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A comprehensive review on the medicinal marvels of *Saraca indica* Linn

Dr. Anilkumar KKDOI: <https://dx.doi.org/10.22271/phyto.2015.v4.i3d.14757>**Abstract**

Saraca indica commonly known as Ashoka, is a medicinal tree native to the Indian subcontinent. For centuries, it has held a significant place in traditional Ayurvedic and folk medicine systems due to its therapeutic properties. This plant has been traditionally utilized to address various health issues, particularly those related to women's well-being. Its bark, leaves, and flowers contain bioactive compounds such as alkaloids, flavonoids, tannins, and saponins, which confer therapeutic properties. The tree is known for its astringent, anti-inflammatory, and uterine tonic properties, making it a valuable resource for treating conditions like menstrual disorders, menorrhagia, dysmenorrhea, and leucorrhoea. Moreover, Ashoka's anti-inflammatory characteristics are beneficial in managing conditions like arthritis and rheumatism. The tree's potential as an antimicrobial agent has also been explored, with extracts exhibiting antibacterial and antifungal properties. This has implications for treating various infections and promoting wound healing. Additionally, *Saraca indica* has demonstrated antioxidant activity, which can help combat oxidative stress and its associated health issues. Furthermore, Ashoka has shown promise in supporting reproductive health. Its uterine tonic properties make it useful in managing female reproductive disorders, and it is believed to have a role in promoting overall fertility. While, *Saraca indica* has been a part of traditional medicine for centuries, further research is necessary to better understand its mechanisms of action and to evaluate its efficacy in a modern clinical context. However, the diverse array of potential medicinal uses for *Saraca indica* underscores its significance in the world of natural remedies and traditional healing practices.

Keywords: *Saraca indica*, asoka, anti-inflammatory, antimicrobial, astringent, menorrhagia**Introduction**

Saraca indica, a revered botanical gem native to the Indian subcontinent, has been an integral part of traditional medicine systems for centuries. Commonly known as Ashoka, this tree's significance transcends its aesthetic beauty, as it holds a special place in Ayurveda, the ancient Indian system of natural healing. With a history deeply rooted in folklore and traditional medicine, *Saraca indica* has gained recognition for its multifaceted medicinal properties, making it a subject of growing interest in contemporary healthcare. The name Ashoka itself carries an air of reverence, reflecting its role in promoting overall health and well-being. This remarkable tree has earned its place in the annals of herbal medicine for its potential to address a wide array of health concerns, with a particular focus on women's health issues. Its therapeutic value stems from the diverse bioactive compounds present in its bark, leaves, and flowers, including alkaloids, flavonoids, tannins, and saponins. This review aims to shed light on the medicinal use of *Saraca indica*, highlighting its historical importance and its potential in modern healthcare. It will delve into the traditional and contemporary applications of this tree, from addressing menstrual disorders to its antimicrobial and antioxidant properties, emphasising the need for further research to unlock the full spectrum of its healing potential. *Saraca indica* with its rich medicinal heritage, continues to be a source of inspiration for those seeking natural remedies and holistic healthcare solutions.

Taxonomic Classification**Kingdom:** Plantae**Division:** Mangoliophyta**Class:** Magnoliopsida (Dicotyledons)**Order:** Fabales**Family:** Fabaceae /Leguminosae**Sub Family:** Caesalpinioideae**Genus:** *Saraca***Species:** *Indica***Synonym:** *Saraca asoca* (Roxb) Wjde Wilde**Corresponding Author:****Dr. Anilkumar KK**Assistant Professor, NSS Hindu
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Vernacular Names

Language	Name
Bengali	Ashoka
English	Asok tree
Gujarati	Ashoka, Rathafulatho
Hindi	Ashoka
Kannada	Seethamara, Asoka
Malayalam	Asokam
Marati	Ashoka
Sanskrit	Hemapushpa, Asoka
Tamil	Asoka, Asokamaram
Telugu	Ashoka Chettu, Asoku, Asokamu
Urdu	

Plant Description

Saraca indica is a small to medium sized evergreen tree with distinctive features that make it easy to identify. Typically, it reaches a height of 8 to 12 meters and has a spreading canopy. It has a graceful, vase-shaped habit with straight trunk. The leaves are compound and alternate. Each leaf is pinnately compound, comprising 4 to 8 pairs of leaflets. The leaflets are oblong or lanceolate, with a shiny green colour and a leathery texture. They have a prominent central vein with reticulate venation. The inflorescence is a dense, rounded cluster of bright orange to red-orange flowers with fragrance. These flowers are hermaphroditic and have a unique appearance with long protruding stamens and are apetalous with coloured calyx. The fruits are flat, oblong pods that are initially green and turn brown as they mature. Each pod contains several seeds. The bark of the Ashoka tree is smooth and dark grey to brown which is often used for its medicinal properties in traditional herbal medicine. The roots are woody and fibrous.

Biochemical Constituents

The various biological activities of herbal medicines result primarily from their secondary metabolites that include alkaloids, terpenoids, steroids, flavonoids, phenolics, tannins, saponins, glycosides, quinones, volatile organic compounds, etc based on their chemical nature, metabolic origin, presence of nitrogen and the precursor molecules of primary metabolism. The bark contains tannin, catechol, sterol and organic calcium compounds. Its methanol fraction contains haematoxylin, tannin, and water-soluble glycoside. The latter has glucose, galactose and mannose as sugars.

Pharmacological importance

Saraca indica, commonly known as Ashoka, is a tree native to the Indian subcontinent, particularly in India, Nepal, and Sri Lanka. Various parts of the Ashok tree have been used in traditional medicine for centuries, and it is valued for its potential medicinal properties some of the medicinal uses of *Saraca indica* are given below.

Antimicrobial Activity

Some studies have indicated that various extracts of the different parts of the Ashoka plant possess antimicrobial properties that can help combat bacterial and fungal infections (Gomashe, *et al*, 2014; Shirokar, *et al*, 2013; Singh *et al*, 2009; Rajan *et al*, 2008; Dabur *et al*, 2007; Seetharam *et al*, 2003; Pal *et al*, 1985) [7, 38, 39, 30, 5, 36, 23].

Antimenorrhagic Activity

Ashoka is well-known for its use in treating various menstrual disorders in women. It is believed to help regulate the menstrual cycle and alleviate symptoms of dysmenorrhea

(Painful menstruation) and menorrhagia (heavy menstrual bleeding). It is also used as a refringent, demulcent, uterine disorders, regular menstrual pain in abdomen and for uterine problems. Often used in ayurvedic medicine for conditions like uterine fibroids and as a general tonic for the female reproductive system. (Begum *et al*, 2014; Mishra *et al*, 2013; Mollik *et al*, 2010; Bhandary *et al*, 1995; Khan *et al*, 1994; Middelkoop & Labadie, 1986, 1985a & b; Arscclerlatne *et al*, 1985; Satyavati *et al*, 1970; Son, 1963; Saha *et al*, 1961) [2, 21, 22, 3, 13, 18, 19, 20, 1, 35, 40, 32].

Anticancer Activity

Several reports are available on the anticancer activity of *Saraca indica*. Ethnobotanical studies using the flavonoid fraction from the flowers of *Saraca indica* plant prevent two stage skin carcinogenesis and preferential cytotoxicity against normal and affected lymphocytes in laboratory conditions (Cibin *et al*, 2012; Kaur & Misra, 1980) [4, 12] and the ethanolic extract of this plant inhibit breast cancer (Yadav *et al*, 2015) [43]. It has been reported that in *in vitro* assay method, the lectin 'saracin' isolated from the seed integument of *Saraca* induce apoptosis in human T lymphocytes. (Ghosh *et al*, 1999) [6].

Anti-inflammatory and Antiarthritic Activity

Ashoka is thought to have anti-inflammatory properties that may be beneficial in managing inflammatory conditions. Chronic arthritis and cardiovascular diseases are generally attributed to the inflammatory response. Several reports are available regarding the ethanolic and methanolic extracts of the leaf, bark, and root of *Saraca indica* that exhibit anti-inflammatory potential and also antiarthritic potential (Mishra *et al*, 2013; Swamy *et al*, 2013; Preeti *et al*, 2012; Saha *et al*, 2012; Maruthappan & Sakthi, 2010; Shelar *et al*, 2010; Pradhan *et al*, 2009) [21, 41, 28, 31, 17, 37, 27].

Antioxidant Activity

Some studies have suggested that Ashoka bark and extracts possess antioxidant properties, which can help to protect cells from oxidative damage and reduce the risk of various diseases. (Yadav *et al*, 2015; Saha *et al*, 2012; Kumar *et al*, 2012; Pandey *et al*, 2011; Panchawat, and Sisodia, 2010; Samee & Vorarat, 2007) [43, 31, 14, 25, 24, 33].

Antidiabetic and Hypolipidemic Activity

There is some research suggesting that Ashoka may have a role in managing diabetes by regulating blood sugar levels and also reduce the level of low-density lipoproteins. Laboratory experiments in rat and mice revealed that the flavonoid fraction of Asoka' flowers and leaves inhibited the enzymes responsible for type -2 diabetes and also prevent LDL oxidation. (Jain *et al*, 2013; Prathapan *et al*, 2012; Kumar *et al*, 2012) [9, 26, 14].

Skin Disorders and Wound Healing Activity

Ashoka extracts are sometimes used topically to treat skin disorders, including acne, eczema, psoriasis, dermatitis, herpes-kushta, pruritis, scabies, skin cancer, tinea pedis and also used in traditional medicine to promote wound healing through its antimicrobial properties. (Cibin *et al*, 2012; Pradhan *et al*, 2009; Kapoor, 2001) [4, 27, 11].

Nervous System Depressant and Brain Tonic activity

Ashoka may have a calming effect and is used in traditional medicine to reduce anxiety and stress. It was reported that the

methanolic extract of Ashoka showed maximum central nervous system depressant activity in albino mice. (Yadav *et al.*, 2013; Verma *et al.*, 2010; Pradhan *et al.*, 2009) ^[44, 42, 27].

Anti-Nephrolithiatic Activity

The root extracts of Ashoka plant have reported to be used to reduce the obstruction by dissolving the kidney stones in the urinary passage. (Gordara *et al.*, 2015; Begum *et al.*, 2014; Pradhan *et al.*, 2009) ^[8, 2, 27].

Larvicidal and Anti-Helminthic Activity

It was reported that the petroleum and chloroform extracts of Ashoka plant significantly reduce the population of insect vectors and thereby reduce the chance of causing communicable diseases like malaria, dengue, filariasis etc. (Mishra *et al.*, 2013; Mathew *et al.*, 2009) ^[21, 16]. The methanolic extract of Ashoka leaves showed killing action against the adult Indian earthworm that resembles human round worm parasite. (Preeti *et al.*, 2012; Sarojini *et al.*, 2011) ^[8, 34].

Conclusion

Saraca indica, or Ashoka, is a botanical treasure deeply rooted in traditional healing practices, especially in the Indian subcontinent. Over the years, its therapeutic properties have garnered attention and recognition in the field of herbal medicine. This remarkable tree has demonstrated its potential to address a wide range of health issues, with a particular emphasis on women's well-being. The diverse bioactive compounds found in *Saraca indica*, such as alkaloids, flavonoids, tannins, and saponins, provide a solid foundation for its medicinal properties. These compounds have been harnessed for their astringent, anti-inflammatory, and uterine tonic effects, making Ashoka a valuable resource for managing conditions like menstrual disorders, menorrhagia, dysmenorrhea, and leucorrhea. Additionally, its antimicrobial and antioxidant properties open doors to potential treatments for infections and oxidative stress-related health concerns. *Saraca indica's* role in supporting female reproductive health is noteworthy, and it continues to be a symbol of fertility and well-being. Its rich history in traditional medicine systems and its potential applications in modern healthcare underscore the importance of further research to fully understand its mechanisms of action and to establish its efficacy in a contemporary clinical context. As the world seeks natural remedies and holistic healthcare solutions, *Saraca indica* remains a beacon of hope. Its legacy as a medicinal tree continues to inspire researchers and practitioners alike, reaffirming its position as a valuable asset in the realm of herbal medicine. With continued scientific exploration and validation, the full potential of *Saraca indica* in promoting health and wellness may be harnessed for the benefit of all.

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