

# *Gelsemium sempervirens* (L.) J. St-Hil.

Common names: Yellow Jessamine, Carolina Jessamine

**Family:** Loganiaceae

The Loganiaceae is a diverse family of trees, shrubs and climbers. They are of importance to man, providing timber, ornamentals and some lethal poisons, notably strychnine. Though widespread they are seldom abundant, usually found growing singly or in small groups of minor ecological importance.

Members of the family used in homœopathy are *Spigelia anthelmia*, *Spigelia marilandica*, *Strychnos ignatii* and *Strychnos nux-vomica*. Clarke in his *Clinical Repertory* places *Curare* under the above family, but in his *Dictionary of Practical Materia Medica* he acknowledges the uncertainty of its composition.

**Distribution and habitat:** Indigenous to the southern United States from eastern Virginia to Tennessee and Arkansas, south to Florida and west to Texas. Found growing in rich, moist soils, common in thickets, in open woodlands and along roadsides throughout the coastal plain.

**Botanical description:** High-climbing or trailing vines, twining upward from left to right often reaching to the tops of trees, and forming festoons of foliage from one tree to another. Leaves evergreen, opposite and lanceolate. The fragrant yellow flowers, an inch or more long, often occur in sufficient numbers to make the plant quite showy. It blossoms in early spring. The root, which is the part used in homœopathy, is sinuous with a finely wrinkled surface and has a uniform yellowish-brown cork.

**Constituents:** *Gelsemium sempervirens* contains indole alkaloids mainly gelsemine, gelsemicine, gelsevirine, sempervirine, 1-methoxy and 21-oxogelsemine, 14-hydroxygelsemicine and gelsedine. Gelsemine is the principal alkaloid and is the one most studied although it is not as toxic as gelsemicine (Trease & Evans, 1989). A new alkaloid, 14-hydroxy-gelsedine, has been reported (Schun & Cordell, 1985). The majority of indole alkaloids have been isolated from the three plant families: Loganiaceae, Apocynaceae and Rubiaceae. A number of natural products derived from tryptophan, an essential amino acid, or its 5-hydroxy analogue are of great biological significance. Particularly important is serotonin (5-hydroxytryptamine or 5-HT). This compound is widely distributed in the animal and plant kingdoms. We find it, for instance, in tissues of mammals, birds, reptiles, amphibians and fish as well as in stings and venoms e.g. of wasps and scorpions). Pineapples, bananas, plums and nuts also contain serotonin. Serotonin plays a role in a variety of body functions. Perhaps one of its most important functions is its role as a synaptic transmitter substance and a precursor of the pineal hormone melatonin (Phillipson & Zenk, 1980).

**Toxicity:** Headache, dizziness, visual disturbances and dry mouth with dysphagia and dysphonia result from poisoning. In severe cases, muscular weakness occurs and may be manifested by falling of the jaw and marked ptosis. There may be signs of a weak strychnine-like action, e.g. tetanic contractions and extensor spasms of the extremities following tendon taps and general rigidity (Lampe & McCann, 1985). In minute doses it stimulates respiration but in larger doses it causes death by respiratory paralysis (Phillipson & Zenk, 1980).

**History:** *Gelsemium* is derived from Gelsemino, the Italian for Jessamine. Its therapeutic use, for bilious fever, was discovered accidentally in the early nineteenth century by a Mississippi planter. An infusion of the root of this plant was mistakenly taken for that of another; serious symptoms arose but, contrary to expectations, he recovered. This led to the preparation of a proprietary nostrum called the 'Electric Febrifuge'. It is the state flower of South Carolina.

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*Illustration of the plant drawn from a dried specimen and from colour plates in the herbarium of the Natural History Museum (London) by Vilma Bharatan BSc LCH. She practises in North London.*