



Morphology of *Wrightia Antidysenterica* (L.) R.Br.

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ABSTRACT

In the present investigation is to study the morphology of the ornamental plant *Wrightia antidysenterica*. It is a container plant with opposite dark green leaves and star shaped flowers. It has long been known in Indian Ayurvedic tradition and is called Kutaja in Sanskrit. Knowledge of morphology of plant is also helpful in the study of various other fields such as genetics, plant breeding, genetic engineering, horticulture, crop protection and others. Based on these findings, the *Wrightia antidysenterica* plant species were distinguished from other species of the Apocynaceae family.

Keywords: Apocynaceae, Morphology, Ornamental, *Wrightia antidysenterica*.

Introduction

Wrightia antidysenterica, is a perennial ornamental plant, native to Sri Lanka. It is a compact, evergreen shrub that grows upto 1.5 meters. This plant is a moderate grower with several short and divaricate branches, which turn chocolate brown as it ages. It is a container plant with opposite dark green leaves and star shaped flowers. The genus was named for William Wright, Scottish Physician and Botanist, by Robert Brown. Species *antidysenterica* means against dysentery and refers to the medicinal properties of the plant. *Wrightia antidysenterica* has long been known in Indian Ayurvedic tradition and is called Kutaja in Sanskrit.

MATERIALS AND METHODS

In the present study, the fresh leaves and flowers of *Wrightia antidysenterica* were collected from Kanyakumari District, Tamil Nadu, India during the month of November to December 2022. Kanyakumari District was the Southernmost tip of Indian Peninsula. The soil is red, varying in the quantity of ferruginous element. The climate of the District is warm and humid.

Shoots of three plants were collected and used for leaf and flower data collection. From those shoots, 20 mature leaves and 20 flowers were randomly collected and measured the traits of the species. For each leaf and flower Length and Width were measured with a common ruler. Following this qualitative and quantitative morphological leaf and flower traits were studied. Longevity of the flower was determined by recognizing the day of opening and shedding.

RESULT

Classification : APG IV

Kingdom : Plantae

Clade : Tracheophytes

Clade : Angiosperms

Clade : Eudicots

Clade : Asterids

Order : Gentianales

Family : Apocynaceae

Subfamily : Apocynoideae

Tribe : Wrightieae

Genus : *Wrightia*

Species : *antidysenterica*

Synonyms

Echites antidysentericus (L.) Roxb. ex Fleming

Holarrhena antidysenterica (L.) Wall.

Nerium antidysentericum L.

Nerium divaricatum Lour.

Wrightia zeylanica (L.) R.Br.

Common Name

Arctic Snow, Coral Swirl, Indrajav, Milky Way, Snowflake, Tellicherry Bark, White Angel and Winter Cherry Tree.

Vernacular Name

Bengali: Karachi, Kurachi; Gujarati: Kadavo Indrajav, Kudo; Hindi: Karva Indrajau, Kutaja, Kurchi, Kuda, Kudaiya; Kannada: Korachi; Malayalam: Kodagapala, kutaja or kurchi; Marathi: Kuda; Punjabi: Kenera, Keor, Kewar; Sanskrit: Indrayava, Kutaja, Sakraparyaaya, Sakraasana, Vatsaka; Tamil: Kudasapalai, Veppalai; Telugu: Girimallika, Kodaga, Kodisepala, Kolamukku, Kondamalle, Kutajamu; Urudu: Kherva.

Native

Sri Lanka

Distribution

Africa, Burma, India, Madagascar, Nepal, Pakistan, Philippines and Sri Lanka.

Habitat

The plant is a container plant or houseplant, hedges in frost free areas.

Propagation

It is propagated by stem cutting.

Uses

It is grown as an ornamental plant, valued especially for its year-round production of white flowers.

Habit

Shrub

Flowering

Throughout the year.

Flower Longevity

6 days

Morphological characteristics

STEM

Younger branches are glabrous, green and divaricate, whereas the mature stem was brown. Presence of light yellow milky latex was observed while plucking leaves and flowers.

**Plate 1. Habit****Plate 2. Leaf (Dorsal View)****LEAVES**

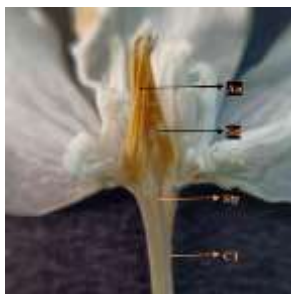
The leaf arrangement was opposite decussate. The leaves are simple, glabrous, entire margin, ovate, obtuse base and cuspidate apex. The blade was green in adaxial surface and light green in abaxial surface with 3–5.5 cm long and 2–3.1 cm wide. The petiole was short, light green, glabrous, 0.3–0.5 cm length and 0.1–0.2 cm width. Pinnate venation and have 8–11 secondary veins (Plate 2).

**Plate 3. Bract****Plate 4. Flower Bud: PL-** Petal Lobe; **CT-** Corolla Tube; **Ca-** Calyx; **Ped-** Pedicel**INFLORESCENCE**

The inflorescence was terminal cyme. The peduncle was brown, glabrous, 2–2.7 cm long and 0.2 cm wide. The bract was small, light green, glabrous, acute apex, 0.1 cm length and 0.1 cm width (Plate 3).

**Plate 5. Flower: PL-** Petal Lobe; **An-** Anther; **CT-** Corolla Tube; **Ca-** Calyx; **Ped-** Pedicel**Plate 6. L.S of Flower: An-** Anther; **CT-** Corolla Tube; **O-** Ovary; **Ped-** Pedicel**FLOWER**

The flowers are star-shaped, single whorl, five petaled, white with androecium at the center which is yellow in color with 3.4–4 cm length and 1.9–2.8 cm breadth (Plate 5). The pedicel was light green, glabrous, 0.4–0.8 cm length and 0.1–0.2 cm width. The flower bud was ovate shaped, white, 3–3.4 cm length and 0.6–0.7 cm width (Plate 4).

**Plate 7. L.S of Flower Stigma**

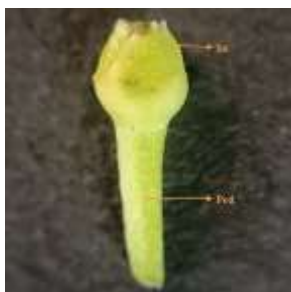
Overview: An- Anther; Sti- Stigma; Sty- Style; CT- Corolla Tube

**Plate 8. L.S of Flower Ovary**

Overview: CT- Corolla Tube; Sty- Style; Ca- Calyx; O- Ovary; Ped- Pedicel

CALYX

The calyx consists of five sepals, synsepalous with quincuncial aestivation. The sepals are light green, rounded apex, glabrous, 0.2 cm length and 0.2–0.3 cm width (Plate 9).

**Plate 9. Calyx: Se- Sepal; Ped- Pedicel****Plate 10. Corolla cut open: An- Anther; CT- Corolla Tube**

COROLLA

The corolla is sympetalous, single whorl, white, 2.6–3.4 cm length and 1.9–2.8 cm breadth. Five united petals forming a tube that spreads the open end. The corolla lobes are free, rounded, 1.2–1.6 cm length and 0.6–0.8 cm width (Plate 6–8). The base of the corolla lobe has corolline corona, it was placed at the throat of the corolla tube and arranged in two whorls, it was white and 0.3–0.7 cm length (Plate 10 & 11). The corolla tube was cylindrical, white in outer, light green in inner, glabrous on both the sides, 1.2–1.9 cm long and 0.2 cm wide. The tube was slightly inflated at the throat, mouth not closed with corolline corona. The corolla has twisted aestivation, base of the corolla lobe was slightly overlapping to the right side (clockwise).

**Plate 11. Corolla cut open**
Androecium Overview: An- Anther; CT- Corolla Tube**Plate 12. Androecium: An- Anther**

ANDROECIUM

The androecium consists of five epipetalous stamens, which are situated on the throat of the corolla tube. The anthers were introrse and adhere to the stigma via their adaxial surfaces. The anther was sagittate, glabrous, yellow on the tip portion and white at the base portion with 0.6–0.7 cm length and 0.1–0.2 cm width. The filament was absent, anther base was directly fixed to the corolla tube (Plate 11 & 12).



Plate 13. Gynoecium: Sti-
Stigma; **Sty-** Style; **O-** Ovary

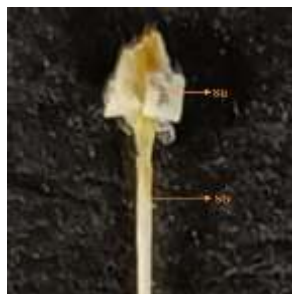


Plate 14. Gynoecium Stigma
Overview: Sti- Stigma; **Sty-**
Style

GYNOECIUM

The gynoecium consists of two carpels, free or slightly connate at the base, united at the apex by the style. The stigma was conical shaped, yellow, 0.1–0.2 cm length and 0.1 cm width (Plate 13 & 14). The style is simple, white and 1.6–1.9 cm long. The ovary was superior, light green, glabrous, 0.1 cm length and 0.1 cm width. The nectary disc surrounded the ovary, it was five, orange, 0.1 cm length and 0.1 cm width. Ovary was bilocular, 18 ovules in each locule on axile placentation (Plate 15).

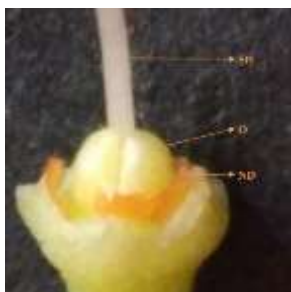


Plate 15. Gynoecium Ovary
Overview: Sty- Style; **O-** Ovary;
ND- Nectary Disc



Plate 16. Stages of Flower
Development

DISCUSSION

The morphology of the species *Wrightia antidysenterica* was studied by Ganapathy *et al.*, 2009; Akhtar *et al.*, 2011 and Mrinal & Singh, 2018.

CONCLUSION

Each and every living organism has a definite form. Study of the external structure or morphology helps us to identify and distinguish the species. Knowledge of morphology of plant is also helpful in the study of various other fields such as genetics, plant breeding, genetic engineering, horticulture, crop protection and others. Based on these findings, the *Wrightia antidysenterica* plant species were distinguished from other species of the Apocynaceae family.

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