

An exploratory review on *Saraca indica* (Roxb.) De wild; An endangered valuable Ayurvedic medicinal plant

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Abstract:

Saraca indica, often referred to as "Ashok briksh" or "*Saraca asoca* (Roxb.), is a plant used in traditional medicine that is a member of the Fabaceae family (Caesalpiniaceae). The Ashoka tree is a famous medicinal remedy and a holy and traditional plant in India. It is crucial to chronicle the diverse actions of medicinal plants in preventing and treating illnesses to serve humanity. *Saraca asoca* reportedly contains glycoside, flavonoids, tannins, and saponins. It depicts various pharmacological actions including anti-inflammatory, antimicrobial, antihemorrhagic, uterine tonic, CNS depressive, analgesic, antidiabetic, anthelmintic, antiulcer, anticancer, and antioxidant. This review will discuss *Saraca indica's* phytochemical composition, various alleged pharmacological effects, and ethnobotanical uses.

Keywords: Ashoka, Charaka Samhita, Fabaceae, *Saraca indica*, Pharmacological activity, Phytoconstituents.

1. Introduction:

Traditional herbal cures are among the oldest treatments and significantly impact many complementary therapies, including Unani and Ayurveda. Approximately 50% of all medications are made from plants, which are vital to the pharmaceutical business. Nature has endowed our nation with an endless supply of medicinal plants, and India is recognized for

its traditional ethnomedical techniques that mostly include plants and plant products and have been used for over 5000 years ^[1]. With many in-depth studies on plants for their potential therapeutic components, the demand for herbal medicine is increasing globally ^[2]. More than 6000 plants have been employed in folk medicine, according to Savithramma et al., (2016) ^[3]; 2500 plant species have been identified as having significant therapeutic potential for a range of chronic conditions. The Sanskrit term Asoka, often spelled Ashoka, means "without sadness" or "giving no suffering." One of India's most revered and storied trees is Ashoka. The Ashoka tree is a member of the Caesalpiniaceae family and is often referred to by its binomial Latin name, *Saraca asoca* (Roxb.), De.wild, or *Saraca indica* ^[4]. It is an evergreen tree known as the Asok tree in English. Kankeli (Sanskrit), Ashoka (Assamese), Ashoka (Bengali), Ashokadamara (Kannada), Asokam (Malayalam), Ashok (Kashmiri), Ashok (Oriya), Ashok (Marathi), Ashok (Punjabi), Ashokapatta (Telugu) and Asogam (Tamil), are other names for it ^[5]. It may be found across India, but it is most prevalent in the Himalayas, Kerala, Bengal, and the whole south. It is mentioned in Hindu mythology as the Ashoka tree, beneath which the Indian philosopher and founder of Buddhism, Gautama Siddhartha (c. 563-483 B.C.), is said to have been born. Ashoka is one of the sacred plants of Hindus and is especially sacred to the Hindu God of Love, Kamadeva, for whom it is worshipped every year on December 27. The various tree components are used in Ayurveda and Unani systems of medicine as astringents, hemostatic, alexiterics, anthelmintics, antibacterials, demulcents, diuretics, anti-inflammatory, and CNS depressants ^[6]. *Saraca asoca* (Roxb.) Wild. (Family-Fabaceae) are planted as ornamental trees in Sri Lanka, India, Bangladesh, and Myanmar, and locally known as Asogam trees ^[7]. They are around 6 to 9 m tall, upright, and evergreen. Due to improper management techniques, the rising demand for its phytochemicals, poor seed viability, and over-exploitation of plant components, including bark, flowers, and seed, medicinal plants have become endangered in certain areas of their distribution ^[8]. The IUCN Red List database has classified *S. asoca* as a vulnerable species due to unrestrained harvesting for medicinal components and habitat loss ^[9]. During wet seasons, the Ashoka tree is reproduced by seeds, although there are drawbacks, such as seed viability (only two months). Therefore, a quick rescue utilizing micropropagation technology is required to prevent the future extinction of this species, which would greatly aid in conservation. In-depth, relatively little study has been done on *S. asoca* propagation in vitro ^[10]. The objective of this review is to fully enlighten readers about the medicinal and pharmacological significance of *Saraca asoca*.

2. History Veda and Purana

A striking description of the red Ashoka blossom from the Atharvaveda Parisista is provided. There is mention several types of Ashoka depending on the flower's color, namely red and yellow, in Malavikagnimitra. For cosmetic and aphrodisiac uses, it is mentioned in Kalidasa's Kumara Sambhava and Raghuvamsha. It's been stated that when a beautiful woman's left foot touches a flower, it causes it to bloom. In Ashokaashtami and Homas religious rites,

flowers are used particularly. Sita was seduced by Ravana at Ashokavana in the Ramayana, proving that Ashoka was present in Sri Lanka. Shakyamuni Buddha is said to have been born under the Ashoka tree ^[11].

2.1 Samhita period Caraka:

It was mentioned in Vimanasthana under the categories Vedanasthapanagana (medicines that relieve pain) and Kashaya Skanda Dravyas (drugs with an astringent flavor).

2.2 Sushruta:

Categorized as Rodhradigana, Ashoka Bark mentions Daruna Karma's job (Hardening measure for soft ulcers). In the Kalyanakalavana story narrated by Vatavyadhiadhikara, Ashoka plays a key role. In one of the yogas for sarpavisha (snake poison), Ashoka is recommended in the form of pradhananasya. It is also a component of Mahasugandhiagada, which is recommended for all varieties of Visha. Due to its crimson blossom, Acharaya Dalhana referred to Ashoka as "Lohita Kusuma Swanamakhyatha" ^[12].

2.3 Astanga Hridaya:

In Kasachikitsa (cough cure), Ashokadi Ghruta is mentioned. It is a component of the Ghruta utilized in Vatavyadhichikitsa as well. Bhelasamhita: Ashoka is a component of the Dwipanchamooladi Taila remedy used to treat filariasis, urathambha, and other conditions.

2.4 Chakradatta:

For the therapy of a brutal form of Asrugdhara, Ashoka bark decoction and Ksheerapaka (water and milk decoction) are used (Dysfunctional uterine bleeding).

2.5 Yogaratnakara:

Asrugdhara is treated with Ashoka's bark powder, honey, and rice water.

2.6 Bhaishajyaratnavali:

The bark of Ashoka Ksheerapaka in critical Asrugdhara and as a component in formulations like Pradara Rasa, Madhukadyavalehya, Ashoka Ghrutha, Ashokarishta and Lakshmanaloha. All of these remedies are recommended for the therapy of Asrugdhara.

2.7 Vangasena :

Ashoka as a treatment for Asadhya Pradara Roga (Dysfunctional uterine bleeding).

2.8 Nighatu period

In addition to morphology, synonyms, and function, emphasis is placed on the look and aroma of flowers ^[13, 14].

It is one of the plants mentioned as early as the Ramayana period and is popular with the same name. In ayurvedic Literature, Epics and Purāṇas, and Classical Sanskrit Literature, this plant's cultural and medical benefits are often discussed. Asoka trees with their vibrant

crimson flowers glow like a young warrior drenched in the blood of a fierce battle. In those happy days of India, the Asoka was so highly valued that no garden was considered complete without it ^[15].

3. Synonyms of aśoka

This Aoka has a wide variety of synonyms. According to Raja Nighau, the term Aoka has twenty-two synonyms. It speaks i.e., Aśoka, Viśoka, Śokanāśa, Madhupuṣpa, Vañjuladruma, Kaṅkeli, Apaśoka, Kelika, Citra, Raktapallava, Vicitra, Subhaga, Karṇapūraka, Doṣahārī, Smarādhivāsa, Rāgītaru, Prapallava, Rāmavāmāṅghrighāta, Hemapuṣpa, Naṭa Piṇḍipuṣpa, and Pallavadru- all these twenty-two names are synonymous to Aśoka.

अशोकः शोकनाशः स्याद्विशोको वञ्जुलद्रुमः।

मधुपुष्पोऽपशोकश्च कङ्कलिः केलिकस्तथा ॥

रक्तपल्लवकश्चित्रो विचित्रः कर्णपूरकः।

सुभगः स्मराधिवासो दोषहारी प्रपल्लवः ॥

रागीतरुर्हेमपुष्पो रामावामाङ्घ्रिघातकः।

पिण्डीपुष्पो नटश्चैव पल्लवद्रुद्विविंशतिः ॥²

4. Botanical description

The height of evergreen *Saraca indica* is between 7 and 10 meters. The leaves are paripinnate, intrapetiolar, 15-20 cm long, oblong, somewhat lanceolate, and completely united. Due to the presence of rounded or projecting lenticels, the bark is warty and irregularly dark brown or almost black. Fracture splinting shows a continuous, thin white layer. The calyxes of the apetalous, corymbose, golden orange, deciduous flowers are petaloid. They are compressed, elliptical, elongated, and seed-shaped ^[16].

4.1 Morphological characteristics:

- **Habitat:** It is widespread over the Indian subcontinent. It is thought that the tree originated in the Deccan plateau and the Western Ghats. It is also found in the eastern and central Himalayas. It is reported to grow at 750 meters above sea level ^[17]. The plant reaches a height of around 9 meters. The plant often thrives in India's semi-fertile and fertile regions. The tree belongs to the family Caesalpiniaceae. This perennial plant may vary in color from dark green to grey-green. The lenticels are round and opposingly ridged. The seeds are often fibrous and reddish brown.
- **Bark:** The bark color is gray, almost black or dark brown, with a rough surface. Due to the presence of rounded or protruding channeled lenticels, smooth with round lenticels and transversely ridged lenticels, the stem bark is rough and uneven.

- **Leaves:** Its leaves are 7-30 cm long, alternate, distichous, and paripinnate, with a petiolule that is 0.1-0.6 cm long and opposite leaflets that are lanceolate or narrow elliptic-oblong, and their apex is acute to acuminate, the base is acute to rounded or glabrous, subcordate, midrib is raised above, and tertiary nerves are reticulate.
- **Pod:** It is oblong, apiculate and flat.
- **Flower:** Flowers are corymbs that are occasionally white, orange in color and fragrant ^[18].



(a)

(b)



(c)

(d)

Fig. 1: (a) flower of Ashoka, (b) pods, (c) complete plant, (d) bark

4.2 Taxonomic position ^[19]

Kingdom: Plantae
Divison : Magnoliophyta
Class : Mgnoliopsida
Order : Fabales
Family : Caesalpinaceae
Genus : *Saraca*
Species : *Asoca*

4.3 Distribution:

Significant populations of *Saraca asoca* are found in the Malay Peninsula, Myanmar, Sri Lanka, and Bangladesh. In India, it is most often found in the Khasi highlands of Assam, the hilly districts of West Bengal, the Western Ghats of Maharashtra, and the northern regions.^[20] The Ashoka is renowned for its lush vegetation and fragrant blooms. It is a tiny, upright, evergreen tree with deep green leaves that bloom in thick clusters. Its blooming season is between February and April. There are several types of Ashoka trees. One kind is excellent and widely dispersed. Columnar variants are prevalent in agriculture^[21].

5. Ecology and Distribution Cultivation:

5.1 Soil and climate: For healthy development, the plant needs medium to deep, rich soils that are slightly acidic to neutral and well-drained. Under irrigation, it thrives in tropical to subtropical environments.

5.2 Nursery raising and planting: Both seeds and stem grafting may be used to spread the crop. During the rainy season, the seedlings are planted in the fertilized field.

5.3 Thinning and weeding: The plants may be weeded and thinned as needed, typically after 15 to 30 days, for improved development.

5.4 Manures, fertilizers and pesticides: The medicinal plants must be cultivated without pesticides or chemical fertilizers. According to the species' needs, organic manures like Green Manure, Farmyard Manure (FYM), Vermi-Compost, etc. Bio-pesticides may be made from plants such as Neem (leaves, seeds, and kernels), Dhatura, Chitrakmool, cow's urine, and others to prevent infections.

5.5 Irrigation: Normally produced as a rainfed crop, irrigation may be used as needed (weekly/fortnightly) for greater yield.

5.6 Harvesting/post-harvesting operation: A tree at least 10 years old has its bark removed and must then be sun-dried.

6. Phytochemistry:

Phyto-constituents^[22, 23]

6.1 Bark: Catechol-catechin, tannin 6%, essential oil, epicatechin, ketosteroid (mp 25°), calcium (C₆H₁₀O Crystalline glycoside), hematoxylin, saponin (C₁₀H₂O₁₄), leucopelargonidin, leucocyanidin, proanthocyanidins

6.2 Wood: Quercetin

6.3 Pod: Leucocyanidin epicatechin, catechol.

6.4 Flower: Quercetin, B-sitosterol, cyanidin, kaempferol glycoside, stearic, palmitic, linoleic, linoleic, linolenic, anthocyanins, gallic acid, leucocyanidin.

6.5 Seed: linoleic, Oleic, stearic acid, palmitic.

6.6 Whole plant: Sterols, aliphatic alcohols, flavonoids, saprogenic glycoside glycosidic principles, non-phenolic.

7. Pharmacological Activity:

7.1 Anti-inflammatory activity

An animal model was used to assess the anti-inflammatory capabilities of an ethanolic leaf extract from *Saraca indica*. The carrageenan-caused paw edema approach was applied. The edema in the paws was significantly ($P < 0.01$) decreased by the ethanolic extract at a dosage of 200 mg/kg of *Saraca indica*. The ethanolic extract of *Saraca indica* caused inhibition more quickly than diclofenac 10 mg/kg did [24]. The anti-inflammatory efficacy of *Saraca asoca* leaves is determined via an ethanolic extract. The most acceptable test strategy to screen for anti-inflammatory activity is using *Saraca asoca* leaves, which have been shown to have an anti-inflammatory effect against Carrageenan induce paw edema in animals. The ethanolic extract of *Saraca asoca* ($P < 0.01$) considerably reduced paw edema (ethanolic extract. At a dosage of 200 mg/kg, the plant extract significantly reduced inflammation. Although short duration and intensity compared to 10 mg/kg diclofenac [25, 26], it generated a 56.95% inhibition in increasing paw volume.

7.2 Antibacterial activity

Saraca asoca was tested on an agar plate for antibacterial activity against various bacteria, including *Escherichia coli*, *Bacillus subtilis*, *Staphylococcus aureus*, *Salmonella typhosa*, and others (plant pathogen). Negative action was shown by *Agrobacterium tumefaciens* [27]. Dry flower buds from *Saraca indica* were evaluated for antibacterial activity against *Shigella*, *Salmonella*, *Vibrio cholera*, *Escherichia coli*, *Shigella dysenteriae* and *Shigella flexneri*, on an agar plate using methanol extract [28]. The antibacterial effects of ethanol (95%) and extract with water on *Staphylococcus aureus* and *Escherichia coli* were evaluated on *Saraca indica* leaves. *Escherichia coli* was discovered to be active, but tests for *Staphylococcus aureus* came back negative [29]. At various doses (1000, 2000, 3000, 4000, and 5000 g/ml), the methanolic extract of *Saraca indica* was tested against *Helminthosporium sp.*, *Alternaria cajani*, *Curvularia lunata*, *Bipolaris sp.*, and *Fusarium sp.* The extracts had strong inhibitory efficacy against *A. cajani*, and they were also effective against other fungi at lesser doses [30]. The agar well diffusion technique was used to test the bark extracts of *Saraca asoca* (Roxb.) Willd. for in vitro antibacterial activity against *Escherichia coli*, *Staphylococcus aureus*, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Bacillus aureus*, at 4 mg/ml. Significant wide range antibacterial activity was shown by the ethanol and distilled water extracts [31].

7.3 Antifungal activity

The antifungal efficacy of acetonetic and methanolic extracts of *Saraca asoca* was assessed using the disc diffusion technique [32]. There are two distinct *aspergillus* species: *Aspergillus niger* and *Aspergillus fumigatus*. On test organism seeded plates, filter paper discs (6 mm) soaked with acetonetic and methanolic extracts were inserted. *Aspergillus fumigatus* and *Aspergillus niger* were the organisms used for testing. The control was distilled water that had been autoclaved. After a 24-hour incubation period at 280°C, the results were represented in terms of the zone of inhibition. The diameter of the zones was measured in millimeters.

Additionally, *Aspergillus niger* significantly increased the size of the plants' leaves. Ashoka is a tree species that is a valuable source of therapeutic substances; hence *Aspergillus niger* is used to propagate it on a big scale for commercial purposes. These fungi are intended for use as medication [33].

7.4 Uterine tonic activity

In ayurvedic medicine, *Saraca asoca* is renowned for its ability to stimulate the endometrial and ovarian tissue. In normal and ovariectomized rats, U3107's (1 mg/kg p.o.) estrogenic action was examined. For a total of 21 days, U-3107 was delivered as an aqueous solution. The care of ovariectomized rats did not increase uterine weight. U-3107 has no pregestational action and only exhibits estrogenic activity when an ovary is functioning. To treat several menstrual diseases, including menorrhagia, puberty, premenstrual syndrome, dysmenorrhea, impending abortion and abnormal bleeding, U-3107 is an herbal medicine made from several plant extracts [34].

7.5 CNS depressant activity

Depending on the polarity of the solvent, an extract of *Saraca indica* leaves in chloroform, petroleum ether, water and methanol, has CNS depressing action. This activity was measured using the actophotometer technique in conjunction with phenobarbital-induced sleep period. The locomotor activity of mice was greatly reduced (67.33%) by a leaf extract from *Saraca indica* [35]. Depending on the polarity of the solvent, the leaves of *Saraca asoca* exhibit CNS depressant action in chloroform, petroleum ether, methanol, and water. Actophotometer was used to measure activity during phenobarbitone-induced sleep period. The locomotor activity of mice was dramatically reduced by 67.33% by the *Saraca asoca* extract [36].

7.6 Analgesic activity

Swiss albino rats were used to investigate the effectiveness of aqueous and alcoholic extracts of the bark skin from *Shorea robusta* (Shal) and *Saraca indica* (Ashoka) for numbing pain. Compared to the control group, the extracts of *Shorea robusta* and *Saraca indica* substantially decreased pain at 300 mg/kg body weight. These plants may include phytoconstituents with analgesic effects like alkaloids and steroids. According to the study's results, Ashoka and Shal seemed to have analgesic qualities, but more experimental and clinical research is needed [37].

7.7 Antioxytotic activity

The plant's oxytotic action was observed in isolated uterine preparations from rats and humans. The effects of the alcoholic extract were more noticeable in estrogen primed or pregnant uteruses. The oxytotic activity was entirely stopped by pentolinium bitartrate. Dermatophyte fungus may be effectively combated using seed extract. The *Saraca asoca* extracts tested in vitro on a rat uterine preparation did not exhibit oxytotic action. Ashoka had already undergone testing three times, with two negative and one positive finding [38].

7.8 Antidiabetic activity

Both healthy and streptozotocin-induced diabetic rats were used to examine the hypoglycemic effects of the methanolic bark extracts of *Saraca indica* Linn. At a dosage of 400mg/kg given orally, the extract has shown a high hypoglycemic action ^[39]. To treat diabetes [40], dried plant powder from the *Saraca asoca* plant is consumed with milk, or a decoction of Ashoka bark is given twice a day.

7.9 Anthelmintic activity

The extract from *Saraca asoca* leaves was employed for anthelmintic action; for this, the Soxhlet technique of extraction has been utilized by applying solvents like methanol and ethanol as well as maceration. Each extract underwent a standard procedure test to determine its anthelmintic activity. To achieve 1, 2.5, and 5% concentrations of the common anthelmintic medication Piperazine citrate (as a positive control), the suspension taken from maceration and Soxhlet was made in DMSO. Negative controls were also generated. Piperazine citrate and two milliliters of each concentration of the methanolic and ethanolic fraction were each diluted to 10 milliliters with ordinary saline before being poured into Petri dishes. Six earthworms each group, distributed throughout nine groups of almost similar size, were released onto each petri dish. It was discovered that the ethanolic and methanolic extracts had more anthelmintic activity than the positive control. The phytochemical components of tannin, flavonoids, terpenoids, glycosides, and alkaloids indicate the anthelmintic properties of ethanolic and methanolic extracts ^[38, 40].

7.10 Antiulcer activity

The *Saraca indica* plant has antiulcer properties. It has been shown that the aqueous suspension extract of *S. asoca* flora, dried flower buds, bark, and seeds may reduce ulcers in albino rats ^[41]. Through at least one or more potential mechanisms, such as restriction of basal gastric secretion, promotion of mucus secretion, and endogenous gastric mucosal prostaglandin production, *Saraca indica* flower solution demonstrates a potential antiulcer action. Rats with albinism are treated with an aqueous preparation of *Saraca asoca* flowers to treat stomach ulcers. The main components of *Saraca asoca* flowers are flavonoids, saracasin, fatty acids, waxy substances, and saracadin. Therefore, at least one or more plausible mechanisms, such as suppression of basal gastric secretion, promotion of mucus secretion, and endogenous gastric mucosal prostaglandin production, may explain how the flowers of *Saraca asoca* solution have an antiulcer potential effect ^[42, 43].

7.11 Anticancer

The *Saraca asoca* flowers' anticancer component has shown 50% cytotoxic effects (in vitro) in Dalton's lymphoma ascites and Sarcoma-180 cancerous cells at a concentration range of 38 mug and 54 mug, respectively. It did not impact normal immune cells but preferred action for lymphocytes inferred from leukemia patients ^[44].

7.12 Antioxidant

Using an in vitro DPPH (“1, 1, diphenyl-2 picryl hydrazyl”) paradigm, the antioxidant activity of several *Saraca indica* bark extracts, including ethanolic, hydroalcoholic, and

acetone, was examined. The extract with the highest IC₅₀ value has a 193.88 g/ml concentration of hydroalcoholic (ethanol 60%). The acetone extract produced by the ultrasonication technique had the lowest IC₅₀ value, 97.82 g/ml [45].

7.13 Antimenorrhagic activity

India has employed the dried bark of the Ashoka tree to treat menorrhagia. In India, women with uterine diseases are given *Saraca asoca* dry bark and flower as a tonic. All conditions related to the menstrual period are also treated using the stem bark of *Saraca asoca*. In Sri Lanka, menstruation irregularities and menorrhagia are treated using ashoka bark. When hot water extracts of the Indian plant Ashoka bark are given to adult female humans, they stimulate the uterus similarly to ergot without causing tonic constriction.

Additionally used in preparations for menorrhagia, uterine affections, emmenagogue, uterine sedation, and other female health issues. *Saraca asoca* bark is used in Pakistan to treat menorrhagia and uterine discomfort. In India, dried bark, known as *Saraca asoca* is used for uterine issues such as frequent monthly discomfort in the belly and menorrhagia as an astringent to control excessive uterine flow. According to reports, the bark's aqueous extract contains active components, one of which relaxes and the other stimulating the guinea pig's ileum's plain muscle. According to reports, the medication stimulates the uterus, increasing the frequency and duration of contractions. Additionally, it has been claimed that the crystalline glycoside compound stimulates uterine contractions [46-49].

Table 1. Using a variety of extraction solvents, the major classes of bioactive chemicals reported from several *S. asoca* organs

Class of compounds	Extraction solvent	Plant organ	Biological function	Reference
Flavonols	Hexane, benzene, chloroform, methanol, water, hot water.	Seed, pod, bark, leave	Antimicrobial, antioxidant, anti-inflammatory.	[50]
Phenolic acids	Ethyl acetate	Bark, flowers, leaves	Anticancer, hypolipidemic, antidiabetic, antioxidant.	[51, 52]
Alkaloids	Chloroform, ethanol, methanol, water	Leaves	Antioxidant	[53, 54]
Flavanol glycosides	Ethanol, methanol, water	Bark, flowers	Antioxidant, anti-inflammatory, antidiabetic	[55, 56]
Fatty acids	Hexane, chloroform	Leaves, stem	Anti-inflammatory, cardioprotective	[57]
Terpenoids	Methanol	Leaves	Antioxidant	[58]
Tannins	Acetone	Bark	Antioxidant	[59]
Steroids	Hexane, chloroform,	Leaves,	Hypolipidemic,	[60, 61]

	methanol, water, hot water	stem	antioxidant, antidiabetic	
Steroid glycosides	Methanol	Bark	Antioxidant	[62, 63]]
Lignan glycosides	Methanol	Bark, leaves, flowers	Antioxidant	[64]

8. Traditional uses:

- Traditionally, Ashoka has been used to treat female problems, including Leucorrhoea, menorrhagia, dysfunctional uterine bleeding, and so on. According to reports, bark may treat biliary disorders, dyspepsia, diarrhea, colic, piles, ulcers, and zits [65].
- Ashoka assists women with numerous gynecological and menstrual issues, including painful, heavy, and irregular periods.
- Once the nerves have been inflamed by vatadosha, they may be calmed using the same analgesic properties found in Ashoka.
- The ashoka plant is also effective in naturally purifying the blood and preventing skin hypersensitivity responses. This plant is also helpful for improving skin and pore tone [66].

9. Ethnobotanical uses:

The dried root of *Saraca indica* is used for paralysis and hemiplegia. It is used to heal skin wounds and broken bones. Root paste is useful for treating freckles, inflammation, and other skin disorders on the skin. It is used to clean blood. It is used to treat eczema, psoriasis, dermatitis, and herpes. Pruritus, tinea pedis, and scabies are all reduced. The tone of the skin is improved by tree bark. The usage of the root is involved in amenorrhea. Oxalic acid-based kidney stones are broken down by it. It is beneficial for endometriosis and dysmenorrhea. Its decoction is used to treat rickets and calcium deficiency. *Saraca indica* dried flowers are effective in the treatment of diabetes. A decoction may be used to treat dysentery. A fluid extract of the *Saraca indica* flower is used to treat hemorrhagic dysentery. The tree's bark is used to cure internal piles and scorpion stings. Using *Saraca indica*, blood is cleansed. Use the leaves and bark to eliminate stomach worms [67].

Conclusion:

Saraca asoca is one of the numerous universal plants having medicinal properties. This versatile plant is a dependable source of drugs as well as a variety of compounds. Ashoka is recognized for its therapeutic qualities in both conventional and contemporary methods. This plant has several applications in the alternative medical systems of Ayurveda, Unani, and Siddha. Because Ashoka is a venerable and trustworthy source of medicine, it is utilized extensively in Ayurveda, Unani, and homeopathy, and shows various pharmacological activities, including anti-cancer, anti-menorrhagic, anti-oxytocic, and anti-microbial activity. It is used to treat skin infections,

CNS functioning, and genitor-urinary processes, among other things. Endophytes of *S. ashoka* should be investigated for pharmaceutically relevant compounds since they are a well-known source of new and host plant-associated bioactive secondary metabolites that might be useful in expanding their pharma value. The development of new drugs from *Saraca asoca* should be prioritized for the management of different ailments as the worldwide situation is now shifting toward the usage of nontoxic plant products for a safer treatment approach.

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