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Phytochemistry Pharmacogonosy and Anticoagulant Activity of Thespesia Populnea

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Abstract: *Thespesia poplunea is a reputed ever green tree belonging to the family malvaceae commonly khown as Indian tulip tree and paras papal . The plant is distributed tropical regions and coastal forest in India and south estern areas. It is well khown and all the parts are used in traditional system of medicine. The plant has been used Astringent, Antibacterial, Hypatoprotective, Haemostatic, Antidiarrhoeal, Antiinflammtery, Cutaneous infection, numerous diseases brain and liver disorders. The scientific parameter is necessary to identify the exact plant material and to find its quality and purity*

Keywords: Thespesia Poplunea seed, Herbal, Medicinal activities Constituents,Chemical test

I. INTRODUCTION

Thespesia populnea (L.) Soland ex Correa is a small evergreen tree that averages 6–12 m in height with a short, often crooked stem, and a broad, dense crown. It is commonly referred as Portia Tree. The name Thespesia is derived from the Greek word thespesios, which means divine or sacred. In ancient times, trees were planted around places of worship.

In Tahiti, the tree was associated with the God of prayer and chanting. Branches were attached to canoe masts as a token of peace and the leaves were used by priests in ceremonial offerings. Natural products have provided biologically active compounds for many years and many of today's medicines are either obtained directly from natural sources or were developed from a lead compound originally obtained from a natural source. T. populnea (L.) Linn. (Fam. Malvaceae), a fast growing, medium-sized evergreen tree, distributed throughout coastal forests of India is also largely grown as a roadside tree.

The plant Thespesia populnea traditionally claimed to be useful in the treatment of cutaneous affections such as scabies, psoriasis, ringworm, guinea worm, eczema and herpetic diseases. T. populnea ground up bark is used to treat skin diseases (India), dysentery and hemorrhoids(Mauritius). Oil prepared by boiling the ground bark in coconut oil is applied externally in psoriasis and scabies. The plant contains glycosides such as quercetin, gossypol, β-sitosterol1and sesquiterpene. Thespesenone and dehydrooxoperezinone-6-methyl ether were isolatedfrom the red hard wood of Thespesia populnea2 . Alanine, arginine, methionine and tryptophan were isolated from seed of Thespesia populnea3 . It also contains lupenone and lupeol4 .

The ethanolic extract of Thespesia populnea bark has been reported to show antiinflammatory and analgesic activity. Thespesia populnea is also recommended for antifertility activity, wound healing antifungal and hepatoprotective activity.

II. NEED OF WORK

Herbal medicine forms the basis of health care throughout the world since the earliest days of mankind and is still widely used and has considerable importance in international trade (6).

Reorganization of their clinical, pharmaceutical and economic value in still growing, although this varies widely between countries. Medicinal plants are important for Pharmacological research and drug development, not only when plant constituents are used directly as therapeutic agent, but also as starting material for the synthesis of drug or as models for pharmacological active compounds.

Traditional medicines, mainly herbal in nature are now a day's used for treating the disease. Various herbal formulations are existing now a day. The WHO recognized this fact in the early 1970's and encouraged government touse herbal medicines for diseases prevention and health promotion. Herbal medicine has become popular for

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healthcare. The consumption of such formulation and botanicals has increased in recent years. Herbal products are defined as herbal medicines that are administered to patients and are mixtures of herbal substances. In the preparation of herbal formulation various parts of plants contain different constituents which have different pharmacological effect. Along with the active ingredients plants contain vitamins, minerals, alkaloids, volatile oils etc. herbal formulation are available in variety of forms such as tablets, capsules, ointments, creams, emulsions, suspension, tinctures etc.

III. AIM AND OBJECTVES

The herbal plants used in the traditional system of medicine of India and China etc. are Now gaining much scientific attention. In spite of the remarkable achievements attained by Modern medicine and research, the traditional system of medicine continue to be a major Component in the effective delivery. Most of Moraceae family plants are well explored for Their novel phyto constituents (6).

AIM

1. Selection of plant based on their medicinal uses.
2. Collection and drying of leaves of Hibiscus sabdarifa
3. Extraction of plant material.
4. Screening of phytochemical test's.
5. Screening of different extract of plant for possible biological activity.

OBJECTIVES

1. To extract from a specific part of plant material.
2. Study the possible phytopharmacological activities of the active component.

IV. PLANT PROFILE

Common Names :

Hindi : Gajadanda, Bhendi, paras-pipal.
Marathi : Aashta, Paras-bhendi , pimpari.
Sanskrit : Parshwapippal.
Telugu : Gangaravi. Tamil : Puvarasu.
Others : Aden apple, Milo, Cork tree.

Scientific Classification

Kingdom: Plantae
Clade:Tracheophytes
Clade:Angiosperms
Clade: Eudicots
Clade: Rosids
Order: Malvales
Family : Malvaceae
Tribe: Gossypieae
Genus : Thespesia
Binomial Name : Thespesia populnea
Family: Malvaceae.

Synonyms: Hibiscus populneus Parita populnea Thespesia howii Azanza acuminata Alef Parita populneus Parita Scop

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V. MATERIAL AND METHODS

Material used for the study

1. Analytical weighing balance
2. Cooling centrifuge
3. Deep freezer (-800C)
4. Hot air oven
5. Rotary evaporator
6. Soxhlet continuous extraction apparatus.

Chemicals used for the study

1. Ethanol
2. Petroleum ether

Methods

Plant collection and authentication and drying of plant material

The leaves part of the plant Thiespesia populunea was collected from soni Village district sangli and authenticated from Under guidance Asst. Prof. P. O. Patil P. V. P Mahavidhyalya Kavathemahankal, Sangli. Soon after collection, the leaves were cleaned and shade dried. After drying, these leaves were crushed to a coarse powder, stored in air tight plastic containers for further use.

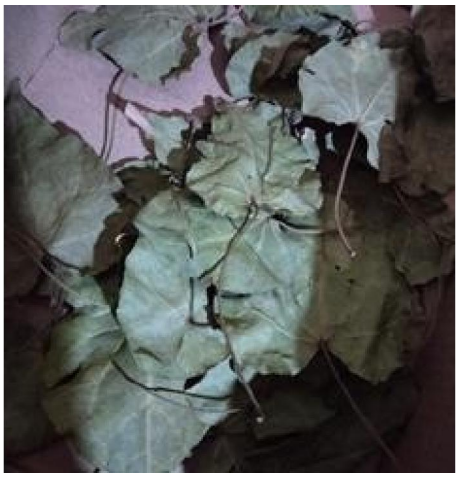

Fig No. Dried Leaves

Fig No. Powder of dried leaves

Qualitative Phytochemical Analysis

Preparation of test sample

A small quantity of the extract was dissolved in 5ml of distilled water and filtered. The filtrate was tested to detect the presence of various phytochemical constituents in the sample.

1. Test for Alkaloids:

To the extract dilute hydrochloric acid will be added and filtered. The filtrate will be treated with various alkaloid reagents

a) Mayer's test:

The filtrate will be treated with Mayer's reagent: appearance of cream colour indicates the presence of alkaloids.

b) Dragendroff's test:

The filtrate will be treated with Dragendroffs reagent: appearance of reddish brown precipitate indicates the presence of alkaloids.

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c) Hager's test:
The filtrate when treated with Hager's reagent, appearance of yellow colour precipitate indicates the presence of alkaloids.

2. Test for carbohydrates and reducing sugar
The small quantities of the filtrate will be dissolved in 4ml of distilled water and filtered.
a) Molisch's test:
A small portion of the filtrate will be treated with Molisch's reagent and sulphuric acid. Formation of a violet ring indicates the presence of carbohydrates.
b) Fehling's test:
The extract will be treated with Fehling's reagent A and B. The appearance of reddish brown colour precipitate indicates the presence of reducing sugar.
c) Benedict's test:
The extract will be treated with Benedict's reagent; appearance of reddish orange colour precipitate indicates the presence of reducing sugar.
d) Barfoed's test:
The extract will be treated with barfoed's reagent and heated. Appearance of reddish orange colour precipitate indicates the presence of non reducing sugars.

3. Test for proteins:
a) Biuret test:
The extract will be treated with copper sulphate solution, followed by addition of sodium hydroxide solution; appearance of violet colour indicates the presence of proteins.

4. Test for flavonoids:
a) 5ml of extract will be hydrolyzed with 10%sulphuric acid and cooled. Then, it will be extracting with diethyl ether and divided in to three portions in three separate test tubes. 1ml of diluted sodium carbonate, 1ml of 0.1N sodium hydroxide, and 1ml of strong ammonia solution will be added to the first, second and third test tubes respectively. In each test tube. Development of yellow colour demonstrated the presence of flavonoids.
b) Shinoda's test:
The extract will be dissolved in alcohol, to which few magnesium turnings will beaded followed by concentrated HCL drop wise and heated, and appearance of magenta colour shows the presence of flavonoids.



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Extraction procedure of Thiopesia poplunea

Gathered and washed the leaves of Thiopesia poplunea with distilled water For 3 weeks they had been dried in shadow and grinded into fine powders. They gathered the fine powders and placed them in sterile containers. The bioactive compounds used to be extracted using soxhlet instruments. For 20gm of powder approximately 100ml of solvent ethanol was used.

Extraction of Soxhlet took approximately of 3 days Then extracted the extract

Fig No. Leaves Soxhlet Extraction of Thiopesia poplunea

VI. RESULT AND DISCUSSION

Experimental procedure

The fibrinolytic activity was determined as previously described in literature, with a few modifications. First, 100 µL of citrated human plasma was mixed with equal volume of 100 mM CaCl2 and incubated at 37°C for 120 min for fibrin clot formation. The plasma fibrin clot was washed 5 times with PBS and then incubated with different concentrations of samples (20 – 100 µg/µL) at 37°C for 120 min. 100 µL of 0.0625 M Tris-HCl pH 6.8 containing 10% v/v glycerol, 10% v/v β-mercaptoethanol, 2% w/v SDS and 0.05% w/v bromophenol blue was added, followed by boiling for 5 min. The samples were centrifuged at 800 g for 10 min and the supernatant was then analyzed colorimeter at 535nm. The percentage of antiocoagulant assay is calculated by using following formula,

% Anticoagulation= OD of Control-OD of Test/Od of Controlx100

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Images of the Activity:

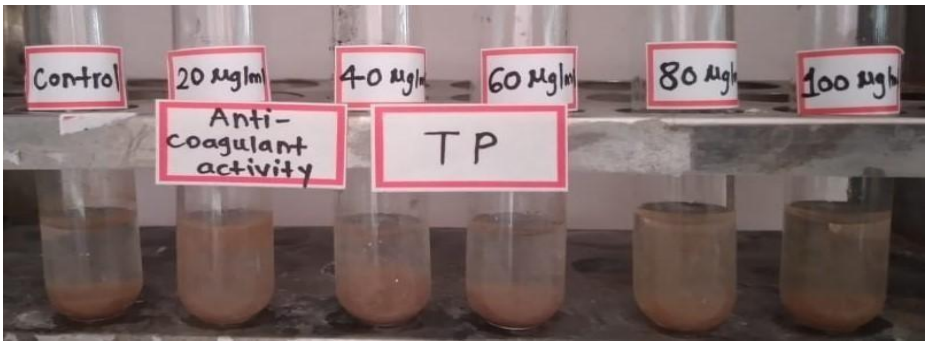

Table 1- In vitro anti-Coagulant activity

			Absorbance At 535 nm				RESULT	
S R NO	Sample Code	Concentrations (µg/ml)	Test 1	Test 2	Test 3	Mean	% Of inhibition	IC 50 µg/ml
1	**Control**		**1.307**	**1.307**	**1.307**	**1.307**		
2	**Standard (Heparin)**	**20**	0.739	0.739	0.739	**0.739**	**43.45%**	**32.68**
		40	0.628	0.628	0.628	**0.628**	**51.95%**	
		60	0.551	0.550	0.551	**0.550**	**57.91%**	
		80	0.436	0.436	0.437	**0.436**	**66.64%**	
		100	0.279	0.278	0.279	**0.278**	**78.72%**	
4	**TP**	**20**	0.917	0.923	0.924	**0.921**	**29.83%**	**84.68**
		40	0.893	0.894	0.893	**0.893**	**31.67%**	
		60	0.811	0.812	0.810	**0.811**	**37.94%**	
		80	0.731	0.742	0.711	**0.728**	**44.29%**	
		100	0.517	0.512	0.512	**0.513**	**60.74%**	

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Graphical data: