



Morphological Description and Ethnobotanical Review of *Argyreia Zeylanica* (Gaertn.) Voigt

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ABSTRACT

Argyreia zeylanica (= *Argyreia pomacea*) is a perennial, woody climber belonging to the family Convolvulaceae. It is an endemic medicinal plant found in dry, deciduous forests of South India and Sri Lanka. It is known as 'Mustai' in India and as 'Manpanchan' in Sri Lanka. Morphological and ethnobotanical aspects of this plant have been focused in this review. The presence of white, tomentose, and ovate leaves, Large, showy lavender-colored flowers with oblong bracts, ovate sepals, and yellowish-brown berry fruits are the important identifying characteristics of the plant. Ethnobotanical literature reviews showed that the plant root is used against jaundice, leaves for diabetes mellitus, peptic ulcer, and cardiovascular diseases and to treat wounds. The leaves are used as vegetables in Sri Lanka. It is a good source of minerals and has moderate fiber content. It is a poor source of protein and soluble carbohydrates. Only a few phytochemistry and bioactivity studies have been reported in this plant. Hence, Further phytochemical and bioactivity studies are required to explore the medicinal values of the plant.

Keywords: *Argyreia zeylanica*, *Argyreia pomacea*, Morphology, Ethnobotany, Pharmacology

1. INTRODUCTION

The genus *Argyreia* is generally known as 'woolly morning glory' or 'small wood rose'. The name '*Argyreia*' is derived from the Latin word '*Argyrios*', denoting the silvery undersides of the leaves (Oostroom, 1953). *Argyreia zeylanica* (syn: *Argyreia pomacea*) is a perennial, woody climber belonging to the family Convolvulaceae. It is an endemic medicinal plant found in dry, deciduous forests of South India and Sri Lanka. This species is distributed in Tamilnadu, Kerala, and Karnataka in South India (Biju SD, 1997).

Medicinal plants have been used in traditional medicine since prehistoric times. Traditional knowledge of herbal plants is held by many tribal communities even in the modern era. Traditional knowledge is being transmitted from generation to generation. *A. zeylanica* is used as medicine by the Irula tribes in the Western Ghats of Tamilnadu (Dhivya S and Kalaichelvi K, 2016). Ethnobotanically, the plant parts are used against jaundice, diabetes mellitus, peptic ulcers, and some other diseases (Vidya Dharshini *et al.*, 2016). The entire plant is used for ornamental purposes (Sarvalingam A and Rajendran A (2014).

Green Leafy Vegetables play an important role in the human diet. They are valuable sources of nutrients particularly in rural areas, where they provide proteins, vitamins, minerals, fibers, and other nutrients that are usually in short supply in daily diets (Mohammed and Sharif, 2011). Green Leafy Vegetables of *A. zeylanica* are used as food in Sri Lanka. It is a good source of minerals and has moderate vitamins and fiber content. It is a poor source of protein and soluble carbohydrates (Umaramani M & Sivakanesan R, 2015). Morphological and ethnobotanical aspects of the plant have been focussed in this review.

2. NOMENCLATURE

2.1 Common names:

Argyreia zeylanica is known as 'woolly morning glory' or 'small wood rose' (refers to the genus) in English (Oostroom, 1953), 'Mustai' (Tamil) in Tamilnadu (Balasubramanian P *et al.*, 1997), and 'Manpanchan' (Tamil) in Sri Lanka Umaramani M & Sivakanesan R, 2015).

2.2 Synonyms:

Argyreia pomacea Sweet, *Argyreia leschenaultii* Thwaites, *Argyreia pomacea* var. *triflora* C.B.Clarke, *Calonyction sanguineum* Paxton & Lindl., *Calonyction sanguinolentum* Guillon, *Convolvulus pomaceus* Wall, *Ipomoea zeylanica* Gaertn., *Lettsomia pomacea* Roxb., *Mouroucoa pomacea* Kuntze, *Rivea pomacea* (Roxb.) Wight, *Rivea zeylanica* (Gaertn.) Thwaites (POWO, 2024).

2.3 Systematic position:

Argyreia zeylanica belongs to the family Convolvulaceae. The systematic position of *A. zeylanica* is given in Table 1 (POWO, 2024).

Table 1. The systematic position of *Argyreia zeylanica* (Gaertn.) Voigt:

Kingdom	-	Plantae
Phylum	-	Streptophyta
Class	-	Equisetopsida
Subclass	-	Magnoliidae
Order	-	Solanales
Family	-	Convolvulaceae
Genus	-	<i>Argyreia</i> Lour.
Species	-	<i>Argyreia zeylanica</i> (Gaertn.) Voigt

3. MORPHOLOGICAL CHARACTERISTICS:

Argyreia zeylanica is a perennial climbing plant. (Fig. 1). The stem is woody at the base, herbaceous at the tip, twining, terete, hollow, softly whitish brown and tomentose. The leaves are simple, ovate - broadly ovate or ovate-lanceolate, 6-8 x 2.5 - 4.5 cm in size, apically obtusely acute or emarginate, basally obtuse rounded, very softly white and tomentose below, upper surface rarely so. Midrib and lateral veins raised beneath, lateral veins in 9-10 pairs. Petiole is up to 2 cm long, pubescent like stem. Flowers are few to many (2-5). Inflorescence - capitate cyme. The peduncle is 2 cm long, terete, pubescent. Bracts are 2-4, oblong or elliptic oblong, 1.5-3 x 0.4-0.9 cm, apically acute to obtuse, pubescent. sepals are unequal. Outer 2 small, ovate, 6-7 x 4-5 mm, apically acute -obtuse, silky pubescent, glabrous inside. Inner 3 little larger, ovate, 9 - 10 x 4 - 5 mm, apically obtuse, mucronate, pubescent outside except the margins, glabrous inside. corolla is lavender colored, tube darker, limbs pale, funnel-shaped, tube up to 3 cm long, mouth 5 lobed, 2.5 cm across, mid-petaline bands hairy. stamens are inserted. Anthers are up to 4 mm long, filaments attached 4 mm above the corolla base, subequal, 5-6 mm long, dilated base with hyaline hairs. Ovary conical, glabrous, disc annular, 1 mm long. Style single, inserted, 2 cm long, dilated at base. Stigma biglobose, papillate. Fruit is a berry, yellowish brown, pulpy, depressed globose, 1.5-1.8 x 1.3-1.6 cm, glabrous. Fruiting calyx is slightly enlarged. Seeds 2-4, generally 2, glabrous, black (Biju SD, 1997).

Flowering: July – November, Fruiting: August – December.



Fig. 1- *Argyreia zeylanica* – Morphological characteristics

4. DISTRIBUTION:

Argyreia zeylanica is endemic to South India and Sri Lanka. In India, this species is distributed in deciduous forests of the Western Ghats and Eastern Ghats (Biju SD, 1997). It has also been reported as a rare endemic species in South India (Jayanthi P & Rajendran A, 2014; Sarvalingam A & Rajendran A, 2016). This species is found in Tamilnadu, Kerala and Karnataka states in India. It is distributed in the Western Ghats of Coimbatore, Nilgiris, Madurai,

and Dindigul districts, and the Eastern Ghats of Salem district of Tamilnadu. It is also found in Kottayam, Idukki, Palakkad, Thrissur, and Thiruvananthapuram districts of Kerala and also in Mysore and Hassan districts of Karnataka, South India (Biju SD, 1997).

5. ETHNOBOTANICAL USES:

The leaves of *A. zeylanica* (*A. pomacea*) collected from the wild places are sold in local markets and are used as a vegetable by 60% of the people in Sri Lanka (Umaramani M & Sivakanesan R, 2015). The leaves of *A. pomacea* are used to treat diabetes mellitus, peptic ulcers, cardiovascular diseases, and to treat wounds. In Sri Lanka, 40.9 % of people use this plant for Diabetes mellitus, 18.3 % of people use it for peptic ulcer, 13.5 % of people use it for cardiovascular diseases, and 12.4 % people use it to treat wounds. (Vidya Dharshini *et al.*, 2016).

The plant parts of *A. zeylanica* are used as medicine by the Irula tribes in the Western Ghats of Tamilnadu (Dhivya SM., 2016). In the Western Ghats, people use the leaf juice of *A. pomacea* for the cooling effect of the eyes. (Noorunnisa Begum S *et al.*, 2016). The root juice is consumed for jaundice by Irula tribes of Gopanari and Nellithurai reserve forests of Coimbatore, Tamil Nadu (Balasubramanian P *et al.*, 1997) and the local people of Kottayam district, Kerala (Binu Thomas & Divya M.S, 2019).

The ripe fruits are consumed raw to cure ulcers. (Paulsamy S, 2011). It is used as a wild ornamental plant since they have attractive pink-coloured flowers with a beautiful appearance (Sarvalingam A & Rajendran A, 2015). Ethnobotanical uses of *Argyria zeylanica* are given in Table 2.

Table 2. Ethnobotanical uses of *Argyria zeylanica*:

Parts used	Ethnobotanical uses of <i>Argyria zeylanica</i>
Root	Jaundice
Leaves	Diabetes mellitus peptic ulcer cardiovascular diseases wounds cooling effect to eyes
Fruits	ulcers
Entire plant	Ornamental purpose

6. CONCLUSION:

The morphological review showed that structures like white, tomentose, and ovate leaves, Large, showy lavender-colored flowers with oblong bracts, ovate sepals, and yellowish-brown berry fruits are the important identifying characteristics of *Argyria zeylanica*. Ethnobotanical literature reviews revealed that the plant root is used against jaundice, leaves for diabetes mellitus, peptic ulcer, and cardiovascular diseases and to treat wounds. The leaves are used as vegetables. It is a good source of minerals like Calcium and Magnesium and has moderate fiber content. It is a poor source of protein and soluble carbohydrates. Only a few phytochemical and bioactivity studies have been reported on this plant. Hence, further studies such as phytochemical and bioactivity studies are required to know about the medicinal values of the plant.

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