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PHYTOMEDICINAL VALUE OF *SARACA ASOCA* (ASHOKA) IN ENHANCING FEMALE REPRODUCTIVE SYSTEM IN AYURVEDA AND FOLK SYSTEM OF MEDICINE

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ABSTRACT: Since the origin of life, plants have remained the primary source of food, shelter, and various remedial approaches. Plants are being in use for treating various kinds of diseases. *Saraca asoca* (Roxb.) de Wilde (*Saraca indica* L.) is a medicinal plant that belongs to the Caesalpiniaceae family (legume family). It is also called Ashoka. When Ashoka is split up into 'a' and 'shoka' represents a very deep meaning, i.e., freedom from the grief, which means happiness. It holds a very significant spot in Ayurveda and other traditional systems of medicine. It is the main ingredient in many Ayurvedic herbal formulations used in treating a variety of diseases. Ashoka is a very popular herbal plant for the treatment of female reproductive disorders. It maintains the reproductive health of females. It has many other useful biological properties like anti-microbial, anti-inflammatory, anti-ulcer, analgesic, haematoprotective, etc. The present review summarizes the phytomedicinal value of *Saraca asoca* in Ayurveda and the Folk system of medicine.

INTRODUCTION: The utilization of medicinal herbs for maintaining health and treating several diseases is a very common and ancient practice, and almost all cultures around the world use medicinal herbs in their own way. Plants are served as the primary source for the development of most modern medicines. As per the data resources, medicinal plants are being used for the manufacturing of modern drugs for the last 50 years^{1,2}. These plants play a very vital role in the health maintenance of nations where medicinal plants have a very rich history of utilization³. Ayurveda is one of the most ancient traditional systems of medicines in the world.

As per the data available in materia medica of Ayurveda, around 600 medicinal plants are being used to heal and cure a wide variety of diseases of the practices. Numerous herbal formulations are used in Ayurvedic practices made up of various medicinal herbs, and these formulations are of great therapeutic value⁴. India is considered the medicinal garden of the World due to its enormous wealth of medicinal plants⁵. In continent Africa, people are using medicinal herbs for 4000 years. According to the data sources, more than half of the Africans depend completely on herbal medicines⁶.

The number of plants found in China and North America is 35,000, out of which 5000 medicinal plants are being used in the treatment practices in the Traditional Chinese Medicine system, whereas Native Americans use 2564 plants⁷. Daniel Moerman, an American ethnobotanist conducted a survey on the utilization of medicinal plants in America. According to Native Americans use 9%

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of the vascular flora for their health maintenance⁸. Nigerian flora has a very significant role in health care⁹. Herbal drugs are promoted continually by WHO. These drugs have advantages over modern synthetic drugs because of their easy availability, low prices and negligible side effects¹⁰. About 4000 million population of well-developed countries uses plants and their derivatives in their day-to-day routine¹¹. In many cultures and communities, there are associated beliefs and customs with the plants^{12, 13, 14}.

Saraca asoca (Roxb.) De. wild or *Saraca indica*, **Fig. 1**, commonly known as “Ashoka tree or “Ashok briksh”, is one of the most sacred medicinal plants of India. It is a highly valuable plant from a cultural point of view. It belongs to the Mimosaceae family, which is a subfamily of the family Legume. Its Sanskrit name Ashoka depicts its meaning as “without sorrow” i.e. the remover of sorrow. It is in use since Vedic period. It is used in many traditional medicine systems. Ashoka is well considered for its extraordinary therapeutic properties¹⁵.

There are so many ethnic beliefs associated with *Saraca asoca*. In Hindu culture, it is worshiped every year on December 27 for the God of love, Kamadeva. Ashoka flower was included among kamadeva's quiver of five flowers. Ashoka flower represents seduction. It is said that Gautama Siddhartha, who is an Indian Philosopher and founder of Buddhism, was born under Ashoka tree^{16, 17}. In Hindu culture, Ashoka flowers are used for worshipping Lord Vishnu, and these are also used on the occasion of Durga Ashtami^{18, 19}.

Asokasasthi and Ashoka tri-ratri are important rituals associated with this holy plant which represents its cultural significance²⁰. Ashoka flowers are used in the decoration of Hindu temples as well as Buddhist monasteries²¹. Ashok briksh is also mentioned in Ramayana. When Devi Sita was kidnapped by Ravana, the devil king of Lanka, she spent her days of grief under the Ashoka tree^{22, 23, 24, 25}. In Hindu culture, married women eat Ashoka buds on "Ashok Shashti day" to protect their children from negativity, grief, and sorrow. Apart from its ethnic view, Ashoka is a well-known medicinal plant used in traditional medicines like Ayurveda, Siddha, Yunani and folk medicine

system. Each part of the Ashoka tree is medically important due to a wide range of phytochemical constituents.

Glycosides, alkaloids, steroids, saponins, carbohydrates, and tannins are present in the barks and flowers^{26, 27}. Since ancient times Ashoka has been used to treat female reproductive disorders. It enhances the fertility potential of females. It helps make the womb ready for conceiving²⁸.

Conditions like dyspepsia, enlargement of the abdomen, piles, ulcers, wound the bark cures healing, menorrhagia, leucorrhoea, internal bleeding hemorrhoids, and hemorrhagic dysentery of Ashoka^{29, 30, 31, 32}. Ashoka leaves are utilized as a blood purifier, whereas flowers are utilized as a uterine tonic³³. Ashoka is also useful in the treatment of fever, dysentery, leucorrhoea, menometrorrhagia, and pimples³⁴.

In Ayurveda, Ashoka is used in many important formulations against a variety of diseases. *Saraca asoca* is known to have properties like anti-inflammatory, haemostatic, alexiteric, antibacterial, CNS depressant, anti-pyretic, anthelmintic and analgesic activities³⁵. Ashoka is now being categorized as the ‘vulnerable’ in the threatened species list of IUCN due to its habitat loss³⁶. Vernacular names and taxonomy of *Saraca asoca* are shown in **Tables 1** and **2**, respectively.



FIG. 1: SARACA ASOCA TREE

TABLE 1: VERNACULAR NAMES OF SARACA ASOCA ^{37,38}

English	Ashoka
Hindi	Ashoka, Vandichitra, Ashokadamara, Sita-ashoka, Anganapriya, Ashopalava, Asupala, Hempushpa, Pindpushpa, Vishoka and Vichitra.
Sanskrit	Kankeli, SitaAshoka
Oriya	Ashoka
Assamese	Ashoka
Kashmiri	Ashok
Marathi	Ashok, Jasundi
Bengali	Ashoka, Oshok
Malayalam	Asokam
Gujrati	Ashoka
Kannada	Ashanke, Kenkalimara
Punjabi	Ashok
Tamil	Asogam
Telugu	Vanjulamu, Ashokapatta

TABLE 2: TAXONOMIC CLASSIFICATION OF SARACA ASOCA ³⁹

Taxonomic Rank	Taxon
Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Fabales
Family	Caesalpinaceae
Genus	<i>Saraca</i>
Species	<i>asoca</i>
Common Name	Ashoka

Morphology of *Saraca asoca* (Ashoka): Ashoka is an evergreen tree that reaches up to the height of 6-9 meters. The branches of the tree are glabrous. It has solid, glabrous or sparingly glabrate stems which are erect or ascending and are 2 meters tall. The peripinnate leaves of Ashoka are 15-25 cm long, having glabrous rachis and corky bases. The petioles are short. There are 6-12 oblong-lanceolate leaflets are present whose base is round or cuneate. Deciduous stipules are present. Ashoka bark is brown to grey in color or maybe almost black whose surface is warty. The rough and uneven bark is present over the stem. The roughness of bark is due to the presence of rounded or projecting lenticels. Beneath the cork layer, a thin whitish and continuous layer is seen when the striated surface is exposed by fracture splitting. Numerous actinomorphic fragrant flowers are present, or sometimes maybe irregular flowers are present in dense axillary corymbs 7.5- 10 cm. Stout peduncles are present, and 8-13 mm long pedicels are there in the Ashoka, long, red, and glabrous. A small, ovate bract is present. Petaloid calyx passes from yellow to orange and finally red color. Ellipsoid-oblong and compressed seeds are present, which are 4-8 in number ⁴⁰.

Geographical Distribution of *Saraca asoca*

(Ashoka): Ashoka is found in evergreen forests of India at an elevation of approximately 750 meters. It is mainly found in the Himalayas, Kerala, Bengal, Odisha, Meghalaya, MaharashtraGoa, and almost all the regions of South India. It is found in Khasi, Garo and Lussi hills of Himalaya, whereas in Kerala, it is wildy found in Patagiri, Kaikatty & Pothundi, Thrisur, Kollam ^{41, 42}. It is found in countries Sri Lanka, Bangladesh, and Myanmar ⁴³.

Phytochemistry of *Saraca asoca* (Ashoka):

Secondary metabolites present in the medicinal plants are responsible for the associated biological activities of the medicinal plants. *Saraca asoca* has a variety of secondary metabolites present in it. Ashoka bark and flowers are therapeutically important parts of the tree due to the various phytochemical constituents. Flavonoids, tannins, steroids, volatile oil, glycosides, steroidal glycosides, polyphenols are present in the bark and leaves of the Ashoka. Whereas saponins, terpenoids, carbohydrates are present in the leaves. Minerals like potassium, sodium, calcium, aluminum, strontium, calcium, iron, magnesium are present in the bark. Lyoniside, nudiposide, 5-methoxy-9- β -xylopyranosyl, isolariciresinol and schizandriside are the main lignin glycosides of bark. The Bark containS flavonoids like catechin, epicatechin, epiafzelechin-(4 β →8)-epicatechin, procyanidin B2, deoxyprocyanidin B, leukocyanidins, and leucopelargonidin. The bark also has leucopelargonidin glucoside in it. Gallic acid and ellagic acid are the main polyphenols of Ashoka bark and leaves and flowers, which exhibit antioxidant activity. Quercetin, β -sitosterol, ceryl

alcohol, and glucosides such as quercetin-3-O- α -rhamnoside and kaemferol-3-O- α -Lrhamnoside are the flavonoid contents of Ashoka leaves. Flowers contain phytochemical constituents like saracasin, saracadin, waxy substances, carbohydrates, proteins, and steroids. Fatty acids such as oleic, palmitic, stearic, linolenic and linoleic acids are the characteristic phytochemical constituents that are present in the flowers of Ashoka. Quercetin-3-O-P-D-glucoside, apigenin-7-O-p-Dglucoside, pelargonidin-3, 5-diglucoside and cyanidine3, 5-

diglucoside are the main glucosides contained in the Ashoka flowers. Steroids such as p- and y-sitosterols and flavonoids such as quercetin, leucocyanidin are present in the flowers. The seeds and fruits of this plant contain sterols like catechol and epicatechol, a lectin named saracin, leucocyanidin, salicylates. Ashoka seeds and fruits have fatty acids: oleic, linoleic, palmitic, and stearic acids⁴⁴⁻⁵⁷. The chemical structures of some of its phytochemical constituents are shown in Fig. 2.

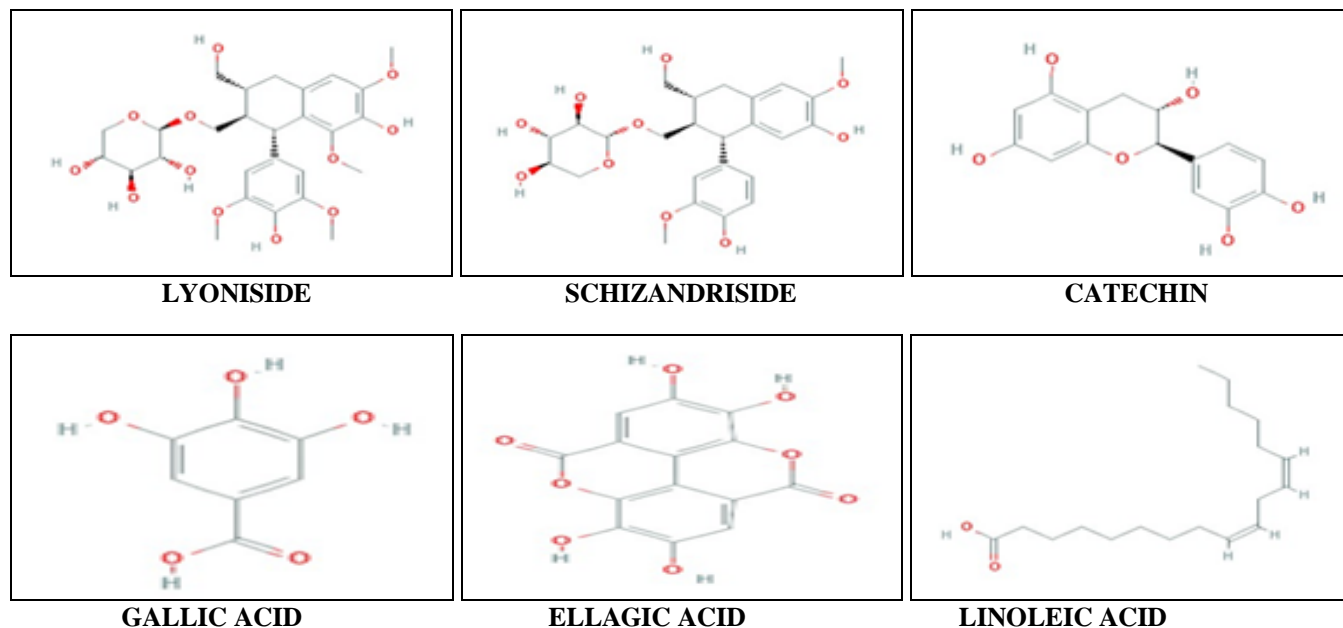


FIG. 2: CHEMICAL STRUCTURES OF PHYTOCHEMICAL CONSTITUENTS OF SARACA ASOCA

Traditional and Modern View of *Saraca asoca*:

A. Folk View: Medicinal plants are commonly used as folk medicines in rural areas of the World. Different cultures utilize medicinal plants in their own way^{58, 59, 60, 61}. *Saraca asoca* is a commonly used medicinal plant in the folk medicine system. For instance, the Siddi culture of Karnataka uses Ashoka stem in order to treat menstrual disorders⁶². In the Shivalik range of the Himalayas the bark powder of Ashoka is boiled with milk and then mixed with honey which is used against urinary disorders⁶³. In the Banda district of Uttar Pradesh, bark is used to treat uterine infections in women⁶⁴. In Kantapada block of Cuttack district, Odisha, the seeds are used in for treating urinary discharge⁶⁵. Treatment diabetes in Khurda, Odisha⁶⁶. Dried petals of Ashoka flowers are used by folk people of Daitari Range of Orissa Hills in treating dysentery. While in Daitari Range and Coastal district of Orissa, bark decoction is used against

menstruation-related problems like irregular menstruation and excessive bleeding^{67, 68}. The tribal people of Mokokchung District, Nagaland, use Ashoka bark in the paste form to treat urinary disorders, haemorrhoids, and blood dysentery⁶⁹. People of the Indo-tibetian region of the Himalayas, use flowers in powdered form against diabetes. They use bark in excessive menstrual bleeding⁷⁰. Tribal people of Chhattisgarh use powder of dried Ashoka bark, Kachnar (*Bauhinia variegata*) bark, and Rahiman bark in a definite ratio of 1:1:1 to treat leucorrhoea⁷¹. In the eastern region of Shimoga district, Karnataka, people use Ashoka bark against leucorrhoea⁷². Ashoka leaves are used in treating menstruation irregularities in the Garbhagiri hills of Ahmednagar⁷³. People of Kendrapara district, Odisha, use leaf, stem bark of Ashoka to treat infertility⁷⁴. In Bargarh Odisha, Ashoka bark is used against excessive menstrual bleeding⁷⁴.

B. Ayurvedic View: *Saraca asoca* holds a very significant place in Ayurveda. It has been used in Ayurvedic practices for treating a variety of diseases. Ashoka bark is traded among the top 20 medicinal herbs of Ayurveda and the Global Herbal Industry. It is used in almost all herbal formulations which are used to cure female reproductive disorders as the primary ingredient of formulations. Ashoka is kapha (earth and water component of the body) and pitta (Fire and water component of the body) sedative. It is used in conditions of cough, bleeding, acidity, and allergy. In local applications, it is used in lepa form in pain and against insect bites⁷⁵.

TABLE 3: RASA PANCHAK OF SARACA ASOCA (ASHOKA) AS PER AYURVEDA⁷⁶

Sanskrit/English	Sanskrit/English
Virya/Potency	Sheeta/Cold
Vipaka/physical property	Kattu/Pungent
Guna/Metabolic property	Laghu/Light, Ruksha/Dry
Rasa/Taste	Kashaya/Astringent, Tikta/Bitter

Properties and uses of *Saraca asoca* as Ayurveda:^{77, 78, 79}

Abhyantra Nadi Sansthan: It is mostly used as a pain killer to get relief from pain.

Pachan Sansthan: It is used as hydrating and anti-helminthic, anti-diarrhoeal agent.

Rakatwah Sansthan: It is used as an anti-fibrinolytic, anti-inflammatory, and blood purifier. Ashoka flowers are used in bleeding disorders.

Prajanan Sansthan: It enhances uterine contraction.

Mootrawah Sansthan: Ashoka seeds help in removing of stones.

Taapkram: It acts as an antipyretic.

Kusthagana: It helps cure skin diseases.

Pramehaghna: It is an anti-diabetic agent.

Vrishya: It has aphrodisiac properties.

Varnya: It improves the complexion of the skin.

Hridaya: It is a cardiac tonic.

Adhmanahara: It helps to get relief from bloated.

Saraca asoca is really very good for female reproductive health. It is a follicular stimulatory agent. It enhances ovulation. It is helpful in the treatment of leucorrhoea, dysmenorrhoea. It makes the womb ready to conceive. It is effective against breathlessness.

Ayurvedic Formulations of *Saraca asoca* (Ashoka): Ashoka is used in many Ayurvedic formulations for the treatment of several diseases. "Ashokarishta" and "Ashokaghrita" are the two most important formulations of Ashoka⁸⁰. Ashokarishta is a well recommended herbal formulation used since ancient times in Ayurvedic practices to treat female reproductive disorders like menorrhagia and menstrual disorders. It acts as an analgesic agent. It is also used in dysentery, backache, stomachache, headache, debility, etc.

As per the report of a case study, Ashokarishta has the potential to cure ovarian cyst⁸¹⁻⁹¹. Ashokaghrita is effective against infertility⁹². Some other formulations of Ashoka are ashokavalheya, tilvaka ghruta, rushabha gaada, mahasugandhi agaada, mahakalyanakaghrita, devadravyarishta, kasisaditalia, kayanakalavana.

C. Modern View: In the present time, people have been inclined towards the use of herbal medicines due to their several advantages over modern synthetic drugs. These herbal medicines are derived from the plants are called very different names in different parts of the World, for example, herbal drugs, botanical drugs, botanicals, phytomedicines, traditional medicines, herbal medicines, traditional Chinese medicines (TCMs), traditional herbal medicinal products, natural health products, or plant food supplements^{93, 94}. The market demand for herbal medicines is increasing day by day, and so are the chances of being contaminated and adulterated^{95, 96}. Adulteration has become a very common practice of degrading the quality of herbal medicines. Species adulteration in the global herbal drug industry has been observed for a long time that might happen due to the conflict in vernacular names of various species in different medicine systems. It can be concluded as misidentification cases^{97, 98, 99, 100}. Intentional adulteration is done to maximize the profit¹⁰¹. Intentional adulteration is carried out by either substituting inferior or duplicate products or by adding non-herbal

materials like sand, metals, soil, or synthetic chemical drugs^{102, 103, 104}. The presence is several contaminants observed in the market samples of herbal drugs. Heavy metals (mercury, arsenic, lead, cadmium, copper and thallium), pesticides, microbes, and mycotoxins are common types of adulterants detected in traditional herbal drugs¹⁰⁵⁻¹¹¹. The primary disadvantage of these induced alterations in the herbal drugs by adulteration, contamination is adverse impacts on consumer health¹¹². In modern times *Saraca asoca* is being adulterated or substituted by herbal plants like *Polyalthia longifolia*, which is considered as False Ashoka, *Bauhinia variegata* (Kanchanara Mountain ebony), *Shorea robusta* (Shala, sal tree) all are used as adulterants in the herbal products of *Saraca asoca* (Ashoka)¹¹³.

Pharmacology and Therapeutic Properties of *Saraca asoca*: *Saraca asoca* has diverse therapeutic properties which attribute to its rich phytochemistry. Some of its therapeutic properties are discussed below.

Anti-microbial: Raja Chakraborty *et al.*, studied the anti-microbial potential of *Saraca asoca* against gram-positive and gram-negative bacterial species *i.e.* *Bacillus subtilis* and *Pseudomonas aeruginosa* and fungal species *Candida albicans* and *Aspergillus niger*. Petroleum ether ethanol extract of leaves was compared with the standard antibacterial drug ciprofloxacin and antifungal drug fluconazole. It was found from the study that ethanol extract has potent antibacterial properties¹¹⁴.

Anti-hyperglycemic & Anti-oxidant: Anti-hyperglycemic and antioxidant potential of *Saraca asoca* were checked by Sunil Kumar and his co-workers in rat models in which diabetes was induced streptozotocin artificially. Petroleum ether, chloroform, and methanol extract of the leaves were comparatively studied. It was found that the oral administration of extracts caused a significant lowering in the blood glucose level. The anti-hyperglycemic potential of methanol extract was much higher than the rest of the extracts. Significant antioxidant activity (P <0.05) was showed by all the extracts at the dose of 500 µg/ml¹¹⁵. Shanti Bhushan Mishra and Vijayakumar M studied the Anti-hyperglycemic and antioxidant

activity in streptozotocin-nicotinamide-induced diabetic rat models showed that ethanolic extract has significant potential to lower down the blood glucose level. The ethanolic extract decreased the levels of dismutase, peroxidase, glutathione, superoxide, which are the main enzymes linked with oxidation, and brought their levels back to the normal range¹¹⁶.

Anti-keratinizing: Andangam Purath Shahid *et al.*, studied the anti-proliferative and anti-keratinizing effect of *Saraca asoca* on rat uterus having artificially induced keratinizing metaplasia by estradiol.

It was observed that methanolic extract of *Saraca asoca* was helpful in reducing the thickness of the epithelial layers, which got thickened due to estradiol. It also reduced the serum estrogen level, which showed its significance as an Anti-keratinizing¹¹⁷.

Anti-pyretic: The study conducted on Wistar rat models having artificially induced pyrexia by Brewer's yeast to check the anti-pyretic activity of *Saraca asoca* demonstrated that its seeds are a good antipyretic agent at a particular dose¹¹⁸.

Cardioprotective: Viswanatha Swamy *et al.*, studied the cardioprotective activity of *Saraca asoca* in rat models having induced cardiotoxicity by cyclophosphamide. It was found from the study that alcoholic extract of the bark reversed the changes which were induced by cyclophosphamide in the rats¹¹⁹.

Anti-ulcer: Maruthappan V *et al.*, conducted a study on albino rat models to check the anti-ulcer activity of *Saraca asoca*. Pyloric ligation and aspirin-induced gastric ulcer were the two models used of albino rats. It was observed that the aqueous suspension of flowers is associated with anti-ulcer activity. Aqueous suspension reduced the ulcer index, which suggests its use as an anti-ulcer agent¹²⁰.

Anti-helminthic: As per the reported study, methanol, chloroform, and aqueous extract of *Saraca asoca* is associated with the anti-helminthic activity. This activity was checked against adult earthworms *Pheretima posthuma*. All these extracts of *Saraca asoca* exhibited much better anti-

helminthic activity than the standard anti-helminthic drugs used in study ¹²¹.

Analgesic: Angad Verma *et al.*, conducted a study on albino rat models. Pain was induced in the models by using two methods which were the tail immersion method and formalin-induced pain method. The extracts which were checked for analgesic activity were petroleum ether, chloroform, methanol, and water extracts. The dosage of extracts used was 200 and 400 mg/kg. It was found that methanol extract was a more potent analgesic agent ¹²².

Haematoprotective: The study reports of Chetan Kumar Dubey and his co-workers suggested that *Saraca asoca* has haematoprotective activity. They checked this activity in phenylhydrazine-induced anemic rat models. The oral administration of *Saraca asoca* for 14 days significantly reversed the signs of anemia like it increased the Hgb, RBC, and decreased MCV and WBC in the dosage of 200 mg/kg, 400 mg/kg ¹²³.

Anti-arthritis: Subramanian Saravanan *et al.*, studied the anti-arthritis activity of *Saraca asoca*. The study was carried out on Female wistar rats having adjuvant-induced arthritis by assessing paw swelling, body weight, the levels of lysosomal enzymes, protein-bound carbohydrates, serum cytokines, urinary collagen, and histopathology of

joints. It was observed that methanolic extract of the plant has potent anti-arthritis activity. After administering the methanolic extract, the paw's thickness got reduced and the bodyweight got elevated ¹²⁴.

Effect on the Menstrual Cycle: A study was carried out on female albino rats to check the restorative potential of bark extract of *Saraca asoca* on the reproductive cycle and Estrogen (E2) and progesterone (P4) levels against the synthetic contraceptive, Levonorgestrel (LNG). It was found that methanolic extract of the bark significantly brought the hormonal levels back to normal ¹²⁵.

Anti-epileptic: This property was checked in a study conducted on albino mice models. Maximal electroshock (MES) and pentylenetetrazole (PTZ)-induced seizure models evaluated anti-epileptic properties. Ethanolic extract of the plant exhibited antiepileptic properties in both models, which support its anti-epileptic activity ¹²⁶.

Anti-diarrhoeal: S. Panchawat *et al.*, Sisodia S. S conducted an *in-vivo* study on albino rat models to check the anti-diarrhoeal activity of *Saraca asoca*. Albino rats were having artificially induced diarrhoea by castor oil. It was observed that the bark extracts of *Saraca asoca* at the dosage of 200 mg/kg showed potent anti-diarrhoeal activity ¹²⁷.

TABLE 4: THERAPEUTIC PROPERTIES OF SARACA ASOCA

S. no.	Extract	Method	Property	References
1	Ethanol extract	In-vitro study	Anti-microbial	114
2	Ethanol extract	<i>In-vivo</i> study on rat models	Anti-hyperglycemic & Anti-oxidant	116
3	Methanolic extract	<i>In-vivo</i> study on rat models	Anti-keratinizing	117
4	Seed extract	<i>In-vivo</i> study on rat models	Anti-pyretic	118
5	Alcoholic extract	<i>In-vivo</i> study on rat models	Cardioprotective	119
6	Aqueous suspension	<i>In-vivo</i> study on rat models	Anti-ulcer	120
7	Methanol, chloroform and aqueous extract	<i>In-vivo</i> study on earth worms	Anti-helminthic	121
8	Methanol extract	<i>In-vivo</i> study on rat models	Analgesic	122
9	Methanol extract	<i>In-vivo</i> study on rat models	Anti-arthritis	124
10	Methanol extract	<i>In-vivo</i> study on rat models	Effect on menstrual cycle	125
11	Ethanolic extract	<i>In-vivo</i> study on mice models	Anti-epileptic	126

CONCLUSION: *Saraca asoca* is one of the sacred plants of the World. There are many cultural beliefs associated with *Saraca asoca*. This medicinal plant is most commonly used in all the traditional systems of medicine like Ayurveda, Siddha, Yunani, and Folk system. Ashoka is a rich source

of secondary metabolites like glycosides, flavonoids, tannins, steroids, volatile oil, steroidal glycosides, polyphenols *etc.* Ashoka is associated with a wide range of therapeutic properties. But the characteristic property of *Saraca asoca* is its significant potential of maintaining female

reproductive health. In Ayurveda, Ashoka is used to treating a variety of diseases. It is used in various traditional herbal formulations, which are of great importance from a medicinal perspective. It has extended uses in folk system of medicine. In the present time, *Saraca asoca* is in great demand due to which it is adulterated by the herbal plant *Polyalthia longifolia*. Proper standardization is therefore required to extract the maximum benefit from this valuable plant.

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