GUIDE TO THE GENERA OF LIANAS AND CLIMBING PLANTS

IN THE NEOTROPICS

GELSEMIACEAE

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Gelsemium sempervirens, drawing from Kohler's Medizinal-Pflanzen Vol 3 pl. 47. 1880.

A pantropical to warm temperate family of shrubs, trees or twining lianas. The family contains 3 genera and 14 species; in the Neotropics the family is represented by 2 genera and 2 species, of which *Gelsemium sempervirens* (L.) St. Hil. is the only species of liana; distributed from S.E. United States to Guatemala, predominantly in wet forests, and scrubs.

Diagnostics: *Gelsemium* is easily recognized by the twining habit; mature stems with islands of interxylary phloem; leaves simple, opposite, entire with pinnate venation; and large funnel-shape, yellow corollas.

General Characters

1. STEMS. Cylindrical with moderate secondary growth, slightly enlarged at the nodes; cross section with scattered ***interxylary phloem islands***.
2. EXUDATES. No information has been reported on the color and nature of exudates in *Gelsemium,* as a result it seems fair to conclude that they are odorless and ***colorless***.
3. CLIMBING MECHANISM. Main stems ***twining***.
4. LEAVES. Leaves are simple, opposite, with pinnate venation and entire margins, glandless; axillary or interpetiolar colleters commonly present; petioles ca. 5 mm long; stipules absent but interpetiolar flange present.
5. INFLORESCENCES. Axillary few-flowered racemes, basally with numerous, imbricate bracts.
6. FLOWERS. ***Actinomorphic***, bisexual; short-pedicelled. Sepals 5, free; corolla light to bright yellow, gamopetalous, funnel-shaped, 5-merous, the tube often longer than the lobes; stamens 5, inserted on the corolla tube, and alternating with the corolla lobes, the filaments short, the anthers inserted or nearly projected beyond the corolla tube; gynoecium superior, syncarpous, 2-carpellate, with numerous axial ovules per carpel, the style terminal, elongated with 4 stigmatic branches.
7. FRUITS. Oblong-elliptic, flattened, woody, tardily dehiscent capsule, 1.5-2 cm long.
8. SEEDS. Nearly flattened, with an asymmetrical wing.

GENERIC DESCRITION

GELSEMIUM Jussieu, Gen. 150. 1789.

G. sempervirens, photo by Kenpei

Twining lianas. Stems cylindrical, slightly enlarged at the nodes, 5-7 m in length. Leaves simple, opposite, with entire margins with pinnate venation; petioles short; stipules represented by an interpetiolar ochrea-like ridge. Inflorescence axillary, few-flowered racemes, bearing numerous overlapping bracts on basal portion Flowers fragrant, heterostylous; sepals imbricate, greenish yellow; corolla yellow, 2.5-3.5 cm, funnel-shaped with imbricate lobes; ovary bi-locular with numerous ovules per locule, style 4-branched. Capsule septicidal, 4-valved, with several uni-winged seeds.

Distinctive features: Twining lianas, stems with scattered interxylary islands of phloem; leaves opposite, simple, entire, with pinnate venation; corollas large, bright yellow.

Distribution: A genus of 3 species, 2 in southern North America, one of which (*G. sempervirens*) extends to Guatemala, a third species is native to China and western Malesia.

USES

In spite of their toxicity, species of *Gelsemium* are commonly planted as a garden plant due to its beautiful, fragrant flowers. The foliage of *Gelsemium sempervirens* contains several toxic alkaloids responsible for the death and abortion in livestock (Debay, 1950; Martínez, 1959; Kingsbury, 1964). Ingestion of nectar and honey is reported to cause death in humans and bees in the southeastern United States (Kingsbury, 1964).

RELEVANT LITERATURE

Debay, A. 1950. Étude du *Gelsemium sempervirens*. Pharm. Thesis, Univ. Paris.

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Ornduff, R. 1970. The systematics and breeding system of *Gelsemium* (Loganiaceae). Journal of the Arnold Arboretum, 51: 1-17.

Rogers, G.K. 1986. The genera of Loganiaceae in the southeastern United States. Journal of the Arnold Arboretum, Vol. 67: 143-185.