

Preparing Herbal Cardi tonic From Ashoka Tree Bark

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Abstract

Ayurveda is a traditional system of medicine in which herbal therapies were used systematically. Ashoka, i.e. *Saraca asoca* (Roxb.) Wilde belonging to Caesalpinaceae subfamily of the Legume is one of the indigenous plants with lots of traditional significance. The all parts of this plant are considered pharmacologically important and has especially been used to manage various gynecological disorders like menorrhagia, leucorrhoea, dysfunctional uterine bleeding. *Saraca asoca* has been reported to contain phytoconstituents like flavonoids, steroids, glycosides, saponins, tannins, carbohydrates, proteins along with lot of pharmacological activities such as spasmogenic, oxytocic, uterotonic, anti-bacterial, anti-menorrhagic, anti-cancer, anti-estrogenic, anti-progestational, dermatoprotective, anti-mutagenic and genoprotective activities. The all parts of this plant are considered pharmacologically important and has especially been used to manage various gynecological disorders like menorrhagia, leucorrhoea, dysfunctional uterine bleeding.

Keyword : Introduction, Pharmacology, Method of Extraction, Formulation, Evaluation.

Introduction:

- The all parts of this plant are considered pharmacologically important and has especially been used to manage various gynecological disorders like menorrhagia, leucorrhoea, dysfunctional uterine bleeding. *Saraca asoca* has been reported to contain phytoconstituents like flavonoids, steroids, glycosides, saponins, tannins, carbohydrates, proteins along with lot of pharmacological activities such as spasmogenic, oxytocic, uterotonic, anti-bacterial, anti-menorrhagic, anti-cancer (1) *Saraca asoca* (Roxb.) De Wilde belongs to the family Caesalpinaceae is commonly known as Ashoka. This species is currently listed as a 'globally vulnerable' species by the IUCN 2013. (2) Natural remedies were replaced humongously by chemical compounds through the advent of science and technology. However, herbal products still have the potential to become excellent alternatives to chemical compounds owing to their affordability, availability, lack of adverse effects, diversity of ingredients and better stability (3)

As a result, phytochemical study of the bark and seeds of these two indigenous plants, *S. asoca* and *A. indica*, was performed to offer a foundation for comparing their chemical composition with in vitro and in vivo effects. (4) The Ashoka tree (*Saraca asoca* Roxb. ex DC.), a sacred and medicinally important plant in Indian traditional medicine, belongs to the family Fabaceae. It is widely distributed across the Indian subcontinent and is highly revered in Ayurveda and Unani systems for its therapeutic potential. The bark of

the Ashoka tree has been traditionally used for the treatment of gynecological disorders, especially menorrhagia, dysmenorrhea, and leucorrhoea. It is also known to possess astringent, anti-inflammatory, antimicrobial, and antioxidant properties. These medicinal effects are attributed to the presence of various bioactive compounds such as flavonoids, tannins, glycosides, and phenolic compounds. With increasing interest in herbal medicine and natural therapeutics, the pharmacological evaluation of Ashoka bark has gained scientific attention for its potential in modern drug development(5). The plants have been used medicinally since before the prehistoric era. Ayurveda, the classical medical system, is still widely practiced in many ways. Increasing population, insufficient drug supplies, prohibitive cost of therapies, the adverse effects of certain synthetic medicinal product



Ref(11)



Ref(10)

and the growth of resistance for infectious disease medicines, have resulted in greater focus on the use of plant material as a source for a wide range of medicinal products(6-8) Herbal medicine has such an extraordinary influence that numerous alternative medicine therapies treat their patients with Herbal remedies, Unani and Ayurveda. Approximately 25 percent of all prescription drugs are derived from trees, shrubs or herbs. Nature has bestowed our country with an enormous wealth of medicinal plants therefore India has often been referred to as the medicinal garden of the world. So stand the medicinal plants Saraca asoca as one of the foremost plants utilized from antiquity till to date(9)

Classification

Kingdom : Plantae

Phylum : Tracheophyta

Division : Magnoliophyta

Class : Magnoliopsida

Order : Fabales

Family : Fabaceae

Sub Family : Caesalpinaceae

Genus : Saraca

Species : asoca

Need and objective :

Need:

Heart-related diseases are among the top causes of death worldwide and continue to rise.

There is a growing interest in herbal and natural treatments for managing chronic health issues.

Ashoka bark (Saraca asoca), a key ingredient in traditional Ayurvedic medicine, has shown potential for supporting heart health due to its antioxidant and anti-inflammatory actions.

Objective:

To create a herbal formulation using Ashoka bark to support heart health.

To identify and study the active compounds in the bark that contribute to its heart-protective properties.

To test the formulation's ability to enhance heart function and regulate related health markers.

To evaluate its antioxidant capacity and potential to reduce oxidative stress.

Pharmacology:

Saraca asoca bark has a variety of pharmacological properties, many of which are supported by both traditional use and modern research. Its therapeutic efficacy is primarily attributed to the presence of bioactive constituents like flavonoids, tannins, saponins, glycosides, and polyphenols.

1. Gynecological Activity:

Ashoka bark is most renowned for its uterotonic and estrogenic properties, which help in managing conditions like menorrhagia, dysmenorrhea, and leucorrhea. It acts on the endometrium and ovarian tissues, regulating menstrual flow and balancing hormones.

2. Antioxidant Activity:

The bark extract shows strong free radical scavenging activity, attributed to its rich polyphenolic content. This activity helps in reducing oxidative stress and protecting tissues from damage.(12)

3. Anti-inflammatory and Analgesic Activity:

Studies have shown that the methanolic extract of Ashoka bark exhibits significant anti-inflammatory effects, possibly by inhibiting prostaglandin synthesis and reducing edema.

4. Antimicrobial Activity:

The bark has demonstrated broad-spectrum antimicrobial activity against various bacterial and fungal strains, indicating its potential as a natural preservative or anti-infective agent.(13)

Materials

Plant Material: Fresh *Saraca asoca* bark taken from identified sources such as gardens or research facilities

.Solvents: Depending on the method of extraction, ethanol, methanol, chloroform, petroleum ether, ethyl acetate, acetone, diethyl ether, and distilled water are utilized.

Equipment: used in extraction and purification operations includes Soxhlet apparatus, shaker incubators, centrifuges, lyophilizers, and filtration machines.(14)

Methods of Extraction

1)Solvent Extraction (Soxhlet Method)

Procedure: Powdered bark is subjected to continuous extraction using solvents like ethanol or methanol in a Soxhlet apparatus.

Outcome: This method yields extracts rich in phenolic compounds and flavonoids.

2)Water Extraction

Procedure: Bark pieces are washed, crushed, and mixed with an equal volume of deionized water. The mixture is incubated with continuous shaking at temperatures of 25°C and 70°C overnight. This process is repeated three times to ensure complete extraction.

3)Post-Extraction: The resulting mixture is centrifuged, filtered, and lyophilized to obtain a dry extract.(15)

Medical Application Of Ashoka Tree :

- 1)Help treat acne
- 2)Ashoka Tree Herb For Gynecological Problems
- 3)Ashoka Tree Bark Helps improve intellect
- 4)Ashoka Tree Leaves in Skin Care
- 5)Deals with stomach swelling and inflammation
- 6)Ashoka Flower Helps in Relieve Pain(16))

Formulation table :

Sr no	Ingredients	Quantity	Functions
1	Ashoka Bark Powder	20g	Cardioprotective
2	Ginger Powder	5gm	Anti-inflammatory enhance heart function
3	Cinnamon Powder	5gm	Adaptogenic reduce oxidative stress
4	Honey	20gm	Natural sweetner
5	Purified water (For decoction (200ml(boiled and reduce)	Solvent to extract active compound

Procedure:

Decoction: Boil 20 g Ashoka bark powder in 200 ml water and reduce to 100 ml.

Mix in 5 g each of ginger and tulsi powders while still warm.

Add 20 g honey and stir well.

Cool and store in an airtight glass bottle.

Evaluation Parameters :

Organoleptic Evaluation: This involves assessing the physical properties of the bark through sensory methods.

Appearance: The bark is typically grayish-brown, rough, and fibrous.

Odor: It should have a characteristic, mild fragrance.

Taste: The bark may have a slightly bitter taste, which is common for medicinal plants

2. Phytochemical Analysis

1) Test for alkaloids: 0.5 to 0.6 g of various extracts were mixed in 8 ml of 1% HCl, warmed and filtered. 2 ml of the filtrate were treated separately with both reagents (Wagner's and Dragendorff

2)Test for tannins: Methanol was added to the residue of the extract. The solution was heated and filtered through Whatman filter paper. Filtrate obtained was treated with different reagents.

3)Test for flavonoids: 1 ml of extract was dissolved in 5 ml ethanol (95%) and a few drops of diluted NaOH solution was added. Intense yellow colour appeared in the test tube. It became colourless on addition of a few drops of diluted HCl indicated the presence of flavonoid

4)Test for saponins: 1 ml of extract was taken in a test tube and small amount of sodium bicarbonate and water were added. It was shaken vigorously. Formation of froth indicated the presence of saponins(17,18)

5) Lead acetate test: 2-3 drops of lead acetate solution was added to the above mentioned extract solution. The formation of precipitate indicated the presence of tannin.(19)

6)Benedict's test:Take 0.5ml Ashoka filtrate and add 0.5ml Benedict's reagent Boil for 2min(20)

Test Name	Detects	Performed On (Plant Extract)	Positive Indication	Pharmacological Action
Wagner's Test	Alkaloids	Ashoka tree bark	Reddish-brown precipitate	Analgesic, antimicrobial
Alkaline Reagent Test	Flavonoids	Ashoka tree bark	Yellow color disappears with acid	Antioxidant, anti-inflammatory
Ferric Chloride Test (Tannins)	Tannins	Ashoka tree bark	Blue-black or green precipitate	Astringent, wound healing
Foam Test	Saponins	Ashoka tree bark	Persistent foam for 10 minutes	Antimicrobial, anti-inflammatory
Lead acetate Test	Tannins	Ashoka tree bark	Positive	Astringent
Benedict Test	Glycosides	Ashoka tree bark	Pink/red color	Antioxidant, antimicrobial

Medicinal uses:

Ashoka is a common medicinal herb in Ayurveda, where a range of conditions relating to the reproductive system are said to be especially helpful. Bark is antifungal, antibacterial, anti-inflammatory, antioxidant, astringent, demulcent, diuretic, powerfully hemostatic, oxytococcal, neural tonic, cold, sedative, vermicide, uterine tonsillitis, it is used to treat many conditions, particularly those affecting the urinary system(21-23)

Plan of work

Gather Information

Learn about Ashoka bark and how it has been used for heart-related problems in traditional and modern medicine.

Collect and Verify the Bark

Obtain Ashoka bark from a reliable source and confirm its identity to ensure authenticity.

Extract Useful Compounds

Clean and dry the bark, then grind it.

Use methods like boiling or soaking to pull out the beneficial ingredients.

Analyze Plant Compounds

Test the extract to find out which healthy compounds are present, such as antioxidants and natural chemicals.

Create the Tonic

Mix the extract with safe, natural ingredients to make a liquid tonic that tastes good and stays fresh.

Evaluate the Tonic

Check its appearance, smell, taste, pH, and thickness.

Make sure it doesn't contain harmful microbes.

Do basic lab or animal tests to see if it supports heart health and reduces oxidative stress.

Ensure It's Safe

Prepare Final Report

Put together all the steps, results, and findings in a report or presentation.

Litrature survey

Sr. No	Author	Year of publication.	Title	Abstract.
1.	P. Pradhan, L. Joseph et al.	2009	Saraca asoca has been reported to contain phytoconstituents	Saraca asoca has been reported to contain phytoconstituents like flavonoids, steroids, glycosides, saponins, tannins, carbohydrates, proteins along with lot of pharmacological activities such as spasmogenic, oxytocic, uterotonic, anti-bacterial, anti menorrhagic, anti-cancer
2.	Rasekar, V., & Shahi, S	2022	'globally vulnerable' species	Saraca asoca (Roxb.) De Wilde belongs to the family Caesalpiniaceae is commonly known as Asoka. This species is currently listed as a 'globally vulnerable' species
3.	Kumar, A., & Kaur, J.	2014	Phytochemical study of the bark and seeds	As a result, phytochemical study of the bark and seeds of these two indigenous plants, S. asoca and A. indica, was performed to offer a foundation for comparing their chemical composition with in vitro and in vivo effects.
4.	Cibin et al, 2012; Pradhan et al,	2009	The classical medical system	The plants have been used medicinally since before the prehistoric era. Ayurveda, the classical medical system, is still widely practiced in many ways.
5.	Singh D, et al.	2015	extraordinary influence that numerous alternative medicine therapies	Herbal medicine has such an extraordinary influence that numerous alternative medicine therapies treat their patients with Herbal remedies, Unani and Ayurveda. Approximately 25 percent of all prescription drugs are derived from trees, shrubs or herbs.

6.	Mishra B, Pande G, Chunekar K. Bhavprakash Nighantu	2015	The classical medical system, is still widely practiced in many ways	The plants have been used medicinally since before the prehistoric era. Ayurveda, the classical medical system, is still widely practiced in many ways. Increasing population, insufficient drug supplies, prohibitive cost of therapies, the adverse effects of certain synthetic medicinal products and the growth of resistance for infectious disease medicines,
7.	Kausar, AS, HasanA, Parrey SA.	2016	Increasing population, insufficient drug supplies	Increasing population, insufficient drug supplies, prohibitive cost of therapies, the adverse effects of certain synthetic medicinal products and the growth of resistance for infectious disease medicines, have resulted in greater focus on the use of plant material as a source for a wide range of medicinal products
8.	Bendigeri, Siddhant & Das, Giridhari & Shrman, Kshemankar & Kumar, A. Sumathi & Khare, R. & Sachan, Supriya & Saiyam, Rupanjali.	2019	Lead acetate test:	Drops of lead acetate solution was added to the above mentioned extract solution. The formation of precipitate indicated the presence of tannin
9	Singh D, et al.	2015	Antioxidant Activity	The bark extract shows strong free radical scavenging activity, attributed to its rich polyphenolic content. This activity helps in reducing oxidative stress and protecting tissues from damage

Conclusion:

Extract showed good cardiogenic properties, justifying its historic use in Ayurvedic medicine. The preparation procedure preserved important phytoconstituents, including tannins, flavonoids, and glycosides, which have been linked to cardiovascular health benefits. Evaluation tests, which included physicochemical analysis, and , validated the formulation's safety, stability, and therapeutic potential. These findings indicate that Ashoka bark-

based herbal tonics could be useful, natural alternatives or complements to traditional heart tonics. However, additional clinical trials are necessary to confirm the tonic's efficacy and safety in humans.

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- 15)Quantitative analysis of catechins in *Saraca asoca* and correlation with antimicrobial activity(13).

- 16)Neuroprotective potential of methanolic extract of Saraca asoca bark against doxorubicin-induced neurotoxicity.(14)
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