

## *Ipomoea Prolifera* - Beautiful Bolivia: A Review

Reema Jaiswal\*, Ankur Patel, Anju B. Bhandole

*Sardar Patel College of Pharmacy, Bakrol*

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### ABSTRACT

Around 600–700 species of *Ipomoea*, belongs to the Convolvulaceae, are found throughout tropical and subtropical regions of the planet. Several of these species are used as ornamental plants, food, medicines or in religious ceremony. *Ipomoea Prolifera*, a new genus of the plant which was discovered in Bolivia 2018. The present work reviews the, all the updated information on Botanical description and traditional uses of *Ipomoea Prolifera* species and illustrates the potential of the genus as a source of therapeutic agents. These species are utilized in several parts of the world for the treatment of several diseases, such as, diabetes, hypertension, dysentery, constipation, fatigue, arthritis, rheumatism, hydrocephaly, meningitis, kidney ailments and inflammations. Some of these species showed antimicrobial, analgesic, spasmolytic, spasmogenic, hypoglycemic, hypotensive, anticoagulant, anti-inflammatory, psychotomimetic and anticancer activities. Alkaloids, phenolics compounds and glycolipids are the foremost common biologically active constituents from these plant extracts.

**Keywords:** Convolvulaceae, *Ipomoea Prolifera*, Chemical Constituents, review, traditional uses

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### INTRODUCTION

The Convolvulaceae comprise nearly 1650 predominantly tropical species<sup>1</sup>. The *Ipomoea*, with approximately 500-600 species, comprises the most important number of species within the Convolvulaceae. This family is dominated by twining or climbing woody or herbaceous plants that always have heart-shaped leaves and funnel-shaped flowers. The *Ipomoea* occurs within the tropics of the planet although some species also reach temperate zones. The species of this genus are mainly distributed throughout the south and central America countries, and tropical African territories. One of the most noticeable anatomical characteristics of the Convolvulaceae is the existence of cells, which secrete resin glycosides within the foliar tissues and within the roots of the plants. These glycoresins constitute one important chemotaxonomic marker of this family and are liable for the purgative properties of the Convolvulaceae. The main focus of this review is to supply the knowledge, Botanical description and pharmacological activities of the plant.

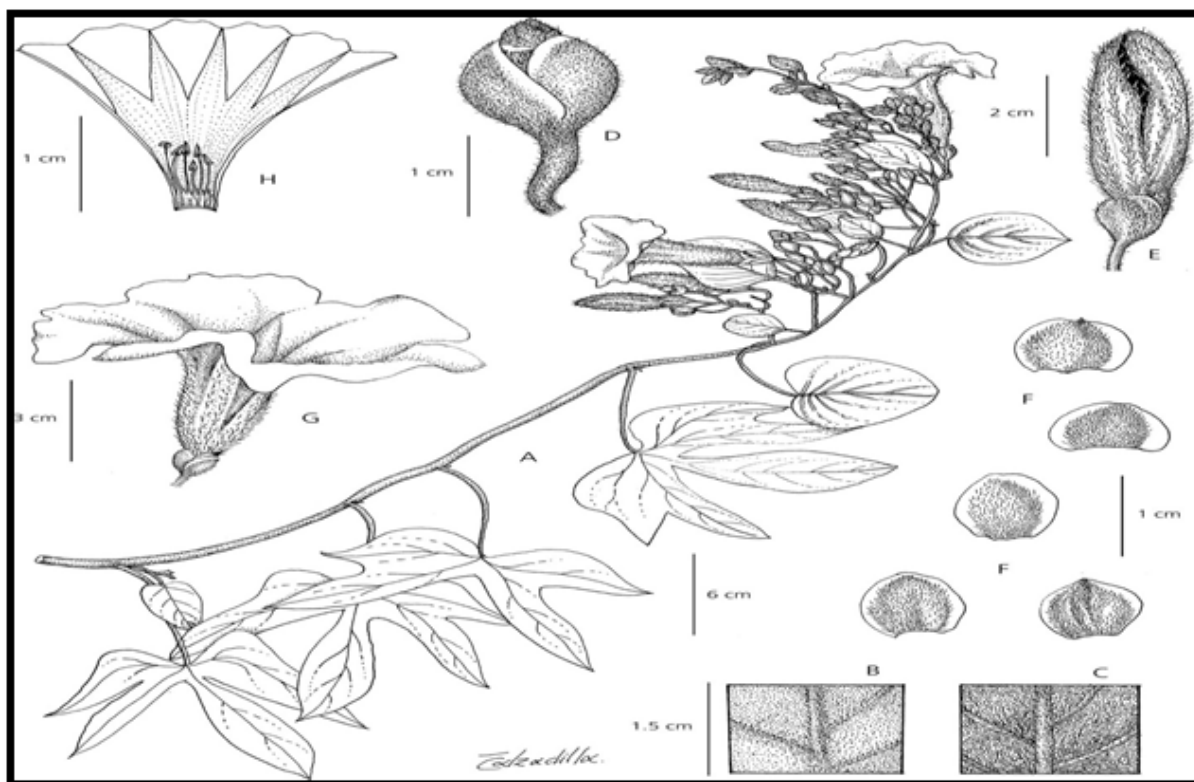
### BOTANICAL DESCRIPTION<sup>2</sup>

It is a perennial herb, clambering over shrubs or, less commonly, decumbent; stems up to 3 m long, pubescent

with long appressed hairs. Leaves petiolate, dimorphic; upper leaves and bracts 2.5 – 8 × 2 – 10 cm, diminishing in size upwards, entire, broadly ovate-elliptic to suborbicular, rounded, base shallowly cordate to truncate, margins undulate; lower leaves 7 – 13 × 7 – 14 cm, 3 – 5-lobed to about halfway (rarely unequally bilobed), the lobes oblong, obtuse to acute, base shallowly cordate; both leaf forms adaxially dark green, pubescent, abaxially grey-tomentose; petioles 2.5 – 7.2 cm, pubescent. Inflorescence of pedunculate axillary cymes usually with 7 – 8 flowers, mainly near the branch tips, somewhat proliferating; peduncles (0.5 –) 3 – 4.5 cm, pubescent, often somewhat bent or twisted, diminishing in length towards apex; bracteoles caducous, not seen; secondary peduncles 0.5 – 2 cm; pedicels 13 – 20 mm, pubescent, often bent; sepals subequal, 8 – 9 × 5 – 6 mm, oblong-elliptic, densely pubescent, outer rounded with narrow scarious margins, inner rounded or retuse with broader scarious margins; corolla 5.5 – 6 cm long, funnel-shaped, pale pink, pubescent, limb c. 4 cm wide; stamens included, short, filaments unequal, 8 – 14 mm, glabrous except for hairs at base, anthers c. 3 mm long; style c. 20 mm long, ovary glabrous. Capsule and seeds not seen.

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\*Author for Correspondence: [jreema464@gmail.com](mailto:jreema464@gmail.com)



*Ipomoea prolifera*. **A** habit; **B** adaxial surface of leaf; **C** abaxial leaf surface; **D** calyx; **E** bud; **F** sepals; **G** corolla; **H** corolla opened out to show stamens and style.



*Ipomoea prolifera*. **A** habit; **B** inflorescence with simple leaves (bracts); **C** lower palmatifid leaves; **D** detail of sepals and corolla showing indumentum.



Large, flamboyant and all kinds of colourful – these bright purple flowers have got it and will flaunt it. Another entrant from the Bolivian Andes, these plants hide their treasures until times of heavy rainfall, when they suddenly burst into bloom.

#### **PHENOLOGY**

It's been found in flower in March but probably continuing to flower until April. This plant wasn't spot in 2013, a comparatively dry year, at an equivalent location and within the same season, so flowering could also be very hooked in to adequate rainfall<sup>3</sup>.

#### **ETYMOLOGY**

This species is known as *Ipomoea prolifera* due to its proliferating inflorescences.

#### **DISTRIBUTION & HABITAT**

A narrow endemic restricted to seasonally very dry, It is deciduous, spiny bushland between 1650m and 1800 m on the descent to Pampa Negra within the Rio Mizque valley in Vallegrande Province in Bolivia.

#### **TRADITIONAL USES (ETNOBOTANY)<sup>4</sup>**

The genus of *Ipomoea* since time ancient, It are in continuous use for various purposes, such as, nutritional, medicinal, custom and agricultural. The knowledge constitutes an upscale source of ethnomedical information for effective selection of plants to be evaluated by chemical studies With reference to these nutritional purposes, it's necessary highlight the importance of the *I. batatas* (L.) Lam. This species originated from Central America, was widely cultivated and consumed almost throughout the planet *I. aquatica* Forsk is consumed as food in Sri Lanka, Hong Kong, Taiwan and China. *I. aquatica* is one among the richest sources of carotenoids and chlorophylls The leaves of *I. aquatica* contain adequate quantities of most of the essential amino and are like traditional like soybean or whole egg, indicating the potential of *I.*

*aquatica* for utilisation as a food supplement. Moreover, the leaves of *I. aquatica* are a superb source of bioelements like calcium, magnesium, iron, zinc, and copper Other species consumed for purposes nutritional are *I. alba* L., *I. albivenia*, Sweet., *I. involucrata* P. Beauv. and *I. leptophylla* Torr.

Various species of the *Ipomoea*, also as, of the Convolvulaceae family have the property of phytotoxicity, which mean suppressing the expansion of other plants including invasive weeds thanks to their content of ergot type alkaloids, several species of *Ipomoea* are used as hallucinogenics<sup>5</sup>. a number of them were utilized in pre-Columbian times by ancient people to achieve a state of mind suitable for divination during religious ceremonies and magical healing practices Two species of *Ipomoea* are detached within the entheogen use. they're *I. corymbosa* (*Riveacorymbosa*) and that i . *violacea* L. The seeds these *Ipomoea* were known respectively as "ololihqui" and tliltlitzin in Aztecs lingua and that they are still used even today by certain natives in Mexico<sup>6</sup>. Today, the ritual incorporates many elements from Catholic religion, including the names given to the plants, such as, "Seeds of the Virgin", Holy Mary Herb" and "Virgin's Cloak". Demonstrating the syncretism with the Christian traditions which for natives *Ipomoea* species are gift from the gods To the resemblance of the natives in Mexico, still today, within the candomble, the "father of saint" also uses seeds and leaves of *Ipomoea* species, such as, *I. alba*, *I. pes-caprae* and that i . *purpurea* within the preparations that are offered to the adept of the faith , to achieve a state of mind suitable for divination within the ceremonial religious Various species of *Ipomoea* are used extensively, in many countries, within the traditional medicine for the treatment of several diseases the



foremost common use of the roots of *Ipomoea* species is to treat constipation<sup>7</sup>.

#### Chemistry and Biological Activities<sup>8</sup>

The phytochemistry of the *Ipomoea* genus has been studied since 1950. Some species of *Ipomoea* showed antimicrobial, analgesic, spasmolytic, spasmogenic, hypotensive, psychotomimetic and anticancer activities. the foremost common biologically active constituents from these plants are ergoline alkaloids indolizidine alkaloids nortropanealkaloids ,phenolics compounds coumarins, norisoprenoids, diterpene, isocoumarin and benzenoids, flavonoids and antocianosides, glycolipids ,lignanand triterpenes.

#### CONCLUSION

The plants of the *Ipomoea* have long been utilized in folk medicine for the treatment of a good range of pathological conditions, including their use to treat inflammatory and analgesic processes, kidney ailments, constipation, colic and digestive disorders. In recent years, the scientific interest in plants of *Ipomoea* genus has increased rapidly. Substantial progresses on chemistry and pharmacological properties of this genus have showed it. Some species showed antimicrobial, analgesic, spasmolytic, spasmogenic, hypotensive, psychotomimetic and anticancer activities. Pharmacological studies have confirmed that some uses in folk medicine. Other study shown in rats with aqueous extract from the roots of *I. stans* indicated the presence of active substances which may exert a vasorelaxant effect confirming the favored use of *I. stans* as an antispasmodic . Although, an in depth amount of research work has not been done on some plants of *Ipomoea* till date, an outsized number of species are still partially studied like, *I. parasitica*, *I. operculata* (syn. *Operculinamacrocarpa*), *I. lonchophylla*, *I. involucrata*, *I. hederacea*, *I. bahiensis*. Consequently, a broad field of future research remains possible during which the isolation of latest active principles from these species would be of great scientific excellence.

Glycolipids, phenolics compounds and alkaloids are of particular interest as many are highly potent bioactives

and maybe liable for most of activities shown by the plants of this genus. an in depth study is required to know the structure-activity relationship of those constituents. Many plant extracts of *Ipomoea* showed biological activity. Although, the actual constituent liable for the activity has not always been isolated in further process. so, far no work has been administered on this plant.

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