
Ipomoea alba

Scientific Name

Ipomoea alba L.

Synonyms

Calonyction aculeatum (L.) House, *Calonyction aculeatum* var. *lobatum* (Hallier f.) C.Y. Wu, *Calonyction album* (L.) House, *Calonyction bona-nox* (L.) Bojer, *Calonyction bona-nox* var. *lobatum* Hallier f., *Calonyction pulcherrimum* Parodi, *Calonyction speciosum* Choisy, *Convolvulus aculeatus* L., *Convolvulus aculeatus* var. *bona-nox* (L.) Kuntze, *Convolvulus bona-nox* (L.) Spreng., *Convolvulus pulcherrimus* Vell., *Ipomoea aculeata* (L.) Kuntze, *Ipomoea aculeata* var. *bona-nox* (L.) Kuntze, *Ipomoea bona-nox* L.

Family

Convolvulaceae

Common/English Names

Evening Glory, Giant Moonflower, Good-Night Flower, Moon Flower, Moon-Flower, Moonflower, Moonflower Vine, Moon Vine, Moonvine, Prickly Ipomoea, Tropical White Morning Glory, Tropical White Morning-Glory, White Morning Glory, White-Flowered Morning Glory

Vernacular Names

Afrikaans: Maanblom

Brazil: Boa-Noite, Flor-Da-Lua, Jetirana-Branca (Portuguese)

Burmese: Kran-Hing

Chamorro: Alaihai-Tasi

Chinese: Yue Guang Hua, Yuek Kuang Hua

Czech: Povíjnice Bílá

El Salvador: Bejuco De Tabaco, Campanilla Blanca, Flor De Luna, Galán De Noche, Garza, Pitoreta (Spanish)

Fijian: Wa Ia

French: Liane Bla

German: Mondblüte Weiße Prunkwinde

Guatemala: Haapolin, Luna Blanca, Zutub (Spanish)

Hawaiian: Koali Pehu

Honduras: Panal De Niño (Spanish)

Japanese: Yakai-Sō, Yoru-Gao

Mexico: Camotillo, Haapolin, Nicua, Oración (Spanish)

Swedish: Månvinda

Thai: Ban Duek, Dok Phra Chan

Vietnamese: Bìm Trắng

Origin/Distribution

The species is indigenous to tropical and subtropical regions of the New World, from South America (French Guiana, Guyana, Surinam, Venezuela, Brazil, Bolivia, Colombia and Argentina) to Central America (Belize, Costa

Rica, Guatemala, Honduras, Nicaragua, El Salvador, Panama, Mexico) and the Caribbean (Bahamas, Cuba, the Dominican Republic and Haiti) to Florida in the Southeastern United States.

The species has become widely naturalized in the tropical regions of the world, including Asia (Indonesia, Japan (Ryukyu Islands), Brunei, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand) and many Pacific islands (American Samoa, French Polynesia, Hawaii, Tonga, New Caledonia, Fiji and the Galapagos Islands) and in Australia—southeastern and central Queensland and the coastal districts of northern New South Wales. It has also naturalized in Lord Howe Island and Norfolk Island.

Agroecology

The species thrives in a warm and humid climate. This species has escaped cultivation and invaded watercourses, riparian areas, moist forests, urban bushland and disturbed areas (e.g. in parks and along roadsides and railway lines) in the subtropical and tropical regions of the world.

Edible Plant Parts and Uses

Bundles of unopened flowers are sold in the markets in Brunei where the people consumed it as vegetable (Ng 2011). Young leaves and fleshy calyces are cooked or steamed and eaten as a vegetable or used in curries, soups, stews, etc. (Facciola 1990). The immature seeds are also consumed. In China, leafy shoots and fleshy sepals are eaten as potherbs; dried flowers are used for soup and also in pastries in Yunnan (Hu 2005).

Botany

A scrambling or climbing perennial or annual herbaceous liana with twining, glabrous up to 10 m long stem with soft prickles and milky sap. Leaves are alternate, large, 10–20 by 5–16 cm, ovate to



Plate 1 Moon flower (Marlene Deller)

circular in outline, entire or slightly trilobed with acuminate to mucronulate tips and cordate bases, glabrous and borne on 5–20 cm long petioles. Inflorescences in axillary helicoid cymes, 1-several flowered, peduncle stout and bracts small and deciduous. Flowers are nocturnal, fragrant, slightly zygomorphic and borne on 7–15 cm long pedicels. Sepals 5, elliptic to ovate, leathery, glabrous and strongly mucronate. Corolla salverform (trumpet shaped), tube greenish white, 7–12 cm long and 5 mm in diameter, lobes white, spreading, shallowly 5-undulate (Plate 1). Stamens 5, white and exerted. Style exerted with bilobed stigma. Ovary narrowly conical and glabrous. Fruit an ovoid capsule, 2.5–3 cm, apiculate. Seeds white, brown or black and glabrous.

Nutritive/Medicinal Properties

Nutritive information on the edible flower has not been analysed. Of six *Ipomoea* species, *Ipomoea alba* had the highest nectar volume secreted per flower (50.12 μ l), while in the other taxa, it ranged from 2.42 to 12.00 μ l (Galetto and

Bernardello 2004). All nectar samples contained amino acids and sugars. Most species had sucrose-dominant nectars. Mean nectar sugar concentration throughout the lifetime of the flower ranged from 34.28 to 39.42 % for four species including *I. alba*, except for *I. cairica* (49.25 %) and *I. rubriflora* (25.18 %).

Ipalbine, a new hexahydroindolizine alkaloid, ipalbidine and an unidentified minor alkaloid were isolated from *I. alba* seeds (Gourley et al. 1969). Three new resin glycosides, albinosides I–III, were isolated and purified from a chloroform-soluble extract of *Ipomoea alba* seeds (Cruz-Morales et al. 2012). Compounds 1–3 were found to be partially acylated branched pentasaccharides derived from three new glycosidic acids (albinosinic acids A–C).

A plant growth regulator calonyctin A was isolated from the dried leaves (Fang et al. 1993). Each molecule comprises two hydroxy fatty acid residues 3-hydroxy-2-methylbutanoic acid and 11-hydroxytetradecanoic acid or 11-hydroxyhexadecanoic acid and four 6-deoxyhexose units (three of quinovose and one of rhamnose) containing a tetrasaccharide. The long-chain hydroxy acid is linked glycosidically through its O-11 to Qui D and esterified to O-2 of Qui C, forming a macrocyclic lactone. The 3-hydroxy-2-methylbutanoic acid is ester-linked to O-3 of Qui C.

Studies showed that an organic extract obtained from *Ipomoea alba* did not show any positive influence on the progression of ligature-induced periodontitis in Wistar rats when administered according to the regimen used in the study (Barrella et al. 2012). Morphometrical analysis demonstrated that topically administered extract showed no effect on reducing bone loss when compared with the control group. In addition, the extract did not present toxicity in the single- and multidose acute toxicity assays.

The whole plant is used in treating snakebite in folkloric medicine.

Other Uses

The ancient Mesoamerican civilizations used the sap of *Ipomoea alba* morning glory vine containing organic compounds to coagulate the latex

from the *Castilla elastica* tree and the guayule plant to produce bouncing rubber balls (Wildman et al. 1943; Hosler et al. 1999). These ancient peoples' control over the properties of latex and processed rubber gave rise to the Mesoamerican ball game, a central ritual element in all ancient Mesoamerican societies.

The species is widely cultivated as an ornamental plant for its flowers. In areas too cold for winter survival, it can be grown as an annual plant. Since it is of tropical origin, it flowers best under a summer short day photoperiod.

Comments

In some countries, moonflower is deemed as an invasive species as it can cause problems in agricultural production areas. Moonflower (*Ipomoea alba*) is regarded as an environmental weed in New South Wales and Queensland. It has the potential to become a serious weed of rainforest gaps and margins and wet sclerophyll forests and riparian areas throughout the coastal districts of Queensland and northern New South Wales.

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