



ISSN 2456-3110

Vol 4 · Issue 5

Sept-Oct 2019

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Charaka
Publications

Indexed

Ashoka [*Saraca Asoca (Roxb.) Willd.*] : A Salubrious Plant

Shilpa¹, N G Shivaram², B R Lalitha³, T Chaitra⁴

^{1,4}Post Graduate Scholar, ²Professor, ³Professor and Head, Department of Dravyaguna Vigyana, Government Ayurveda Medical College, Dhanwantari Road, Bengaluru, Karnataka, INDIA.

ABSTRACT

Over the centuries, plants have been known to be a potential source of therapeutics. A comprehensive review of medicinal plants and its diversified action in mitigating the diseases is essential to be documented for serving mankind. *Saraca asoca (Roxb.) willd.* Belonging to the family *Caesalpinioideae* is a rain-forest tree, prized for its beautiful foliage and fragrant flowers. It's found wild along streams and in the shades of evergreen forests. All most all parts of the plant are considered as pharmacologically important especially bark and flower. Bark is generally adulterated part of the plant with the bark of other plants like *Polyalthia longifolia*, *Bauhinia variegata* and *Shorea robusta*. It mainly contains tannin and catechin in substantial amount and widely used as uterine tonic, Anti-menorrhagia, Analgesic, Anti-pyretic, Anthelmintic, Dermatoprotective and anti-diabetic. The current article highlights about review of *Ashoka* and its microscopical features.

Key words: *Saraca asoca*, *Ashoka*, *Salubrious*, *Dravyaguna*, *Ayurveda*.

INTRODUCTION

The plant *Saraca asoca (Roxb.) willd.* known as *Ashoka* in Sanskrit is an auspicious tree having immense medicinal properties. As the name indicates the tree is believed to be capable of relieving sorrow. As a wild tree, the *Ashoka* is a vulnerable species. It is becoming rarer in its natural habitat, but isolated wild trees and cultivated ones are found throughout India. This plant is considered sacred especially in India, Nepal and Sri Lanka.

The tree has folkloric, religious and literary association

Address for correspondence:

Dr. Shilpa

Post Graduate Scholar, Department of Dravyaguna Vigyana, Government Ayurveda Medical College, Dhanwantari Road, Bengaluru, Karnataka, INDIA.

E-mail: drshilpamahajan123@gmail.com

Submission Date: 05/09/2019 Accepted Date: 19/10/2019

Access this article online

Quick Response Code



Website: www.jaims.in

Published by Maharshi Charaka Ayurveda Organization, Vijayapur, Karnataka (Regd) under the license CC-by-NC-SA

in the region. It is associated with *Kamadeva*, the hindu god of love, who included an *Ashoka* blossom among the five flowers in his quiver, where *Ashoka* represents seductive hypnosis.^[1] Almost all parts of the plant are used therapeutically. According to traditional usage mentioned in literature, Bark used in uterine disorders especially in excessive menstrual flow, Seeds in bone fracture, flowers enhance complexion and control dysentery. Hence an effort is made to classify and arrange the data in accessible manner for this extensively used plant of Ayurveda.

Ayurveda Literary Review

Onomatology^[2]

The word meaning of *Ashoka* is "*Na Astishokoyasmat*" - Without sorrow, not feeling or causing sorrow.

History^[3-5]

Veda and Purana

A vivid description from *Atharvaveda Parisista* indicates about the flower of *Ashoka* which is red in colour. In *Malavikagnimitra* there is a reference about varieties of *Ashoka* based on colour of the flower i.e., red and yellow. Its utility is found in *Kumara*

Sambhava and *Raghuvamsha* of *Kalidasa* for cosmetic purposes and aphrodisiac. It has been said that flowers blossom after being touched by left foot of a beautiful woman. Flowers have a special usage in religious ceremonies in *Ashokaashtami* and *Homas*.

In *Ramayana*, Sita was captivated by Ravana in *Ashokavana* which indicates that *Ashoka* was available in Srilanka. It is believed that *Shakyamuni* Buddha was born under *Ashoka* tree.

Samhita period

Caraka: Mentioned it under *Vedanasthapanagana* (drugs relieving pain) and *Kashaya Skanda Dravyas* (Drugs having astringent taste) in *Vimanasthana*.

Sushruta: Classified under *Rodhradigana*. Mentions *Ashoka* bark in the employment of *Daruna Karma* (Hardening measure for soft ulcers). *Ashoka* is ingredient of *Kalyanakalavana* told under *Vatavyadhiadhikara*. *Ashoka* is indicated in the form of *Pradhamananasya* in one of the *Yogas* for *Sarpavisha* (Snake poison) and is ingredient of *Mahasugandhiagada* which is indicated in all types of *Visha*. *Acharaya Dalhana* described *Ashoka* as “*Lohita Kusuma Swanamakhyatha*” due to its red colored flower.

Astanga Hridaya: *Ashokadi Ghruta* indicated in *Kasachikitsa* (treatment of cough) contains *Ashoka*. It is also one among ingredient of *Ghruta* used in *Vatavyadhichikitsa*.

Bhelasamhita: *Ashoka* as ingredient of *Dwipanchamooladi Taila* used for *Urusthambha*, *Shleepada* (filariasis) etc.

Chakradatta: *Ashoka* bark decoction and *Ssheerapaaka* (milk and water decoction) in the treatment of severe type of *Asrugdhara* (Dysfunctional uterine bleeding).

Yogaratanakara: The bark powder of *Ashoka* along with honey and rice water for treatment of *Asrugdhara*.

Bhaishajyaratnavali: *Ashoka* bark *Ksheerapaaka* in severe *Asrugdhara* and as an ingredient in preparations like *Madhukadyavalehya*, *Pradara Rasa*,

Lakshmanaloha, *Ashoka Ghrutha* and *Ashokarishta*. All these preparations are indicated in treatment of *Asrugdhara*.

Vangasena : *Ashoka* as a remedy for *Asadhya Pradara Roga* (Dysfunctional uterine bleeding).

Nighatu period

Emphasized more on the appearance and fragrance of flowers apart from morphology, synonyms and utility.

Synonyms^[6-8]

a) Based on Morphogy

Tree - *Kelika*, *Subhaga*, *Prapallava*, *Pallavadruma*.

Patra - *Tamrapallava*, *Raktapallava*.

Flower - *Kankeli*, *Gandhapushpa*, *Hemapushpa*, *Madhupushpa*, *Pindapushpa*, *Raktaka*, *Ragitaru*, *Kanaka Kusuma*, *Manjarika*, *Shatpadanandamanjari*, *Vichitra*, *Chitrashoka*.

b) Based on properties and action

Vishoka, *Apashoka*, *Gatashoka*, *Vanjula*, *Streepriya*, *Doshahari*, *Karnapuraka*.

c) Others

Smaridhivasa, *Streepadadohada*, *Ramavamangridohada*, *Dohali*, *Nata*.

Varieties^[6]

Based on color of the flower *Ashoka* is of two types i.e. *Peeta* and *Rakta*.

Rasapanchaka^[8]

Rasa - *Kashaya*, *Tikta*

Veerya - *Sheeta*

Vipaka - *Katu*

Doshagnata - *Pitta*

Karma (action)^[6-8]

Grahi (water absorbents and bowel binders), *Varnya* (complexion improving), *Hridya* (good for heart), *Asthisandhanakaraka* (fracture healing), *Vishaghna* (anti poisonous).

Rogagnata (Indication) ^[6-8]

Raktavikara (Blood disorders), *Yonivyapat* (Uterine disorders), *Ruja* (Pain), *Shopha* (Swelling), *Jwara* (fever), *Apachi* (Lymphadenitis), *Trishna* (Thirst), *Krimi* (Worm infestation), *Visha* (Poison), *Shosha* (Debility), *Udara* (Ascites), *Vrana* (wound), *Mutraghata* (Urinary disorder), *Atisara* (Diarrhea), *Vatavyadhi* (Diseases due to *Vatadosha*).

Formulations ^[9]

Ashokarishta, *Ashokaghruta*, *Ashokavalehya*, *Tilvakaghruta*, *Rushabhaagada*, *Mahasugandhiagada*, *Mahakalyanakaghruta*, *Devadarvyarishta*, *Kasisaditaila*, *Kayanakalavana*.

Vernacular names ^[10]

English - *Ashoka tree* / *Sarrow-less tree*, Hindi - *Asok*, Kannada - *Sitaashoka*, Tamil - *Asogam*, Telugu - *Sitammaasokamu*, Marati - *Tanadaashok*, Gujarathi - *Ashoka*, Bengali - *Asok*.

Geographical distribution ^[11-13]

World: In South Asia i.e., Malaysia, Indonesia, Burma, Srilanka and India.

India: Occurs almost throughout India upto an altitude of 750m. It is found plentiful along the roadsides in Bengal and in South India.

Botanical Description ^[11-14]

Habit: It is a evergreen rain forest tree growing upto 6-9 m height.

Bark: Grey brownish coloured, smooth and transversely lenticellate, sometimes covered by lichens of ash white colour.

Leaves: Compound, 15-25cm long, paripinnate, 4-6 pair of leaflets; each leaflet 8-15cm long and about 3cm wide, coriaceous and glabrous both sides, shape is lanceolate, apex is acute to acuminate, base is rounded or cuneate; venation is reticulate with prominent midrib, rachis glabrous, corky at the base, Petioles 5-6 cm long, intra petiolar stipules present.

Flower: Fragrant, numerous; in dense axillary and terminal corymbs 7.5-10cm across. 4 coloured bracts at the base of calyx. The bracts are imbricate, 5mm

long and 3mm wide, orange coloured and finely pubiscent on the margins. The calyx is bright orange coloured and glabrous. The corolla is absent. The androecium is composed of 6-8 filiform, pinkish-purple stamens. The style is curved and about 1.6-1.8cm long.

Fruit: It is a compressed and curved pod. 10-20cm long and 2.5-3cm wide, reddish coloured turning black when fully ripe. Each pod contains 4-10 seeds.



Ashoka Tree



Flowers of Ashoka



Bark of Ashoka



Fruit and seeds of Ashoka

Substitutes and adulterants^[15,16]

Table 3: Description of substitutes and adulteration of Ashoka

Drug		Description	Substitute/ Adulterant
Botanical name and family	Sanskrit name & common name		
<i>Saracaasoca</i> - Caesalpinaceae	<i>Ashoka</i> (Ashok tree)	Grayish brown externally & reddish brown internally Rough and there are warty protuberances with lenticels. Fracture short & fibrous, Tough	-
<i>Polyalthia longifolia</i> - Annonaceae	<i>Kashtadaru</i> <i>Ashoka</i> (False ashoka)	Absence of rough and warty protuberances Easily peeling off outer bark Color of the bark is brown, Inner side dark brown Fracture hard fibrous	Adulterant
<i>Bauhinia variegata</i> - Caesalpinaceae	<i>Kanchanara</i> Mountain ebony	External surface of the bark is gray and inter surface is white Fracture Granular	Adulterant

<i>Shorea robusta</i> - Diptero carpaceae	<i>Shala</i> , Sal tree	Bark is reddish brown or gray in color Smooth and longitudinally fissured	Adulterant / Substitute
---	-------------------------	--	-------------------------

Threat status : Vulnerable according to IUCN (version 2.3).

PHARMACOGNOSY

Microscopy of *Saracaasoca (Roxb.) willd.*Bark powder^[17]

Group of Cork cells	Group of Stone cells	Prismatic crystals
Starch grains embedded in paranchymatous cell	Medullary rays	Isolated sclereid

Bark macroscopic characters^[18]







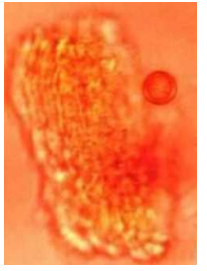


Bark is channeled, externally greenish grey, smooth with circular lenticels and transversely ridged, sometimes cracked, internally reddish-brown with fine longitudinal strands and fibers, splintery exposing striated surface, a thin whitish layer is seen beneath the cork layer.

Bark microscopic characters^[18]

Shows periderm consisting of wide layer of cork, radially flattened, narrow cork cambium, secondary cortex wide with one or two continuous layers of

stone cells with many patches of sclereids, parenchymatous tissue contains yellow masses and prismatic crystals; Secondary phloem consist of phloem parenchyma, sieve tubes with companion cells and phloem fibers occurring in groups, crystal fibers present.

Microscopy of *Saraca asoca* (Roxb.) willd. Flower powder^[19]

		
Epidermal cells in surface view	Stomata	Covering trichome
		
Parenchymatous cells	Xylem vessels with spiral thickening	Prism shaped crystal of calcium oxalate
		
Oil globule	Starch grains	Palisade cells

Flower macroscopic characters^[19]

Flowers of *Saraca asoca* are orange-yellow in color, dense axillary corymb inflorescence. Hermaphrodite flowers, 2.5-3.5 cm in length. Ovate bracts and 2 sub-acute bracteoles, appearing like a calyx; petaloid 4 tubular calyx, imbricate, yellowish orange- red in

color; corolla absent; stamens 6-7, exerted, long filiform filament, versatile anther; minute capitate stigma, style curved into ring and ovary pubescent.

Flower microscopic characters^[19]

Under microscopic observation powder showed uniseriate, small covering trichomes present on the outer epidermis of calyx. Pollen grains were large, oval to spherical in shape with smooth exine. Small brown ovoid oil gland, stomata, prismatic crystals of calcium oxalate were present. Spiral xylem vessels observed and epidermal cells of calyx were rectangular in surface view. Fragments of fibrous layer of anthers were composed of small cells. The occasional fragments of the walls of ovary were composed of small polygonal cells. Minute starch grains were scattered into the powder.

Phyto-constituents^[12,13]

Whole plant : Flavonoids, aliphatic alcohols, sterols, glycosidic principles, non phenolic, sapogenetic glycoside.

Wood : Quercetin

Bark: Tannin 6%, catechol-catechin, epicatechin, Essential oil, haemotoxin, ketosterol (mp 25°), Crystalline glycoside, saponin (C₁₀H₂O₁₄), calcium (C₆H₁₀O), Leucocyanidin, leucopelargonidin, proanthocyanidins

Flower: B-sitosterol, quercetin, kaemfero glycoside, Cyanidin, palmitic, stearic, linolenic, linoleic, leucocyanidin, gallic acid, anthocyanins.

Pod : Catechol, epicatechol, leucocyanidin

Seed : Oleic, linoleic, palmitic, stearic acid.

Pharmacological activities^[20]

Leaves - Anti fungal

Bark - Anti menorrhagic, Anti bacterial, Oxytocic, Uterine tonic

Flowers - Diuretic, emmenagogue, Anti tumor, Anti bacterial

Seeds - Anti fungal

DISCUSSION

Ashoka (*Saraca asoca* (Roxb.) Willd.) is a globally vulnerable species because of destructive harvesting from natural habitats. Description about *Ashoka* can be traced since *Veda* and *Purana* period. Ample of references are found in post vedic period. Classical texts like *Charaka* and *Sushruta Samhita* describe it under *Vedanasthapana* Gana and *Rodhradigana*. *Ashoka* is attributed with *Kashaya*, *Tikta Rasa*; *Katuvipaka*; *Sheeta Veerya*. The therapeutically useful parts of *Saraca Asoca* are bark, flower, seed. Among three bark is the most commonly used part in Ayurveda. Generally bark is adulterated with trees like *Polyalthia longifolia*, *Bauhinia variegata* and *shorea robusta* due its much similarity in morphology. To differentiate between true *Ashoka* bark from its adulterants, study of its macro and microscopic features are very much essential. It is drug of choice in gynecological disorder and is also useful in combating various diseases such as Diabetes, Dysentery, Wound, Poisoning, piles, fracture of bones, fever and diseases due to *Vatadosha* etc. This versatile plant is endowed with phyto-constituents like Flavonoids, Tannins, saponin, glycoside, protein, steroid etc. and possess many pharmacological activities proved by research.

CONCLUSION

The present literature supports the potential of *Saraca Asoca* as a medicinal tree which is extensively used in Ayurveda and its macroscopic and microscopic features can be utilized to identify genuine *Saraca asoca*. In view of nature of this plant more researches has to be conducted on its cultivation and substitution as this plant is seen in the list of vulnerable species and researches can also be conducted on different parts of the plant for all the actions mentioned in classical texts to expand the pharma worth of this plant.

REFERENCES

1. D V C. Flowering trees and shrubs in India. 6th ed. Bombay: Thacker and Co. Ltd.; p.5
2. Taranath - Tarkavachaspathi Bhattacharya; "Vachaspathyam - Pratham Bhagha"; Varanasi, Choukambha Office Series; PN-485; TP-826
3. Dinesh Chandra Sharma; "Vedo me Dravyaguna Shastra"; Gujarat Ayurveda University, Jamnagar, 1968-69;
4. Shastri J.L.N.; "Illustrated Dravyaguna Vijnana"; Chaukhambha Orientalia; Volume II, 2005; PN-192; TP-565
5. Radhakantadeva-Bahadur; "Shabda Kalpa druma-Prathamobhagah"; The Chowkhamba Sanskrit Series Office, Varanasi, 3rd Edition; PN-167; TP-135
6. Bhavamishra, Bhavaprakasha Nighantu, commentary by Dr. K C chunekar, edited by Dr. G S pandey, Varanasi, chaukhamba bharathi academy, Reprint 1999
7. Sharma P V, Namarupavijnana, 1st Ed, Varanasi, satyapriyaprakashana, 2000, p 118
8. Vaidya G Bapalal, Nighantuadarsha, Vol 2, 3rd Ed, Varanasi, Chaukhamba bharathi academy, 1999, p232
9. Shastri A "Baishajya Ratnavali" Chaukhamba Sanskrit Sansthan, Varanasi, U.P.17th Edition 2004, Pradararoga chikitsa p.no 716 – 722
10. Magadi R. Gurudeva Dr.; "Botanical and Vernacular Names of South Indian Plants"; Divyachandra Prakashana 2001; TP-1000, p355.
11. Sharma PC, Yelne M.B. Dennis T.J.; "Database on Medicinal Plants used in Auyurveda" Volume 3; CCRAS-Department of ISM&H, Ministry of Health & Family Welfare, Government of India; PN-76
12. Yoganarasimhan S.N.; "Medicinal Plants of India"; Volume I; Karnataka Interline Publishing Pvt. Ltd.,-1996; PN-417
13. D B Basu, Kirthikar K R, Indian medicinal plants, Vol 8, Dehradun, International book distributors, reprint 2001, Tp 1358, p 787-788, 1235
14. "Wealth of India- Raw Materials"; Volume IX; Publications & Information Direction Directorate; S/R New Delhi; PN-232
15. Raghunathan K. & Ms. Roma Mitra; Compiling & Editing "Pharmacognosy of Indigenous Drugs- CCRAS"; Volume I, Government of India, New Delhi; PN-119; TP-594

16. Sarin Y.K.; "Illustrated Manual of Herbal Drugs"; Council of Scientific & Industrial Research & Indian Council of Medicinal Research-1996; PN-120; TP-423
17. Singh D, aeri v narayana DBA, Development of standard operating protocol for slide preparation of powdered bark samples with varying grinding techniques. Pharmacog J, 2018;10(2):265-71
18. Anonymous. The Ayurvedic Pharmacopoeia of India (part 1, vol 1), 1st Ed, 1990, reprinted 2001, p 17-18
19. Bisht A, Irshad S et al. Pharmacognostical studies on Saracaasoca (Roxb.) Willd. flower. Tropical Plant Research. 2017 Apr 30;4(1):153–60.
20. Kokate C K, Purohit A P, Gokhale S b, Pharmacognasy, Nirali prakashan, 19th Ed, march 2002, Tp 634, p255.

How to cite this article: Shilpa, N G Shivaram, B R Lalitha, T Chaitra. Ashoka [Saraca Asoca (Roxb.) Willd.] : A Salubrious Plant. J Ayurveda Integr Med Sci 2019;5:184-190.

Source of Support: Nil, **Conflict of Interest:** None declared.

Copyright © 2019 The Author(s); Published by Maharshi Charaka Ayurveda Organization, Vijayapur (Regd). This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.