

A PHARMACOGNOSY STUDY OF WRIGHTIA TINCTORIA PLANT**Zaseem Khan*¹, Imtiyaz Ansari² and Dr. Vanita Kanase³**¹M. Pharm Student, Department of Pharmacology, Oriental College of Pharmacy.²Assistant Professor, Department of Pharmacology, Oriental College of Pharmacy.³Head of Department of Pharmacology, Oriental College of Pharmacy.Article Received on
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Department of
Pharmacology, Oriental
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Wrightia tinctora is a tree widely used by the peoples of Tamil Nadu as a traditional medicine for pain and inflammations. Latex form the plant especially from leaves is directly applied on inflammation. This plant is very closely related to other species of Wrightia and hence pharmacognostical and preliminary phytochemical studies of wrightia tinctoria leaves were carried. Chemical constituents of the leaves of *Wrightia tinctoria* Species were reported to have triterpenoid constitutes as well as cycloartenone, cycloeucalenol, β -amyrin and β -sitosterol. Wrightia tinctoria have been recommended for the treatment of infections of the chest (in asthma). The W.tinctoria plant parts are mixed with Holarrhena which gives antiasthamatic activity.^[1]

KEYWORDS: Inflammation, phytochemical, cycloartenone, cycloeucalenol, Holarrhena.**INTRODUCTION**

Wrightia tinctoria, Pala indigo plant or dyers's oleander,^[2] is a flowering plant species in the genus *Wrightia* found in India, southeast Asia and Australia. It is found in dry and moist regions in its distribution. Various parts of the plant have medicinal properties. The plant *Wrightia tinctoria*, R. Br. A tree belongs to the family apocynaceae. It is distributed in the areas of Salem, periyar and comibatore districts of Tamil Nadu. Latex from the plant is applied directly on the inflamed area. Pharmacognostical studies were carried out on the leaves which includes detailed microscopy determination of leaf constant, ash value, extractive values and preliminary phytochemical studies.

In English, Pala Indigo is also called as *Ivorywood*, *Dyers' soleander*, *Dyeing Rosebay* and *SweetIndrajao*. These are referred as the common names of the plant. In Sanskrit, Pala Indigo is known as *Hayamaraka*, *Asita Kutaja*, *Stri kutaja* and *Svetakutaja*. In Hindi is called as Indrajau.

MATERIALS AND METHODS

Collection and identification of Plant

The leaves of *Wrightia tinctoria* were collected from mandagapalayam village of Salem District of Tamil Nadu during the month of July. The leaves were cleaned and allowed for shade drying. When the leaves were thoroughly dried, these were powdered and the powder was taken up for preliminary phytochemical studies.

Histological studies of Leaf

A thinnest possible section of leaves, was taken and treated with chloralhydrate solution to make the section clear, the sections were also treated with phloroglucinol and Hydrochloric acid in the ration of 1:1 to study lignified tissues.

Transverse section of leaf^{[3][4]}

A Transverse section of *Wrightia tinctoria* leaf sows dorsiventral structure. The following are the important tissue in the lamina and midrib regioin. The T.S. of the leaf is manly differentiated into tree regions.

- A. Upper epidermis
- B. Lower epidermis
- C. Mesophyll

A. Upper Epidermis

It is made up of single layered tangentially elongated compactly arranged cells. But epidermal cell present cell present in the midrib region are small oval shaped and covered by a thick cuticle.

B. Lower Epidermis

It consist of single layered tangentially elongated compactly arranged cells similar to the upper epidermis. Te epidermal cells in the midrib regions are small, oval shaped and covered by a thick cuticle.

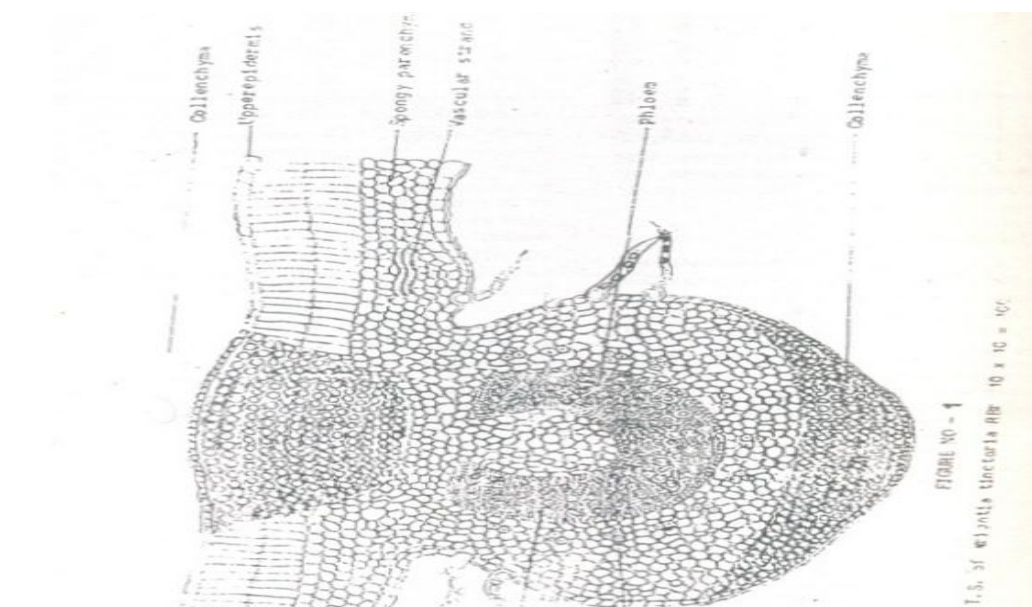
C. Mesophyll

Lamina regions is differentiated into palisade and spongy parenchyma. The palisade tissue is extended upto midrib region, the tissue which is present below the palisade is made up of spongy parenchyma.

It is 6-9 layered in structure and consist of vascular strands. The midrib region includes vascular bundles are arranged in a ring. The xylem present towards the centre, the phloem towards the periphery. The vascular tissue are surrounded by a continuous pericyclic fibres. 2-3 layers of collenchymatous tissue present above the lower epidermis in the midrib. A strip of collenchymatous appears blow the upper epidermis of the midrib regions. Rest of the midrib region is filled with loosely arranged parenchymatous cells. Surface preparation shows paracytic type of stomata. Clusters of calcium oxalate are present in the mesophyll region. It sows the presence of uniseriate, multicellular, (upto 9 celled) Covering trichomes in both the surface. The number of tirchomes are more in the lower of trichomes are more in the lower surface.

EXTRACTION

The extraction of leaves of *Wrightia tinctoria* will be carried by using soxhlation method. After 5-days of drying, the dried leaves will be carried by grinding and sieved with a 40# sieve. In this method 500 gm. Of leaves powder will be extracted with 90% ethanol. It will be then filtered and concentrated in vacuum under reduced pressure using a rotary evaporator and concentrated to obtain the ethanolic extract of *Wrightia tinctoria* (WT).^[5]



Qualitative phytochemical analysis^{[6][7]}

The extracts were subjected to qualitative chemical tests for detection of various plant constituents. The various qualitative chemical test indicate the presence of carbohydrates and glycosides, proteins and amino acids, flavonoids steroids and tannin.

- Phenolic compounds Alkaloids are absent in leaf of *Wrightia tinctoria*.
- Constants, ash values and extractive values are determined and recorded.

Morphology^{[8][9]}

- It is a small to medium sized deciduous shrub or tree, ranging from 3 m to 15 m in height but also reaching up to 18 m.
- The bark is smooth, yellowish-brown and about 10 mm thick, producing a milky-white latex. Leaves are simple, oppositely arranged, ovate, obtusely acuminate and are 10–20 cm long and 5 cm wide. Leaves are glabrous and sometimes pubescent beneath.
- Leaf stalks are very short. The flowers appear (in India) from March to May, peaking from April to June. White flowers appear in corymb-like cymes, 5–15 cm across, at the end of branches. Flowers have five white petals 2–3 cm long which turn creamish yellow as they age.
- The flowers have oblong petals which are rounded at the tip, and are similar to flowers of frangipani.

Medicinal uses^{[10][11][12]}

- It is a medicinal plant in Ayurveda described in classical Ayurvedic texts as *Shwetha kutaja* and seeds known as *Indrayava*.
- According to Ayurveda, the bark is useful in treatment of diarrhoea, piles, ringworm and other skin diseases.
- Seeds also have anti-dysenteric properties and are also used as astringents, antihelminthics, aphrodisiacs and to reduce fevers.
- Root bark extract is used orally as an antidote for snakebite.
- Healing of skin diseases.
- Stubborn dandruff
- In Diabetes
- Blood purification
- In fever.

Determination of Leaf constant^{[13][14]}

The determination of leaf constants like vein islet number, vein termination number, palisade ratio and stomatal index were carried out. Mean value, were calculated and recorded in [Table Number 1].

Table No 1: Leaf constants of *Wrightia tinctoria*.

Sr no	Leaf Constant	Values
1	Vein-Islet Number	6-8
2	Vein termination Number	8-10
3	Stomatal Index	17.6 – 20.5
4	Palisade ratio	7-9

Determination of Ash Values^[15]

Ash values were determined according to Indian pharmacopoeia such as total as, acid insoluble as sulphated ash and water soluble ash. Ash values were determined and recorded in [Table No.2].

Table No 2: Ash values of *Wrightia tinctoria*.

Sr no	Type of Ash	Ash %
1	Total Ash	8.108
2	Acid insoluble Ash	0.48
3	Water soluble Ash	2.626
4	Sulphated Ash	10.4

Determination of Extractive Values^[16]

For the determination of extractive values, various solvents such as solvent ether, chloroform. Alcohol 90% and water used. The extractive values were determined and recorded in [Table No 3].

Table No 3: Extractive values of *Wrightia tinctoria* leaves.

Sr no	Solvent used	% Average of extract
1	Solvent Ether	8.25%
2	Chloroform	7%
3	Alcohol	32%
4	Water	26%

CONCLUSION

The transverse section of leaf shows dorsiventral structure. Vascular tissue surrounded by a pericyclic fibre is an important character of the leaf. Surface preparation shows paracytic stomata. Leaf constants, ash values and extractive values are determined and recorded. Latex

is extensively used to stop bleeding from fresh wounds and the property is attributed to protease present in latex. The mechanisms of few cysteine proteases from latex in exhibiting procoagulant effect are known. Based on the procoagulant nature of latex proteases, their interference in subsequent phases of wound healing was determined. Further, their effect on wound healing was evaluated.

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