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Formulation And Evaluation Of Different Dosage Form Of *Saraca Asoca*

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ABSTRACT:
The present study focuses on the systematic formulation and evaluation of multiple dosage forms derived from various parts of *Saraca asoca* (Ashoka), a plant revered in traditional medicine for its broad spectrum of therapeutic activities, particularly in female reproductive health. Recognizing the risk of its endangerment, the research promotes sustainable utilization by converting different plant parts—roots, stems, bark, leaves, and seeds—into pharmaceutical and cosmetic formulations. Under the brand name "PAENK" (Pure Ashoka Extract for Natural Kare), a series of products such as ointments, syrups, decoctions (kashaya), oils, soaps, granules, powders, and tambuli were developed and evaluated. Each formulation underwent organoleptic, physicochemical, and stability analysis to assess their quality and suitability for topical and oral application. The study demonstrated favorable pH levels, stability indices, and bioactive content across formulations, highlighting the potential of Ashoka-based products for therapeutic and cosmetic use. This work not only validates traditional uses but also offers a sustainable platform for herbal product innovation.
KEYWORDS: *Saraca asoca*, Ashoka, herbal formulations, ointment, syrup, decoction, oil, soap, granules, phytopharmaceuticals, female health, Ayurvedic medicine, PAENK, standardization, polyherbal dosage forms

INTRODUCTION:

Herbal medicine holds remarkable significance, with many alternative medical systems such as Unani and Ayurveda incorporating herbal remedies into patient treatment. Nearly 25% of prescription medications originate from plants—trees, shrubs, or herbs. India, blessed with an abundant variety of medicinal flora, is often called the "medicinal garden of the world." Among these medicinal plants, Saraca asoca stands out as one of the most historically and widely used species.

The name "Ashoka," derived from Sanskrit, translates to "without sorrow" or "that which relieves grief." This tree holds a revered and mythological status in Indian culture. Commonly referred to in English as the Ashoka tree, it is scientifically named Saraca asoca (Roxb.) De.

Wild or Saraca indica, and is a member of the Caesalpinaceae family [1,2]. It is an evergreen tree and is recognized by various names in regional languages: Kankeli (Sanskrit), Ashoka (Assamese, Bengali, Gujarati, Hindi, Oriya, Punjabi), Ashokadamara (Kannada), Ashok (Kashmiri, Marathi), Asokam (Malayalam), and Asogam (Tamil).

Saraca indica exhibits a range of biological activities such as pain relief, fever reduction, antifungal, anti-parasitic, anti-diabetic, larvicidal, antimicrobial, CNS depressant, anti-ulcer, and anti-inflammatory properties. It also functions as a spasmogenic, oxytocic, uterotonic, antibacterial, anti-implantation, anti-tumor, anti-progestational, and anti-estrogenic agent, particularly in treating excessive menstrual bleeding and as an anti-cancer compound [3]. The plant is used for conditions like indigestion, fever, burning sensations, colic, ulcers, heavy menstrual bleeding, vaginal discharge, and acne.This review includes a pharmacognostic analysis of various parts of the plant, along with a study of its chemical constituents and pharmacological effects. Saraca asoca is especially valued in the treatment of female reproductive disorders, including abnormal vaginal discharge, weak uterine contractions, pelvic pain, kidney stones, and painful urination. The plant contains key compounds such as glycosides, flavonoids, tannins, and saponin.

FACE PACK POWDER:

Face pack powder is a natural skincare product in dry, powdered form, typically made from a combination of herbal, mineral, and botanical ingredients that work together to cleanse, nourish, and revitalize the skin. It is designed to be mixed with a suitable liquid—such as water, rose water, milk, yogurt, or even aloe vera juice—to form a smooth paste that can be evenly applied to the face. Once applied and left to dry for about 10 to 20 minutes, the face pack begins to absorb excess oil, remove dirt and impurities from deep within the pores, and gently exfoliate dead skin cells. This process helps to unclog pores, tighten the skin, and promote a fresh, glowing complexion.

The ingredients used in face pack powders vary depending on their intended purpose. For example, multani mitti (Fuller's earth) is excellent for absorbing oil and cooling the skin, while turmeric provides antibacterial and anti-inflammatory benefits. Neem powder helps fight acne-causing bacteria, sandalwood soothes irritated skin, and various clays like kaolin, ashoka and bentonite offer deep cleansing and skin-toning properties. Face pack powders are highly customizable and can be tailored to different skin types and concerns, such as dryness, dullness, pigmentation, or acne. With regular use, they can improve overall skin texture, enhance complexion, and support long-term skin health in a natural, chemical-free way.

SYRUP:

In the field of pharmacy, a syrup is a widely used and important oral liquid dosage form that serves as a vehicle for administering medicinal substances in a sweet, thick, and palatable liquid. It is particularly favored for pediatric and geriatric patients who may have difficulty swallowing tablets or capsules, as well as for those who are sensitive to the bitter or unpleasant taste of certain drugs. Pharmaceutical syrups are designed to make the process of medication intake easier and more acceptable, thereby improving patient compliance and ensuring that the correct dosage is consumed.

A typical pharmaceutical syrup consists of several key components. The base is usually a high concentration of sugar—most commonly sucrose—dissolved in purified water to create a thick, viscous liquid that acts as a solvent and preservative. In sugar-free syrups, sugar substitutes

like sorbitol or glycerin are used instead, especially for diabetic patients. The syrup also contains one or more active pharmaceutical ingredients (APIs), which provide the intended therapeutic effect. To enhance palatability and patient acceptance, flavoring agents such as fruit, mint, or vanilla are added, along with coloring agents to improve visual appeal. Additionally, preservatives like sodium benzoate or parabens are often included to prevent microbial contamination and extend shelf life, while viscosity enhancers such as cellulose derivatives or glycerol help maintain the desired consistency and mouthfeel.

Syrups can be broadly classified into two categories: simple syrups, which contain only the sugar solution and no active ingredients, and medicated syrups, which incorporate therapeutic drugs. Common examples of medicated syrups include cough syrups, antipyretic syrups for fever reduction, antibiotic syrups, antihistamine syrups, and vitamin or mineral supplements. They are usually taken in measured doses using a spoon, cup, or oral syringe to ensure accuracy.

Proper storage is essential for maintaining the stability and effectiveness of syrups. Most should be kept in a cool, dry place, away from direct sunlight, and some may require refrigeration. If the syrup contains suspended particles, it should be shaken well before each use to ensure uniform distribution of the medication. In conclusion, pharmaceutical syrups are a versatile, effective, and user-friendly dosage form that play a significant role in modern medicine, particularly in enhancing treatment outcomes through improved taste, ease of use, and patient adherence.

SOAP:

Soap is a cleansing agent that is used to remove dirt, oils, and microorganisms from the skin and other surfaces. It is typically composed of a combination of fats or oils, along with an alkali (such as sodium hydroxide or potassium hydroxide) that acts as a catalyst for the chemical process known as saponification. This reaction between fats or oils (usually derived from animal or plant sources) and an alkali produces soap molecules, which have both hydrophilic (water-attracting) and hydrophobic (oil-attracting) ends. This structure allows soap to effectively emulsify and remove oils, grease, and dirt from the skin, as well as to help wash away harmful bacteria or other contaminants.

Pharmaceutical-grade soaps are formulated to ensure gentle and effective cleansing, especially for patients who may have sensitive skin or specific dermatological concerns. These soaps may include additional ingredients such as antimicrobial agents, moisturizers, and emollients to enhance their therapeutic effects. For example, soaps containing chlorhexidine or benzalkonium chloride are often used in medical settings for their antimicrobial properties, helping to reduce the risk of infection. Glycerin and lanolin may be added to soaps to maintain skin hydration, preventing dryness and irritation that can result from frequent washing.

Pharmaceutical soaps may also be formulated for specific skin conditions, such as acne, eczema, or psoriasis, by incorporating ingredients like salicylic acid or tar, which are known to have therapeutic benefits for these conditions. Medicated soaps are commonly recommended for use in hospital and clinical environments to maintain hygiene and prevent cross-contamination.

In addition to their cleansing properties, soaps used in pharmacy also serve as vehicles for other topical medications. For example, soap may be used to carry topical corticosteroids or antifungal agents to the skin, ensuring proper distribution and absorption of the active

ingredients. Overall, in the context of pharmacy, soap is not only a vital product for maintaining personal hygiene but also plays a role in the therapeutic management of various skin conditions and the prevention of infections.

KASHAYA:

Kashaya refers to a traditional herbal decoction or liquid extract used in Ayurvedic medicine. It is made by boiling a combination of herbs, roots, or plant parts in water until the liquid is reduced to a concentrated form. Kashayas are typically used as therapeutic remedies to treat a variety of ailments, improve health, and restore balance in the body, as part of holistic Ayurvedic treatments. The ingredients in a kashaya are carefully selected based on their medicinal properties, such as anti-inflammatory, analgesic, digestive, antimicrobial, or detoxifying effects.

Kashayas are often administered orally, and in Ayurvedic practice, they are considered to work on specific doshas (body energies) and help in balancing the body's constitution (Prakriti) and imbalances (Vikriti). They are traditionally prepared by boiling herbs in water for a specific period of time, often with a prescribed ratio of water to herbs, and sometimes with the addition of other substances like honey, ghee, or jaggery to enhance the therapeutic effect and improve taste.

From a pharmaceutical perspective, kashayas are considered a type of herbal extract or decoction, similar to modern-day tinctures or teas, but with a focus on specific therapeutic uses as outlined in traditional medicine. The concentration of active ingredients in kashayas depends on the duration of boiling and the types of herbs used. As these are made from natural ingredients, the preparation of a kashaya requires careful consideration of the specific herbs' properties, dosages, and potential interactions with other medications.

Kashayas are typically prepared in pharmacies or Ayurvedic clinics that specialize in traditional medicine, and they can also be found in ready-to-use liquid formulations available in Ayurvedic pharmacies. Some modern pharmaceutical companies also produce standardized kashaya formulations to ensure consistent dosage and therapeutic effectiveness. Due to their natural origin, kashayas are often used to treat chronic conditions such as digestive disorders, respiratory issues, joint pain, and skin problems. However, it is essential that the preparation, dosage, and duration of use be carefully followed under the guidance of an Ayurvedic practitioner or healthcare provider to avoid any adverse effects or interactions with other medications.

In summary, in the context of pharmacy, kashaya is a potent herbal decoction used for its medicinal properties in Ayurvedic treatments. While it has its roots in traditional medicine, modern formulations of kashayas are now available to provide a more standardized and convenient way to access these natural remedies.

GRANULES:

Granules refer to small, solid particles that are typically made by aggregating powders into larger, uniform-sized clusters. These particles are generally prepared through processes such as granulation, where fine powders are bound together with a liquid binder to form small, free-flowing granules. The resulting product can vary in size, but typically, granules are larger than powders and are designed to improve handling, stability, and bioavailability of the active ingredients in pharmaceutical formulations.

Granules are commonly used in the preparation of oral dosage forms, especially in the case of

granule-based tablets, oral rehydration salts, or effervescent granules. They offer several advantages over powder formulations, including better flow properties, which allow for easier filling into capsules, sachets, or as a base for tablets. Granulation also helps to reduce dust and improve the uniformity of the drug's content, ensuring more consistent dosing. Granules can be either immediate-release, slowly released, or controlled-release, depending on the formulation's purpose.

In addition to improving drug handling, granulation can also enhance the stability and solubility of drugs. The process may help protect the active ingredient from environmental factors like moisture and air, which can degrade sensitive compounds. Moreover, when granules are prepared for oral use, they may dissolve more slowly than powders, leading to a more controlled release of the drug into the bloodstream.

OINTMENT:

An ointment is a semi-solid preparation that is intended for external application to the skin or mucous membranes. Ointments are typically composed of a combination of active pharmaceutical ingredients (APIs) and a base or vehicle, which helps to deliver the medication to the site of action while providing a moisturizing, protective, or soothing effect on the skin. Ointments are characterized by their greasy, viscous consistency, which allows them to adhere well to the skin and form a barrier that helps retain moisture.

Ointments are typically formulated for localized treatment of conditions like skin infections, rashes, wounds, burns, or inflammatory skin diseases (such as eczema or psoriasis). The active ingredients in an ointment can include antibiotics, corticosteroids, antifungals, analgesics, or other drugs aimed at treating a particular skin condition. The vehicle not only helps in the uniform application of the drug but also ensures that the medication remains in contact with the skin for a sufficient duration to exert its effect.

Ointments have several advantages in topical drug delivery. Their greasy nature makes them ideal for conditions requiring moisture retention, such as dry skin or cracked skin. Because they are more occlusive than creams or lotions, they are effective for delivering drugs to areas of the skin that require prolonged contact with the active ingredient. The oily base also helps to dissolve or disperse lipophilic (fat-soluble) drugs, facilitating their absorption into the skin.

However, ointments may not be suitable for all areas of the body. They can be uncomfortable or too greasy for use on hair-bearing areas or where a less oily formulation is desired. Additionally, they may leave a residue on clothing or bedding. For this reason, other topical formulations like creams, gels, or lotions might be preferred in certain situations.

TAMBULI:

Tambuli refers to a traditional herbal preparation used in Ayurvedic medicine, primarily consumed for its therapeutic benefits. It is typically a liquid formulation made by mixing fresh herbs or herbal powders with yogurt or buttermilk, and sometimes with other ingredients like water, ghee, or spices. Tambuli is known for its cooling properties and is often used to treat various health issues related to digestion, inflammation, and skin conditions. In addition to its role in Ayurveda, it has been recognized for its mild, non-invasive therapeutic effects.

The key components of a typical Tambuli preparation are:

Herbal ingredients: These are usually cooling herbs such as coriander, cumin, mint, ginger, or turmeric, all of which are believed to balance the body's internal systems according to Ayurvedic principles.

Yogurt or Buttermilk: These dairy products serve as the base of the Tambuli, providing a soothing and cooling effect on the body. They also offer additional benefits such as promoting gut health due to their probiotic content.

Spices: Mild spices like black pepper, cumin, or asafoetida are often included to enhance the flavor and therapeutic properties of the Tambuli. These spices can aid digestion and balance the body's digestive fire (agni).

BIOLOGICAL AND PHARMACOLOGICAL ACTIVITY:

1. Antimenorrhagic Activity

The dried bark of Saraca asoca has traditionally been used in India to manage menorrhagia. Both the bark and flowers serve as a tonic for women experiencing uterine disorders. The stem bark is particularly employed to address various menstrual cycle-related conditions. In Sri Lanka, the bark is similarly utilized for treating menstrual irregularities and excessive bleeding. In India, it also acts as a uterine sedative. Research has shown that a hot water extract of the plant, when administered to adult females, stimulates the uterus in a manner comparable to ergot, yet without inducing sustained contractions. It is frequently included in formulations targeting dysfunctions of the female reproductive system, serving roles such as emmenagogue, uterine tonic, and for managing uterine ailments.

2. Anticancer Activity

Extracts from the flowers of Saraca asoca have demonstrated anticancer potential, showing 50% cytotoxicity in vitro against Dalton's lymphoma ascites and Sarcoma-180 tumor cells at concentrations of 38 µg and 54 µg, respectively. Notably, these extracts did not affect normal lymphocytes but exhibited selective activity against lymphocytes obtained from leukemia patients.

3. Anthelminthic, Analgesic, Antipyretic, Antihyperglycemic, and Antioxidant Activities

The leaves of Saraca indica possess notable anthelmintic properties. Methanolic and ethanolic extracts from the leaves exhibited dose-dependent anthelmintic effects. In addition, leaf extracts demonstrated analgesic and antipyretic activities. Furthermore, the leaves of S. asoca (Roxb.) de Wilde have shown significant antihyperglycemic and antioxidant activity in relevant studies.

4. Cardioprotective Activity

The cardioprotective potential of the alcoholic extract of Saraca indica bark was evaluated in a model of cyclophosphamide-induced cardiotoxicity. Treatment with the extract resulted in a significant ($p<0.05$) restoration of cardiac biomarkers, ECG patterns, oxidative enzymes, and lipid profiles. Histopathological findings, along with biochemical and ECG results, supported the extract's cardioprotective effects, likely attributed to its antioxidant properties.

5. Antidiabetic Activity

The methanolic extract of Saraca indica bark has demonstrated hypoglycemic effects in both normal and streptozotocin-induced diabetic rats. At an oral dose of 400 mg/kg, the extract produced a marked reduction in blood glucose levels, confirming its antidiabetic potential.

6. CNS Depressant Activity

Studies on the leaves of S. indica revealed significant central nervous system depressant effects, indicating its potential role in managing depressive states.

7. Analgesic and Antipyretic Activities:

S. indica leaves extract shows analgesic activity.

8. Anti hyperglycemic and Anti-oxidant Activities:

S. asoca (Roxb.) de Wilde leaves show of anti hyperglycemic and antioxidant activities,

MATERIALS AND METHODS:

Coconut oil:

Coconut oil is extensively utilized in the field of pharmacy, serving both as an excipient and, in certain cases, as an active pharmaceutical ingredient. As an excipient, it plays a critical role as a carrier or base in a wide range of pharmaceutical formulations. It is particularly valuable in topical preparations such as ointments, creams, lotions, and balms due to its excellent emollient and moisturizing properties, which help soothe and protect the skin.

Beyond its role as a vehicle, coconut oil also possesses inherent pharmacological benefits that support its use as a mild active ingredient. It contains medium-chain fatty acids, particularly lauric acid, which have demonstrated significant antimicrobial, antifungal, and anti-inflammatory activities. These properties make coconut oil beneficial in managing minor skin infections, promoting wound healing, and reducing skin inflammation. Virgin coconut oil, which is extracted without chemical processing, retains its natural antioxidants, vitamins, and phenolic compounds, contributing to skin regeneration and protection from oxidative stress.

Furthermore, coconut oil offers several advantages that enhance its application in pharmaceutical compounding. It has good spreadability, a pleasant texture, and remains stable at room temperature, ensuring a long shelf life. Its low allergenic potential makes it suitable for use in sensitive formulations, including pediatric and dermatological products.

Bees wax:

Beeswax is a natural excipient derived from the honeycomb of bees and is widely used in various pharmaceutical formulations. It serves multiple functions, primarily as a base in ointments, creams, and salves due to its thickening and stabilizing properties.

Beeswax offers several benefits in pharmaceutical use. It is biocompatible, non-toxic, and chemically stable, which makes it safe for use in formulations applied to the skin or taken orally. It also has mild antibacterial properties, contributing to the protection of wounds and improving the shelf life of products. The two main types—white beeswax (Cera alba), which is purified and bleached, and yellow beeswax (Cera flava), which is less refined—are both used depending on the desired appearance and formulation needs. Applications of beeswax in pharmacy include its use in lip balms, barrier creams, medicated ointments, lozenges, and time-release tablets, making it a highly versatile and valued ingredient in pharmaceutical and

cosmetic preparations.

Sugar:

Sugar—primarily in the form of sucrose, glucose, fructose, and lactose—is widely used as a sweetener in various pharmaceutical formulations. Its main role as a sweetener is to improve the taste and palatability of oral medications, especially those with bitter or unpleasant flavors. This is particularly important in pediatric and geriatric formulations, where taste can greatly influence patient compliance.

Sucrose is the most commonly used sugar-based sweetener in syrups, suspensions, lozenges, and chewable tablets. It not only masks bitterness but also enhances the overall mouthfeel of the medication. In addition to its sweetening effect, sugar can serve as a preservative in high concentrations by creating an environment that inhibits microbial growth.

Other sugars, such as glucose and fructose, may be used in formulations where a different sweetness profile or faster absorption is desired. Lactose, while only mildly sweet, is often used as a filler in tablets and capsules, and can contribute to taste masking in combination with other excipients.

Sodium hydroxide:

Sodium hydroxide (NaOH) is commonly used as an alkalizing agent and pH adjuster in various pharmaceutical formulations. It is a strong base that helps to regulate the pH of solutions, ensuring that the active pharmaceutical ingredient (API) remains stable, soluble, and bioavailable. Maintaining the correct pH is critical in drug formulations, as it can affect the efficacy, absorption, and shelf life of the product.

Sodium hydroxide is often used in the preparation of oral, topical, and injectable formulations to either neutralize acids or adjust the pH to a desired level. For example, in oral solutions or suspensions, it helps to maintain a pH that ensures the drug dissolves properly and remains stable. In topical creams and ointments, it helps maintain skin-friendly pH levels and enhances the formulation's consistency.

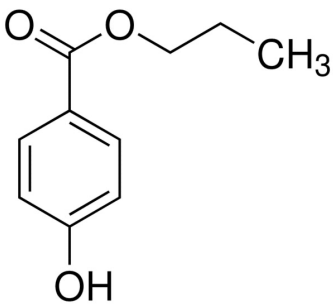
It is also used in the saponification process for producing medicated soaps or ointments, where fats are converted into soap and glycerol using sodium hydroxide. Despite its usefulness, NaOH must be used carefully and in controlled amounts, as excessive alkalinity can be irritating or damaging to tissues.

Preservatives:

A preservative is a substance added to pharmaceutical products to prevent the growth of microorganisms such as bacteria, fungi, and molds, thereby ensuring the safety, stability, and shelf life of the medication. Preservatives are especially important in liquid and semi-solid formulations—such as oral syrups, eye drops, creams, ointments, and injectables—where water content creates a favorable environment for microbial growth.

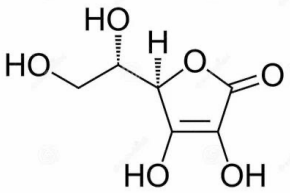
The choice of preservative depends on the formulation type, route of administration, and compatibility with other ingredients. Preservatives must be effective at low concentrations, non-toxic, and chemically stable, making them essential for maintaining the microbiological integrity and safety of pharmaceutical product

Propyl paraben:



- IUPAC Name : 4-hydroxybenzoic acid
- Chemical Formula : C10H12O3
- Uses : It is extensively employed as a preservative by the cosmetics and pharmaceutical industries.They work Well.The primary uses of these substances and their salts are related to their antifungal and antibact

Ascorbic acid:



- IUPAC Name: (5R)-5-[(1S)-1,2-dihydroxyethyl]-3,4-dihydroxyfuran-2(5H)-one
- Chemical Formula: $C_6H_8O_6$
- Uses : Ascorbic acid, commonly known as Vitamin C, is used as an antioxidant preservative in pharmaceutical and food products. Its main function is to prevent oxidation of active ingredients, which can lead to degradation and loss of potency.

EXPERIMENTAL WORK:

We made a logo named “PAENK” for our different formulation of Ashoka from our team initials which is Patil, Achal, Ekta , Neha and Komal

It has a meaningful expanded form as follows:

P – pure
A – ashoka
E – extract
N – natural
K – kare(care)

Which means Pure Ashoka Extract for Natural Kare (care)

Ashoka root face pack powder:

20 g of Ashoka root is taken and it is cleaned properly to remove physical impurities. Then it is dried Properly. The dried roots are powdered with the help of a pulveriser and sieved.

Ashoka root ointment:

Table 1: Ingredients for Ashoka root ointment

Name	Quantity given	Quantity taken
Ashoka root coarse powder	500g	5g
Ashoka root fine powder	80g	0.8g
Coconut oil	500ml	5ml
Bees wax	100g	1g
Water	400 ml	40ml

Ashoka root is first collected and thoroughly cleaned to eliminate any physical impurities. It is then dried completely. Once dried, the roots are coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water until the volume reduces by half, after which it is filtered. Separately, 0.8 grams of the root's fine powder is mixed with a small quantity of water to form a paste. This paste is then boiled together with 5 ml of oil and 20 ml of the previously prepared decoction (Kashaya) until the signs indicating the completion of Taila Paka are observed. The mixture is then filtered.

Next, 5 ml of the prepared Ashoka root oil is poured into a clean, dry vessel and gently heated over a low flame. Once the temperature reaches 60 °C, 1 grams of finely cut Beeswax pieces are gradually added to the oil while stirring continuously to ensure complete dissolution. After the Beeswax fully dissolves, the mixture is filtered through a clean cloth to remove any insoluble residues that may be present in the Beeswax. Finally, 0.3 grams of the resulting ointment are filled into each tube while the mixture is still in liquid form, and the tubes are sealed and labeled promptly before solidification occurs.

Ashoka stem syrup:

Table 2: Ingredients for Ashoka stem syrup-

Name	Quantity given	Quantity taken
Ashoka stem coarse powder	2000gm	4gm

Sugar	4000gm	8gm
Water	8000ml	16ml
Kashaya	4000ml	8ml
Methyl paraben	0.5%	0.5%

The stem of Ashoka is first collected and thoroughly cleaned to eliminate any physical impurities. It is then properly dried. Once dried, the stem is coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water until the volume reduces by half, after which it is filtered. From the prepared decoction (Kashaya), 8 ml are taken, and 8 gm of sugar are added. This mixture is then boiled until the syrup reaches its endpoint, as indicated by specific signs. To preserve the syrup, 0.5% of a preservative blend containing methylparaben and propylparaben is added. Finally, 30 ml of the syrup is measured into each bottle, which is then stored appropriately.

Ashoka stem oil:

Table 3: Ingredients for Ashoka stem oil

Name	Quantity given	Quantity taken
Ashoka root coarse powder	1000gm	10g
Ashoka root fine powder	150gm	0.15g
Coconut oil	8000ml	80ml
Water	1000ml	10ml

Ashoka stems are first cleaned thoroughly and then shade-dried. The dried stems are coarsely powdered and boiled with eight parts of water to prepare a decoction, which is then reduced to half and filtered. This decoction is mixed with Ashoka stem paste (if used) and sesame oil in a 4:1:1 ratio. The mixture is then boiled until all the water evaporates, leaving only the oil. Finally, the oil is filtered while still warm and stored in clean, dry containers for further use.

Ashoka stem powder soap:

Table 4: Ingredients for Ashoka stem powder soap

Name	Quantity given	Quantity taken
Ashoka stem oil	1000ml	100ml
Water	750 ml	75ml
Sodium hydroxide (caustic soda)	200 gm	20 gm
Bees wax	50gm	5gm
Ashoka stem fine powder	150gm	15gm
Kashaya	2000ml	20ml

Ashoka stem is first collected and thoroughly cleaned to remove any physical impurities. It is

then properly dried. Once dried, the stem is coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water, reduced to half, and then filtered to obtain the decoction (Kashaya). Separately, 15 grams of fine Ashoka stem powder is mixed with a small quantity of water to form a paste. This paste is then boiled together with 1,00 ml of oil and 20ml of the prepared decoction until the signs indicating the endpoint of Taila Paka are observed. The mixture is then filtered.

In a separate step, 20 grams of sodium hydroxide is dissolved in 75 ml of water, stirred well for 10 minutes, and left to rest overnight. The next morning, 100mlof the previously prepared Ashoka stem oil is slowly added to the sodium hydroxide solution while stirring continuously for 15 minutes. After that, 5 grams of melted beeswax is added gradually and stirred thoroughly. The resulting mixture is poured into a tray and left to dry under sunlight for about 4 hours, after which

Ashoka bark kashaya:

Table 5: Ingredients for Ashoka bark kashaya

Name	Quantity given	Quantity taken
Ashoka stem bark coarse powder	2000gm	2gm
Water	1000 ml	10ml
Methyl paraben	20gm	0.02gm

Ashoka bark is collected and thoroughly cleaned to eliminate any physical impurities. It is then properly dried. The dried bark is coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water, reduced to one-fourth of its original volume, and then filtered. To the filtered decoction, 0.02grams of methylparaben and propylparaben are added as preservatives.

Ashoka bark syrup:

Table 6: Ingredients for Ashoka bark syrup

Name	Quantity given	Quantity taken
Ashoka stem bark coarse powder	2 kg	2gm
Water	8 L	8 mL
Sugar	4 kg	4gm
Kashaya	4L	4ml
Methyl paraben	0.5%	0.5%

Ashoka stem bark is first thoroughly cleaned to remove any physical impurities, then dried properly. The dried bark is coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water, reduced to half its volume, and then filtered to obtain the decoction (Kashaya). From this, 4 ml of Kashaya are taken and mixed with 4 gm of sugar, then boiled until the syrup reaches its endpoint. To this syrup, 0.5% of a preservative mixture

containing methylparaben and propylparaben is added. Finally, 10 ml of the syrup is measured into each bottle and stored appropriately.

Ashoka bark granules:

Table 7: Ingredients for Ashoka bark granules

Name	Quantity given	Quantity taken
Ashoka stem bark coarse powder	2000gm	2gm
Ashoka stem bark fine powder	100gm	0.1gm
Water	8000ml	8ml
Sugar	4000gm	4gm

Ashoka stem bark is thoroughly cleaned to remove physical impurities and then dried properly. The dried bark is coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water, reduced to half, and then filtered to obtain a decoction (Kashaya). From this, 4 ml of Kashaya are taken and mixed with 4 gm of sugar. The mixture is boiled until the syrup reaches its endpoint. Then, 0.1 grams of fine Ashoka bark powder is added and stirred well until granules are formed.

Ashoka tender leaf tambuli:

20 grams of fresh Ashoka tender leaves are cleaned thoroughly to remove any impurities. The cleaned leaves are ground together with coconut, then mixed with buttermilk and salt. This preparation is traditionally consumed during lunch by mixing it with rice.

Ashoka leaf ointment:

Table 8: Ingredients for Ashoka leaf ointment

Name	Quantity given	Quantity taken
Ashoka leaf coarse powder	500gm	5g
Ashoka leaf fine powder	80g	0.8g
Coconut oil	500ml	5ml
Bees wax	100g	1g
Water	4000ml	40ml

Ashoka leaves are carefully cleaned to remove any physical impurities and then properly dried. The dried leaves are coarsely powdered using a pulveriser. One part of this coarse powder is boiled with eight parts of water, reduced to half its volume, and then filtered to obtain the decoction (Kashaya). Separately, 0.8 grams of fine Ashoka leaf powder is mixed with a small amount of water to form a paste. This paste is then boiled with 5 ml of oil and 20 ml of the prepared Kashaya until the endpoint of Taila Paka is reached, after which it is filtered.

Next, 5 ml of the prepared Ashoka leaf oil is transferred to a clean, dry vessel and heated on a low flame. The temperature is monitored, and once it reaches 60°C, 100 grams of finely cut

beeswax is gradually added while stirring until it fully dissolves. After complete dissolution, the mixture is filtered through a clean cloth to remove any insoluble particles that may be present in the beeswax. Finally, 10 grams of the prepared ointment is filled into each tube immediately before it solidifies, and the tubes are properly labeled.

Ashoka seed powder:

20 grams of Ashoka seeds are taken and thoroughly cleaned to remove any physical impurities. The seeds are then cut into small pieces and shade-dried properly. Once completely dried, they are powdered using a pulveriser and then sieved to obtain a fine powder.

RESULT & DISCUSSION:

After collecting the folklore information on different parts of Ashoka and analysing the preliminary studies, the standardisation of the following pharmaceutical preparations was done.

Ashoka root ointment:

Table 9: Ashoka root ointment properties

Tests	Results	Observation
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	 Yellowish brown Characteristic Soft	 Yellowish brown Characteristic Soft
Loss on drying	1.85%	1.80%
pH	5.80	5.89
Refractive index (oil)	1.482	1.480
Spreadability (gm.cm/s)	13	13
Viscosity (oil)	48.72%	48.73%
Rancidity	Negative	Negative
Iodine value (oil)	106.68	106.60
Saponification value (oil)	196 mg/g	198 mg/g

Ashoka stem syrup:

Table 10:

Tests	Results	observation
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	 Cream Pleasant Smooth	 Cream Pleasant Smooth
pH	5.80	5.81
Refractive index (oil)	1.461	1.47
Viscosity (oil)	49.42%	49.44%
Iodine value (oil)	52.55	52.58
Saponification value (oil)	178.30 mg/g	177.30 mg/g
Tests	Results	observation
Organoleptic: **Roopa (colour)** **Gandha (odour)**	 Cream Pleasant	 Cream Pleasant

Sparsha(touch)	Smooth	Smooth
pH	5.80	5.81
Refractive index (oil)	1.461	1.47
Viscosity (oil)	49.42%	49.44%
Iodine value (oil)	52.55	52.58
Saponification value (oil)	178.30 mg/g	177.30 mg/g
Tests	Results	observation
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	 Cream Pleasant Smooth	 Cream Pleasant Smooth
pH	5.80	5.81
Refractive index (oil)	1.461	1.47
Viscosity (oil)	49.42%	49.44%
Iodine value (oil)	52.55	52.58
Saponification value (oil)	178.30 mg/g	177.30 mg/g

Ashoka stem powder soap:

Table 11: Ashoka stem powder soap properties

Tests	**Results**	**observation**
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	Coppery red Astringent and bitter characteristics Smooth	Coppery red Astringent and bitter characteristics Smooth
pH	6.60	6.66
Loss on drying	7.25%	7.23%
Protein	12.28%	12.38%
Carbohydrates	8.83%	8.78%
Vitamin C	1.24%	1.23%

Ashoka bark kashaya:

Table 12: Ashoka bark kashaya properties

Tests	**Results**	**observation**
Organoleptic: Roopa (colour) Gandha (odour) Sparsha(touch)	 Greyish brown Astringent pleasant Thin	Greyish brown Astringent pleasant Thin
pH	6.45	6.44
Loss on drying (powder)	5.80%	5.79%

Ashoka bark syrup:

Table 13: Ashoka bark syrup properties

Tests	**Results**	**Observation**

Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	 Yellowish brown Sweet Pleasant Viscous	 Yellowish brown Sweet Pleasant Viscous
pH	6.35	6.36
Viscosity	48.42%	48.47%
Specific gravity	1.28	1.287
Brix value	50%	49%
Tests	Results	Observation
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha (touch)**	 Yellowish brown Sweet Pleasant Viscous	 Yellowish brown Sweet Pleasant Viscous
pH	6.35	6.36
Viscosity	48.42%	48.47%
Specific gravity	1.28	1.287
Brix value	50%	49%
Tests	Results	Observation
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	 Yellowish brown Sweet Pleasant Viscous	 Yellowish brown Sweet Pleasant Viscous
pH	6.35	6.36
Viscosity	48.42%	48.47%
Specific gravity	1.28	1.287
Brix value	50%	49%

Ashoka tender leaf tambuli:

Table 14: Ashoka tender leaf tambuli properties

Tests	Results	observation
Organoleptic: **Roopa (colour)** **Gandha (odour)** **Sparsha(touch)**	Reddish brown Astringent and sweet characteristics Smooth	Reddish brown Astringent and sweet characteristics Smooth
pH	5.85	5.89
Loss on drying	7.75%	7.77%
Protein	15.65%	15.66%
Carbohydrates estimation	24.55%	24.57%
Vitamin C estimation	3.65%	3.68%

Ashoka leaf ointment:

Table 15: Ashoka leaf ointment properties

Tests	Results	observation

Organoleptic: **Roopa (colour)** **Gandha (odour)** **arsha(touch)**	Greenish yellow Characteristic pleasant ft and smooth	Greenish yellow Characteristic pleasant ft and smooth
Loss on drying	1.27%	1.28%
pH	5.63	5.60
Refractive index (oil)	1.449	1.444
Spreadability (gm.cm/s)	13	13
Viscosity (oil)	45.86%	45.89%
Rancidity	Negative	Negative
Iodine value (oil)	104.52	104.55
Saponification value (oil)	183 mg/g	mg/g

CONCLUSION:

As the Ashoka plant (Saraca asoca) faces rapid decline and is nearing extinction, its conservation has become crucial. Therefore, the Government of India should actively promote the cultivation and preservation of this plant across the country through the National Medicinal Plants Board. The various formulations recorded in the current study should be thoroughly evaluated for their nutritional content and potential health benefits.

Saraca asoca is highly esteemed in classical Indian texts as a universal remedy. Traditionally, Ashoka has been used for centuries to address a range of female health issues, including menorrhagia, leucorrhoea, dysfunctional uterine bleeding, and haemorrhoids. Numerous Ayurvedic sources recognize Ashoka as a preferred treatment for women's health problems, due to its wide array of pharmacological properties. These include anti-cancer, anti-menorrhagic, antimicrobial, larvicidal, antioxidant, anti-tumor, central nervous system depressant, anti-diabetic, anti-estrogenic, anti-progestational, skin-protective, anti-mutagenic, and gene-protective effects. It is widely utilized in Ayurvedic, Unani, and Homeopathic systems of medicine.

CONCFLICT OF INTEREST:

None declare

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