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Preliminary Phytochemical Screening of *Wrightia tinctoria.*

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ABSTRACT

Medicinal herbal plants are claimed to possess the medicinal properties in the traditional system and are also used extensively by the tribal people worldwide. It is now believed that nature has given the cure of every disease in one way or another. Plants have been known to relieve various diseases in Ayurveda. Therefore, the researchers today are emphasizing on evaluation and characterization of various plants and plant constituents against a number of diseases based on their traditional claims of the plants given in traditional system of Indian medicine. Extraction of the bioactive plant constituents has always been a challenging task for the researchers. In this present study, an attempt has been made to give an overview of certain extractants and extraction processes of *Wrightia tinctoria* and is of interest to analyse the various phytochemical constituents of butylalcohol, Acetone and Chloroformic extracts of *Wrightia tinctoria.*Our results indicates that the medicinal plant *Wrightia tinctoria* possess secondary metabolites such as flavanoids alkaloids tannins, cardiac glycosides and steroids etc.,

Keywords*Wrightia tinctoria*,Butyl alcohol ,Acetone, Phytomedicine, Alkaloids, Flavonoids,

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INTRODUCTION

All over the world the herbal medicine acts as the representative of the most important fields of traditional medicine. The study on the medicinal plants is essential to promote the proper use of herbal medicine in order to determine their potential as a source for the new drugs. Medicinal plants have been used for the treatment of illness since before recorded history. The relationship between food and medicine was quoted as "Let food be thy medicine and medicine be the food [1]. The plant kingdom has proven to be the most useful in the treatment of diseases and they provide an important source of all the pharmaceuticals in the world.Most important bioactive constituents of these plants are steroids, terpenoids, carotenoids, flavanoids, alkaloids, tannins and glycosides. Plants in all facets of life have served a valuable starting material for drug development. Phytochemicals are used as templates for lead optimization programs, to make safe and effective drugs [2].

Microbial infections are major public health problems in the developed countries. Antibiotics are used to treat these infections. Due to indiscriminate use of commercial antibiotics, the incidence of multiple antibiotic resistance in human pathogens is increasing. This has forced the scientists to search for new antimicrobial substances from various sources like medicinal plants. Medicinal plants constitute the main source of new pharmaceuticals and health care products The use of traditional medicines is widespread in India [3].

Knowledge of the chemical constituents of plants is desirable, not only for the discovery of therapeutic agents, but also because such information may be of value in disclosing new sources of such economic materials as tannins, oils, gums, precursors for the synthesis of complex chemical substances. In addition, the knowledge of the chemical constituents of plants would further be valuable in discovering the actual value of folkloric remedies [4]. Chemically constituents may be therapeutically active or inactive. The ones which are active are called active constituents and the inactive ones are called inert chemical constituents [5].

MATERIALS AND METHODS

Collection of samples

The medicinal plant used for the experiment were leaves of *Wrightia tinctoria*.collected from local ayurvedic shop,and the plant material were identified and authaeticated by botanist Chennai, Tamil nadu.India.

Preparation of extracts

500 grams of leaf of *Wrightia tinctoria* .plant was packed in separate round bottom flask for sample extraction. The extraction was conducted by 1000 ml of the solvent mixture for a period of 72 hours. At the end of the extraction the respective solvents were concentrated under reduced pressure and the crude extracts were stored in refrigerator, for further use.

Phytochemicals analysis

The extracts prepared were analyzed for the presence of alkaloids, saponins, tannins, steroids, flavonoids, anthraquinones, cardiac glycosides and reducing sugars based on the protocols available in the literature. [6-11].

Test for alkaloids

The extract of the crude dry powder of each solvent was evaporated to dryness in boiling water bath. The residues were dissolved in 2 N Hydrochloric acids. The mixture was filtered and the filtrate was divided into three equal portions. One portion was treated with a few drops of Mayer's reagent, one portion was treated with equal amount of Dragondroff's reagent and the third portion was treated with equal amount of Wagner's reagent respectively. The appearance of creamish precipitate, the orange precipitate and brown precipitate indicated the presence of respective alkaloids.

Test for saponins

About 2 ml of plant leaf extract was vigorously shaken with water in a test tube and then heated to boil. Frothing was observed which was taken as a preliminary evidence for the presence of the saponins

Test for tannins

About 2 ml of plant leaf extract was added was in 10 ml of water in a test tube and filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or blue-black coloration.

Test for steroids

2 ml of acetic anhydride was added to 2 ml of plant extract of each sample along with 2 ml sulphuric acid. The colour changed from violet to blue or green in some samples indicating the presence of steroids.

Test for flavonoids

2 ml of extract solution was treated with 1.5 ml of 50% methanol solution. The solution was warmed and metal magnesium was added. To this solution few drops of conc. Hydrochloric acid was added and the red colour was observed for flavonoids and orange colour for flavones.

Test for anthraquinones

About 2 ml of extract was taken in a dry test tube and 5 ml of chloroform was added and shaken for 5 min. The extract was filtered and the filtrate shaken with equal volume of 10% of ammonia solution. A pink violet or red colour in the ammonical layer indicates the presence of anthraquinones**.**

Test for cardiac glycosides

2 ml of extract was dissolved in 1 ml of glacial acetic acid containing 1 drop of ferric chloride solution. This was then under layered with 1ml of concentrated sulphuric acid. A brown ring obtained at the interface indicated the presence of a deoxysugar characteristic of cardioids.

Test for Proteins

To 2ml of extract and 1 ml of protein solution 1ml of 40% NaOH solution and 1 to 2 drops of 1% $CuSO_4$ solution was added. A violet colour indicated the presence of peptide linkage of the molecule.

Test for Amino Acids

To 2 ml of sample was added to 2 ml of Ninhydrin reagent and kept in water bath for 20 minutes. Appearance of purple colour indicated the presence of amino acids in the sample.

Test for Tri-Terpenoids

5ml of each extract was added to 2ml of chloroform and 3ml of con. H_2SO_4 to form a monolayer of reddish brown coloration of the interface was showed to form positive result for the tri-terpenoids.

Test for Reducing Sugar

To 2 ml of extract 2 drops of Molisch's reagent was added and shaken well. 2ml of conc. H_2SO_4 was added on the sides of the test tube. A reddish violet ring appeared at the junction of two layers immediately indicated the presence of carbohydrates.

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RESULTS AND DISCUSSION

Extracts of plants and phytochemicals are getting more importance as potential sources for inhibiting different diseases during the recent decade. Ethnobotanical plants have a greater number of positive results than randomly selected plants.

Table 1:Preliminary Phytochemical constituents of Acetone ,Butyl alcohol and Chloroformic extracts of *Wrightiatinctoria*

S.NO	PHYTOCHEMICALS	ACETONEEXTRACT	BUTYL ALCOHOL	CHLOROFORM EXTRACT
1.	Flavonoid	++	++	++
2.	Alkaloids	_ _	++	++
3.	Saponins	++	_ _	_ _
4.	Tanins	++	++	_ _
5.	Amino acid	_ _	_ _	_ _
6.	Protein	_ _	_ _	_ _
7.	Terpenoids	_ _	+ +	_ _
8.	Reducing sugar	_ _	_ _	+ +
9.	Cardiac glycosides	++	++	+ +
10.	Anthroquinones	++	_ _	++
11.	Steroids	++	_ _	++

"++" - Positive."--" - Negative.

Table 1 showed that the phytochemical constituents of Acetone, Butyl alcohol and chloroformic extracts of Wrightia tinctoria.The phytochemical screening of the crude extracts revealed the presence of Flavonoids, Alkaloids,Saponins,Sugars,Tannins, Steroids and Anthraquinones were present. Saponins were present in acetone extract whereas, the butyl alcohol extract shows negative result.In the case of flavonoids all extract showed positive result. The butanol extracts shows the proteins were absent whereas acetone extracts showed negative result.The terpenoids were present in butanol extracts.The reducing sugar were present in chloroform extract and the butanol extract shows negative.The cardiac glycosides present in all extract and amino acids were absent in all extracts. The acetone extract shows the positive result of steroids and anthroquinones.In the case of alkaloids the butyl alcohol extracts shows positive whereas the acetone extracts shows negative. All extracts shows negative results in amino acids. The Phytochemical screening carried out with *Wrightia tinctoria* has revealed the presence of many secondary metabolites Which interns contributed to its phytochemical pharmacological activities .The present study portrays that the presence of the phytochemicals in a *Wrightia tinctoria* may contribute many significant ways for various studies in a truth full manner to the various activites of the plant in future.

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