatments. Bladder-senna seeds do not germinate readily unless the impermeable seed coat is ruptured by mechanical or chemical scarification. Soaking the seeds in concentrated sulfuric acid for 30 to 60 minutes, before sowing in nursery beds, results in good germination (Dirr 1990; Dirr and Heuser 1987). Steeping seeds in water that was initially brought to 88 °C and then allowed to cool 24 hours also results in good seed germination (Allue Andrade 1983b; Dirr 1990; Dirr and Heuser 1987).

Germination tests. Pretreated bladder-senna seeds can be tested in germinators at 20 °C night and 30 °C day for 30 days (Rudolf 1974).

Nursery practice and seedling care. Untreated seeds may be sown in the fall, but scarified seeds are required for spring-sowing (Allen 1995; Dirr and Heuser 1987). Seedlings germinate within 1 to 2 weeks and grow rapidly. Bladder-senna species may also be propagated by cuttings. In England, 29% of half-ripened cuttings taken in early November rooted without treatment; the cuttings failed to respond to naphthaleneacetic acid (NAA); and 73% rooted after treatment with 0.1 g/l (100 ppm) indole-3-butyric acid (IBA) solution for 18 hours (Dirr 1990; Dirr and Hesuer 1987). Summer softwood cuttings should be treated with about 1 to 3 g/liter IBA solution (1,000 to 3,000 ppm) or talc formulation (Dirr and Heuser 1987). Bladder-senna plants develop a thin, rangy root system that makes transplanting difficult. Growing plants in containers is the preferred production method.

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Table 1C *Colutea*, bladder-senna: morphological characteristics, height at maturity, and date first cultivated

Scientific name	No. leaflets	No. flowers/ raceme	Height at maturity (m)	Year first cultivated
Colutea arborescens	9B13	6B8	1.8B4.5	1570
C. orientalis	7B11	2B5	2	1710
C. × *media*	11B13	Varies	1.8B3.0	1809

Sources: Dirr (1990), Hillier (1991), Krüssmann (1984), LHBH (1976).