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PHYTO PHARMACOLOGICAL PROFILE OF *WRIGHTIA TINCTORIA*

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ABSTRACT

Traditional system of medicinal consists of large number of plants with various medicinal and pharmacological importances and hence represents a priceless tank of new bioactive molecules. *Wrightia tinctoria* is a member of the family Apocynaceae, is a small to medium-size deciduous tree. The plant grows up to 18 m tall and to 20 cm with green marks on the stem and producing milky-white resin. The bark is smooth, somewhat corky and pale grey. Traditionally *Wrightia tinctoria* commonly called as “Jaundice curative tree” in south India. This plant possesses high medicinal value. Crushed fresh leaves when filled in the cavity of decayed tooth relieve toothache. In Siddha system of medicine, it is used for psoriasis and other skin diseases. The plant has been assigned to analgesic, anti-inflammatory and antipyretic activities and to be effective in the treatment of psoriasis. This review will be helpful to create interest towards *Wrightia tinctoria* and may be useful in developing new formulations with more therapeutic and economical value.

INTRODUCTION

Medicinal plants have been of age long remedies for human diseases because they contain components of therapeutic value¹. Plants are used in modern medicine where they occupy a very significant place as raw material for important drugs². Plants are considerably useful and economically essential. They contain active constituents that are used in the treatment of many human diseases. Plants are rich sources of ecologically developed secondary metabolites, which are potential remedies for different ailments. Extreme interest in plants with microbial activity has revived as result of current problems such as resistance associated with the use of antibiotics obtained from micro organisms³.

BOTANICAL STUDY

Kingdom: Plantae

Order: Gentianales

Family: Apocynaceae

Genus: *Wrightia*

Species: *Wrightia tinctoria*



Fig 1: *Wrightia tinctoria*

MICROSCOPY

Transverse section of leaf is dorsiventral and trasncurrent. It shows single layered upper epidermis having one layered compact and radially elongated palisade cells. Uniseriate multicellular 2-3 celled trichomes and diacytic stomatas are present. Midrib shows both upper and lower continuous epidermis. Vascular bundles are arc shaped. The leaf constant parameters determined in the quantitative microscopy are relatively constant for plants and can be used to

differentiate closely related species. In quantitative microscopy, the stomatal indexes were found to be 21.0. Vein islet number and vein-let termination number are 21.0 and 21.8 respectively. The total ash of leaf was found to be 12.5%, of which, acid insoluble ash was 0.80% and acid soluble ash was 11.17%. The extractive values were found to be 14.48%, 10.96% and 25.36% for chloroform, alcohol and water respectively.

CHEMICAL CONSTITUENTS

Different chemical compound such as alkaloids, flavonoids, phlobatannin, phenolics, steroids, saponins, tannins and terpenoids are present.

PHARMACOLOGICAL ACTIONS

Anthelmintic activity

Latha et al reported the anthelmintic activity in crude petroleum ether and chloroform extracts of leaves of *Wrightia tinctoria* using *Pheretima posthuma*. Three different concentrations (2.5, 5.0, 7.5mg/ml) of each extracts were studied in this activity, which involved the determination of time of paralysis and time of death of the worms. Piperazine citrate is used as standard reference and normal saline as control. The present study proves the potential usefulness of leaves of *Wrightia tinctoria* as comparable anthelmintic agent⁴.

Antipyrosporum activity

Krishnamoorthy and Rangarajan reported the anti-pyrosporum activity of a herbal drug combination of *Wrightia tinctoria* and *Hibiscus rosasinensis* was tested in vitro against the isolates of pyrosporum ovale recovered from dandruff. The drug combination exhibited fungicidal activity at a concentration ranging between 500 to 1000ug/ml⁵.

Anti-inflammatory activity

Pritam Jain, Sanjay Bari reported the anti-inflammatory activity in petroleum ether and methanol extracts of *Wrightia tinctoria* woody stems using carrageenan-induced rat paw edema and Histamine-induced rat paw edema models. The test doses at 100, 200 and 400 mg/kg are investigated against inflammation models. The obtained results indicates the test extracts showed significant inflammatory against dose dependent manner⁶.

Antinociceptive activity

Reddy et al reported the anti-nociceptive activity in ethyl acetate, acetone and methanol extracts of *Wrightia tinctoria* bark on acetic acid-induced writhing test in mice, their effects being comparable to that of acetylsalicylic acid⁷.

Antiulcer activity

Madhu Divakar and Lakshmi Devi reported the anti ulcer activity of methanolic and ethanolic extract of *Wrightia tinctoria* leaves by aspirin induced pylorus ligation method using famotidine as standard. The Biochemical parameters like volume of gastric juice secretion, pH, free acidity, total acidity, ulcer index and percentage inhibition were studied at the concentration of 200 mg/kg bodyweight. The methanolic extract showed significant gastro protective activity of 65.89% when compared with the standard drug famotidine (20 mg/ kg) which showed 75.34%. Results suggested that methanolic extract of *Wrightia tinctoria* leaves possesses antiulcer effect⁸.

Anti-viral activity

Selvam et al reported the antiviral activity of different extracts of leaf parts of *Wrightia tinctoria* in replication of HIV-1(IIIB) in MT-4 cells and HCV in Huh 5.2 cells. Chloroform extract of *Wrightia tinctoria* exhibited a maximum protection of 48% against the cytopathic effect of HIV-1(IIIB) in MT-4 cells. The concentration that reduced the growth of exponentially proliferating Huh 5-2 cells by 50% was greater than 50µg/ml⁹.

CONCLUSION AND DISCUSSION

The extensive literature survey revealed that *Wrightia tinctoria* is important medicinal plant with diverse pharmacological spectrum. The plant shows the presence of many chemical constituents which are responsible for varied pharmacological and medicinal property. The evaluation needs to be carried out on *Wrightia tinctoria* in order to uses and formulation of the plant in their practical clinical applications, which can be used for the welfare of the mankind.

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