



# IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH  
An official Publication of Human Journals

ISSN 2349-7203




Human Journals

**Review Article**

April 2024 Vol.:30, Issue:4


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## A Review of Asoka (*Saraca indica* Linn), through Nighantus



**IJPPR**  
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH  
An official Publication of Human Journals

ISSN 2349-7203



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**Submitted:** 20 March 2024  
**Accepted:** 27 March 2024  
**Published:** 30 April 2024

**Keywords:** Asoka, *Saraca indica* Linn, Nighantus

### ABSTRACT

Asoka (*Saraca indica* Linn) is a rainforest tree belonging to the family Fabaceae. It is one of the extensively used medicinal plant in Ayurveda. Asoka or Ashoka is a Sanskrit words which means “without sorrow” or which gives no grief. It is found throughout India, especially in Himalaya, Kerala, West Bengal and whole south region. Asoka 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; it is mentioned in Hindu mythology as the Asoka tree, beneath which the Indian philosopher and founder of Buddhism, Gautama Siddhartha (C 563-483 B.C.) was said to have been born under this tree. In Vrksayurveda, it has been mentioned that Asoka is one among the *Mangalyavrksa*, that is *Pada Pancaka*. The bark of Asoka has been used since time immemorial. It is used in many uterine diseases due to its strong haemostatic property and astringent effect on uterine muscles, and is called as “female tonic”. Researches have also proven its pharmacological activities like Anti - menorrhagic activity, Uterine tonic activity, Anti - oxytocic activity, Anticancer activity, Anti - inflammatory activity, Analgesic activity, Anti-diabetic activity, CNS depressant activity, Immunomodulatory activity, Cardioprotective activity etc . It is one of the most sacred and legendary trees in India with an exciting past, an emerging present and a promising future. References about Asoka can be seen from *Puranas* and *Vedas*. A review of research work done regarding ancient, and Ayurvedic properties of Asoka, *Saraca indica* Linn is mentioned here.



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## INTRODUCTION

Asoka (*Saraca indica* Linn) is a traditionally known, sacred and potent plant that is considered for its medicinal uses in different indigenous Indian systems of medicine. It occurs almost throughout India up to an altitude of 750 m in the central and in the eastern Himalayas and Khasi, Garo and Lushai hills, wild in Chittagong, Bihar, Orissa, Konkan, Deccan, S M Country, Mysore and Travancore<sup>1</sup>. The source plant of Asoka mentioned in Ayurvedic Pharmacopeia of India is *Saraca indica* Linn belonging to the family Fabaceae<sup>2</sup>. Asoka bark has been used in Indian Medicine from time immemorial for the treatment of uterine, genital and other reproductive disorders in women, ailments of the urinogenital tract, fevers and several other diseases of women<sup>3</sup>. *Acharya Charaka* mentioned it as *Vedanasthapana mahakasaya*<sup>4</sup>, *Acharya Susruta* and *Acharya Vagbhata* mentioned Asoka in *Lodradi gana*<sup>5,6</sup>.

## NIRUKTHI

*Na sokho asmat, sokhanaasacha ityartha:*<sup>7</sup>

## HISTORICAL REVIEW

The history of Ayurveda starts from *Vedic period*.

### ***Vedic period* – (5000 B C – 2000 B C)**

Ayurveda is the *upaveda* of *Atharva vedam* which contains the description of drugs and their actions. Asoka tree is worshipped on the sixth day in *Krishna paksha* (New moon) and the same day in *sukla paksha* (Full moon) of *Chaitra* (March – April). At the Asoka - *asthami* (eighth day of the light fortnight of *Chaitra*) a festival in honor of Lord Vishnu is celebrated in most parts of India, this part of the ceremony drinking water with the buds of Asoka in it<sup>3</sup>. The tree is the symbol of love and is dedicated to *Kamadeva*, the Hindu God of Love, whose arrow is made of five flowers Asoka is one among them<sup>8</sup>. Lord Shiva burned *Kamadeva* and Asoka together. The tree is mentioned in epic poetry Ramayana in reference to Asoka *vatika*, where Sita Devi, the wife of Lord Rama was stayed. It is believed to have a certain charm in preserving chastity; thus Sita Devi, when abducted by Ravana escaped from the demon<sup>3</sup>.

### ***Samhita period***

*Samhita kala* is the period in which drugs are classified into various *ganas* according to their properties and actions.

### ***Charaka Samhita***

Asoka has been mentioned in the *Vedanasthapana gana* and *kasaya skanda*. The knowledge of *rasa* of the drug *Kasaya* has been obtained first from *Charaka Samhita* <sup>9</sup>.

### ***Susrutha Samhita***

In *Dravya sangrahaniya Adhyaya*, Asoka is included in the *Lodhradi gana* and mitigates fat and *kapha*, bestows colour, destroys poison and cures *yoni dosas*.

In *Susruta Samhita*, *Asoka twak choorna* has been mentioned for *daruneeakaranam* (hardening of scar tissue) of *mrudumamsa* (formed scar tissue may be soft and has less tensile strength, easily undergo dehiscence and may delay wound healing), one among the *shahstiupakrama* of *vranachikitsa* (60 steps to promote wound healing)<sup>10</sup>.

*Asoka Pushpa* was mentioned in *Mahasugandhiagada* as remedy for *Sarpa Visha* (snake poison) <sup>11</sup>and it is also a content for *Pushpanjana* which is used for *Timira* (cataract) <sup>12</sup>.

*Acharya Susrutha* indicated the blossoming of its flowers as a characteristic of *Vasantha ritu* (spring season) <sup>13</sup>.

Asoka is one of the ingredients in *Kalyanaka lavana* in *vatavyaadhi*<sup>14</sup>.

*Ashtanga Sangraha* also mentioned Asoka in *Kasaya Skanda* <sup>15</sup> and included in *Vedanasthapana gana* <sup>16</sup>.

*Ashtanga Hridayam* enlisted the drug under *Lodhradi gana* in the name of *Gatasoka* to cure *yoni dosas*. *Vagbhata* further describes use of *Asokaghritam* in *Vatavyadhichikitsa* (anomalies caused by de-arranged *vatadosha*) <sup>16</sup> *avachooranam* (spreading over) of *Asokatwakchoorna* in *vrana* and *Asoka pushpa* in *timira* (cataract) <sup>17</sup>.

### ***Nighantu period***

Detailed description about the therapeutic indication of *Asoka* can be traced from the *Nighantu*'s. As per *Madanapala Nighantu*, *Asoka* is indicated for *Daha* (burning sensation

over whole body), *Trushna* (excessive thirst), *Visha* (affliction of poison), *Soka* (grief), *Moha* (vertigo), *Atisara* (diarrhoea) and *Vrana* (wound) <sup>18</sup>.

*Vrinda Madhava* – All the *Acharyas* had mentioned different therapeutic properties of Asoka, but no one included Asoka in the treatment of *Raktapradara*. *Vrinda Madhava* is the first *Nighantukaara* who mentioned its use in *Rakta pradara* <sup>19</sup>.

In *Bhavaprakasha*, *Madhyamakhanda*, *Asokarishta* has been mentioned for *Raktapradara* (disease condition characterized by excessive blood loss through vagina other than menstruation) <sup>20</sup>.

*Dhanwantari Nighantu* explains that Asoka possesses *Hrudya* (pleasing) and *Sandhaneeya* (con-joining) properties <sup>21</sup>.

In *Shodhala Nighantu*, Asoka is indicated for *Raktapradara* <sup>22</sup>.

*Raja Narahari* explains as Asoka cures *Daha*, *Srama* (exhaustion), *Gulma* (phantom tumor), *Sula* (pricking pain), *Udara* (ascites), *Adhmana* (abdominal distension), and *Krimi* (worm infestation) <sup>23</sup>.

In *Kaiyyadeva Nighantu* Asoka is said to be *Varnya* (improves complexion), *Grahi* (absorbs water) and *Asrajit* (pacifies disorders due to vitiated blood), and is indicated for *Daha*, *Krimi*, *Apachi* (disease pertaining to neck), *Trushna* (excessive thirst), *Sosha* (emaciation) and *Visha* <sup>24</sup>.

In *Priya Nighantu* Asoka is mentioned as *Varnya* and is indicated for *Raktapradara* (disease condition characterized by excessive blood loss through vagina other than menstruation), *Yonivyapat* (gynecological disorders), and *Visha* <sup>25</sup>.

In *Nighantu Adarsha* written by Bapalal Vaidya in 1928 A D, the origin of the drug is mentioned as *Vanga pradesha* and *Dakshina Bharat* <sup>26</sup>.

In *Raja Nighantu*, it was indicated in *srama* (fatigue), *sula* (abdominal pain) and *adhmana* (abdominal bloating) because of its *seeta virya* and *pittapaha* action <sup>27</sup>.

## Modern Period

Textbooks of the modern period such as *The Ayurvedic Pharmacopoeia of India*, *The wealth of India*, *Ayurvedic Materia Medica*, *Dravyaguna Vijnana* by P V Sharma and Gyanendra

Pandey, Text book of Dravyaguna Vijnana by Prakash L Hegde and Prof Lucas, Database on Medicinal plants used in Ayurveda Vol - III, Pharmacognosy of Ayurvedic Drugs and other journals Vol – IV, Quality Standard Of Indian Medicinal Plants Vol – 15, Some Controversial Drugs in Indian Medicine and other journals written by recent scholars also gives more information about Asoka (*Saraca indica* Linn).

### **The Ayurvedic Pharmacopoeia of India**

It is a unique book of standards describing the quality, purity and strength of selected drugs that are manufactured, distributed and sold by the licensed manufacturers in India. The Vernacular names, botanical description, parts used, posology, properties and actions, thin layer chromatography, physico–chemical parameters, important formulations, therapeutic indications, description of useful parts etc. Regarding Asoka (*Saraca indica* Linn) are mentioned <sup>28</sup>.

### **Indian Medicinal Plants**

It aims to make a contribution to the field and this unique compendium offers profiles of 500 key species with detailed taxonomic information.

Vernacular names, distribution, morphology, parts used, properties, and uses of Asoka (*Saraca indica* Linn) are mentioned <sup>29</sup>. Various references about the drug are also compiled.

### **Classification**

As per the references available in literature, the drug Asoka (*Saraca indica* Linn) comes under *rasa skanda*, *gana*, and *varga*.

**Classification of Asoka (*Saraca Indica* Linn) in *Nighantus***

SI NO	ANCIENT LITERATURE	VARGA/GANA
1	<i>Charaka Samhita</i> <sup>4,9</sup>	<i>Vedanasthampakakasaya</i> <i>Kasaya skanda</i>
2	<i>Susrutha Samhita</i> <sup>5</sup>	<i>Lodhradigana</i>
3	<i>Ashtanga Sangraha</i> <sup>15,16</sup>	<i>Kasaya skanda</i> <i>Vedanasthapana dasemani</i> <i>Lodhradi gana</i>
3	<i>Ashtanga Hrudaya</i> <sup>6</sup>	<i>Lodhradigana</i>
4	<i>Sousrata Nighantu</i> <sup>30</sup>	<i>Lodhradigana</i>
5	<i>Ashtanga Nighantu</i> <sup>31</sup>	<i>Lodhradigana</i>
6	<i>Madanadi Nighantu</i> <sup>32</sup>	<i>Ekavimsagana</i>
7	<i>Dhanwantari Nighantu</i> <sup>33</sup>	<i>Amradivarga</i>
8	<i>Sodhala Nighantu</i> <sup>34</sup>	<i>Amradivarga</i>
9	<i>Abhidanaratnamala</i> <sup>35</sup>	<i>Kashaya Skanda</i>
10	<i>Raja Nighantu</i> <sup>36</sup>	<i>Karaveeradivarga</i>
11	<i>Kaiyyadeva Nighantu</i> <sup>37</sup>	<i>Oushadhivarga</i>
12	<i>Bhavaprakasha Nighantu</i> <sup>38</sup>	<i>Pushpavarga</i>
13	<i>Saraswati Nighantu</i> <sup>39</sup>	<i>Mahavrukshavarga</i>
14	<i>Abhidhanamanjari</i> <sup>40</sup>	<i>Lodhradivarga</i>
15	<i>Priya Nighantu</i> <sup>41</sup>	<i>Hareetakyadivarga</i>
16	<i>Nighantu Adarsha</i> <sup>42</sup>	<i>Putikaranjadi varga</i>

**SYNONYMS**

Asoka (*Saraca indica* Linn) had various synonyms about the morphology, properties and action, and these are available from different *nighantus*. Synonyms are the key factor for the identification and quality control of drugs. Many synonyms indicate the native place, part used and pharmacological properties too. Synonyms are coined in the form that they will described the most peculiar feature of a drug. In *Charaka Samhita* synonyms are cautiously and exclusively used indicating the peculiar feature of a plant. Asoka is explained as a beautiful tree through its synonyms. Lot of synonyms describing its colour, smell and appearance of its flowers, bark are explained in the *nighantus*. One peculiar character of tree, abundant copper coloured tender leaves was also described through various synonyms. Various synonyms revealing its dignity are also available from *nighantus*.

Synonyms of Asoka (*Saraca indica* Linn) in *Nighantus*.

Synonyms	Sou. Ni	A. Ni	Am. Ko	Md. Ni	D. Ni	So. Ni	Ab. Rat	Ra. Ni	Kai. Ni	Bp. Ni	Sara. Ni	Sali. Ni	Ni. Ad	Ab. Ma	Pr. Ni	Ao. Ni
Asoka	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
Apasoka								+								
Chitra					+			+	+					+		
Chitrasoka									+							
Doshahari								+								
Gandhapushpa										+						
Gatasoka									+					+		
Hemapushpa	+			+		+	+	+	+	+		+		+		+
Kamasuhrudi															+	
Kamkeli						+		+		+	+	+	+			+
Kanakakusumam															+	
Kantanghridohada												+	+			
Kelika								+								
Karnapuraka	+			+	+	+	+	+	+		+			+		+
Madhupushpa						+										
Manjarika														+		
Maali											+					
Nata								+		+						
Pallavadruma								+								
Pindipushpa	+			+		+		+								
Prapallava								+								
Peetapushpa							+									
Raagi					+				+							
Raagitaru								+								
Raaji			+													
Raktaka					+		+		+							
Raktapallava								+								
Raamava								+	+							
Shadapadamajari					+											
Smaradhivaaso								+								
Sokanashana	+			+	+	+		+	+			+	+	+		+
Stripadahatidohata									+							
Subhaga				+							+					
Supushpaka											+					
Sugandha							+									
Tamrapallava		+		+			+		+	+	+					
Tavakamanjari									+							
Vanjuladruma			+					+		+	+		+			
Vichitra					+	+		+	+			+				+
Vishoka					+											
Veetasoka	+			+					+							

## INTERPRETATION OF SYNONYMS

Interpretation provides a better understanding of the identity, properties and mode of action of Asoka mentioned by different *Acharyas*. The interpretations of the synonyms are obtained from *Amarakosha*, *Sabdakalpadrumam* and *Namarupajnanam*. Synonyms with probable interpretations are given below: <sup>(46, 47, 48)</sup>

### a) Based on Morphology

#### Interpretation of synonyms (On Morphology)

SI No	SYNONYMS	INTERPRETATIONS
1	<i>Chitra</i>	Flowers possess different colours.
2	<i>Gandhapuspa</i>	The one which possess fragrant flowers.
3	<i>Hemapushpa</i>	Tree which possess golden yellow coloured flowers.
4	<i>Kanakakusumam</i>	The <i>kusuma</i> or flowers are golden coloured.
5	<i>Karnapura</i>	Flowers resembles like ear ornament.
6	<i>Madhupushpa</i>	Flowers are having <i>madhuvarna</i> .
7	<i>Manjarika</i>	Flowers are found in a group.
8	<i>Maali</i>	It possess beautiful flowers.
9	<i>Pindipushpa</i>	The flowers occur in clusters.
10	<i>Raagi</i>	Flowers are bright red in colour.
11	<i>Raktaka</i>	Flowers are red in colour.
12	<i>Supushpaka</i>	Flowers are beautiful.
13	<i>Taamrapallava</i>	It possess copper coloured leaves.
14	<i>Pallavadruma</i>	Tress are well covered with leaves.
15	<i>Prapallava</i>	Tender leaves are abundant.
16	<i>Raagitaru</i>	It's bark is reddish brown in colour.
17	<i>Raktapallava</i>	Tender leaves are red in colour.
18	<i>Kelika</i>	Commonly seen in playground.
19	<i>Nata</i>	Flowers appear to be dancing in the wind.
20	<i>Vichitra</i>	Flowers possess variant colours.
21	<i>Shadpadamanjari</i>	Bunch of flowers attracts insects.
22	<i>Tavakamanjari</i>	Flowers are sacred.
23	<i>Subhaga</i>	Handsome tree.
24	<i>Sugandha</i>	Flowers possess variant colours.



b) Based on properties and action

Interpretation of synonyms (On Properties and Action)

SI NO	SYNONYMS	INTERPRETATION
1	<i>Asoka</i>	The one which relieves <i>soka</i> .
2	<i>Anghrighataka</i>	The one which relieves <i>pain</i> .
3	<i>Apasoka</i>	The one which removes <i>soka</i> .
4	<i>Doshahari</i>	The one which pacifies <i>dosas</i> .
5	<i>Gatasoka</i>	The one which removes <i>soka</i> .
6	<i>Shadpadamanjari</i>	Flowers attracts insects.
7	<i>Sokanashana</i>	It pacifies <i>soka</i> .
8	<i>Vishoka</i>	It removes <i>soka</i> .
9	<i>Veetasoka</i>	It removes <i>soka</i> .
10	<i>Kamkeli</i>	It generates happiness.

c) Based on *prasasthibhodaka*

Interpretation of synonyms – Based on dignity

Si. No	Synonyms	Interpretation
1	<i>Raamava</i>	Tree mentioned in Ramayana.
2	<i>Smaradhivasa</i>	Abode of Kamadeva.
3	<i>Streepadahatidohada</i>	Touch with the feet of beautiful women blooms the flowers.

**Rasa Panchaka (Pharmacological properties)**

The pharmacological action of a drug depends on its *Rasa panchaka*. *Rasa panchaka* comprises of *Rasa, Guna, Virya, Vipaka and Prabhava*. Almost all *nighantus* mentioned Asoka's properties.

Showing properties of Asoka (*Saraca Indica* Linn) in *Nighantus*

SI NO	<i>Nighantu</i>	<i>Rasa</i>	<i>Guna</i>	<i>Virya</i>	<i>Vipaka</i>
1	<i>Caraka Samhita</i> <sup>9</sup>	<i>Kasaya</i>			
2	<i>Ashtanga Sangraha</i> <sup>15</sup>	<i>Kasaya</i>			
3	<i>Madanadi Nighantu</i> <sup>32</sup>	<i>Tikta</i>	-	<i>Sheeta</i>	-
4	<i>Dhanwantari Nighantu</i> <sup>33</sup>	<i>Madhura</i>	-	-	
5	<i>Nighantu Ratnakara</i> <sup>46</sup>	<i>Madhura, tuvara, katu, tikta</i>	-	<i>Seta</i>	
6	<i>Abhidhanaratnamala</i> <sup>35</sup>	-	-	-	
7	<i>Raja Nighantu</i> <sup>36</sup>	-	<i>Sisira</i>	-	
8	<i>Kaiyyadeva Nighantu</i> <sup>37</sup>	<i>Kashaya</i>	<i>Sheetala, Snigdha</i>	-	
9	<i>Bhavaprakasha Nighantu</i> <sup>38</sup>	<i>Tikta, Kasaya</i>	<i>Sheetala</i>		
10	<i>Nighantu Adarsha</i> <sup>41</sup>	<i>Kasaya, Tikta.</i>		<i>Seeta</i>	<i>Katu</i>
10	<i>A.O.Nighantu</i> <sup>45</sup>	<i>Kasaya, Tikta.</i>	<i>Laghu, Ruksha</i>	<i>Seeta</i>	<i>Katu</i>
11	<i>Priya Nighantu</i> <sup>41</sup>	<i>Tikta, Tuvara</i>	<i>Sheeta</i>		
12	Ayurvedic Pharmacopoeia of India <sup>2</sup>	<i>Kasaya, Tikta</i>	<i>Laghu, ruksha</i>	<i>Seeta</i>	<i>Katu</i>

**Karma (Pharmacological Actions)**

The *dosha* karma of the drug is mentioned in all *nighantus* and in Ayurvedic Pharmacopoeia of India. The drug has a specific action on *dhatu*s, *malas*, and *srotas*. Action on *manas* is described in *Madanadi Nighantu*. *Madanadi Nighantu*, *Dhanwantari Nighantu*, *Raja Nighantu*, *Kaiyyadeva Nighantu*, *Bhavaprakasha Nighantu*, *Nighantu Adarsha*, *Priya Nighantu*, and Ayurvedic Pharmacopoeia of India had provided information regarding its *sthanika* (local) and *sarvadehika* (whole body) actions of the drug. Its action on *krimi* is mentioned in *Madanadi Nighantu*, *Kaiyyadeva Nighantu*, *Bhavaprakasha Nighantu* and *Nighantu Adarsha*.

**Karma (Pharmacological Actions) of Asoka (*Saraca indica* Linn)**

Si No	Action on	Karma
1	<i>Dosas</i>	<i>Pittapaha</i> <sup>36</sup> , <i>Pittahara</i> <sup>42</sup> , <i>Kaphapittasamana</i> <sup>45</sup>
2	<i>Dhatus</i>	<i>Rakta: Stambaneeya</i> <sup>9, 47</sup> <i>Asthi: Sandaneeyam</i> <sup>33,46</sup>
3	<i>Mala</i>	<i>Grahi</i> <sup>2, 37, 38, 46</sup>
4	<i>Srotas</i>	<i>Raktavaha: Arsa dosa hara</i> <sup>2, 37, 38</sup> , <i>Pradara hara</i> <sup>2, 34, 40</sup> , <i>Raktajam ruja hara</i> <sup>46</sup> , <i>Gulma hara</i> <sup>36, 46</sup> .
5	<i>Manas</i>	<i>Sokaghna and Mohaghna</i> <sup>32</sup>
6	<i>Avayava</i>	<i>Hrdya</i> <sup>2, 33, 36, 42</sup>
7	<i>Sthana</i>	<i>Vishahara</i> <sup>2, 37, 38, 46</sup> , <i>Vranahara</i> <sup>33, 46</sup> , <i>Sulahara</i> <sup>36, 46, 42</sup> .
8	<i>Sarvasareera</i>	<i>Varnyam</i> <sup>2, 37, 38</sup> , <i>Sareerakantikrt</i> <sup>46</sup> , <i>Sugandhika</i> <sup>33</sup> <i>Dahahara</i> <sup>2, 36, 42, 46</sup> .
9	<i>Krimi</i>	<i>Krimihara</i> <sup>37, 38, 42, 46</sup> .

**Rogagnata (Therapeutic indications)**

**Rogagnata of Asoka (*Saraca Indica* Linn)**

SI NO	INDICATIONS	Ma Ni <sup>32</sup>	Dh Ni <sup>33</sup>	So Ni <sup>34</sup>	R N <sup>36</sup>	Kai. Ni <sup>37</sup>	B P <sup>38</sup>	Pri. Ni <sup>41</sup>	API <sup>2</sup>	Ni. Rat <sup>46</sup>
1	<i>Hrudyam</i>	-	+	-	-	-	-	-	-	-
2	<i>Sandhaneeya</i>	-	+	-	-	-	-	-	-	-
3	<i>Raktapradarahara</i>	-	-	+	-	-	-	+	+	-
4	<i>Daha</i>	+	-	-	+	-	-	-	-	-
5	<i>Srama</i>	-	-	-	+	-	-	-	-	+
6	<i>Gulma</i>	-	-	-	+	-	-	-	+	-
7	<i>Soola</i>	-	-	-	+	-	-	-	-	-
8	<i>Udara</i>	-	-	-	+	-	-	-	-	+
9	<i>Adhmana</i>	-	-	-	+	-	-	+	-	+
10	<i>Krimi</i>	-	-	-	+	+	+	-	-	-
11	<i>Varnya</i>	-	-	-	-	+	+	-	-	-
12	<i>Grahi</i>	-	-	-	-	+	+	-	-	-
13	<i>Apachi</i>	-	-	-	-	+	+	-	+	+
14	<i>Trisna</i>	+	-	-	-	+	+	-	-	+
15	<i>Sosa</i>	-	-	-	-	+	+	-	-	-
16	<i>Visha</i>	+	-	-	-	+	+	+	-	-
17	<i>Asrajit</i>	-	-	-	-	+	+	-	-	+
18	<i>Yoni vyapat</i>	-	-	-	-	-	-	+	-	-
19	<i>Soka</i>	+	-	-	-	-	-	-	-	-
20	<i>Moha</i>	+	-	-	-	-	-	-	-	-
21	<i>Atisaram</i>	+	-	-	-	-	-	-	-	-
22	<i>Vrana</i>	+	-	-	-	-	-	-	-	-
23	<i>Sotha</i>	-	-	-	-	-	-	-	+	+
24	<i>Arsas</i>	-	-	-	-	-	-	-	+	+

**USEFUL PARTS** <sup>2, 50.</sup>

Stem bark, Leaves, Flowers, Seeds.

**MATRA** <sup>2, 51, 52.</sup>

Stem Decoction: 20 – 30 gm

Stem Decoction: 5 – 10 Tola

Stem Decoction: 40 -80 ml

Seed powder: 3- 6 gm

Flower powder: 3-6 gm

*Ksheerapaka*: 10 to 20 gm

Stem *choornam*: 1-2 Tola

**AMAYIKA PRAYOGA (THERAPEUTIC USES)**

- 1) *Avachoorana* of *Ashoka twak choorna* is mentioned for *daruneeakaranam* of *mrudumamsa*<sup>53</sup>.
- 2) *Asokabeeja choorna* along with *Kshavaka*, *Jantughna*, *Anjana*, *Padmaka*, and *Bidalavana* mixed with *ghrutha* or *ghrutha* prepared out of it will cure *Kasa* <sup>54</sup>.
- 3) *Ksheera kasaya* prepared with *Asokavalkala* used *assusheetalam* is *teevrasrugharanaashanam*<sup>55</sup>.
- 4) *Asokavalkakwatha* taken along with *madhu* cures *swaraswada* <sup>56</sup>.
- 5) *Gritha* prepared out *Asokavalkakwatha* and *Yasthi*, *Gairika*, *Sahasravedhi*, *Chandana*, *Kataka*, and *Laksha* as *kalka* is said to be an ideal *Pradarashaamaka* combination <sup>57</sup>.
- 6) *Choorna* of *Asoka* flowers with water can check *Raktatisaara* <sup>58</sup>.
- 7) Aqueous extracts of *Ficus glomerata*, *Saraca indica* and *Woodfordia floribunda* is useful in uterine disorders <sup>59</sup>.
- 8) In *Vatavyadhi* – *Asoka gritha* is indicating <sup>60</sup>.

9) Asoka *twak kwatha* with cold milk in the morning will check severe bleeding per vagina<sup>58</sup>.

10) Asoka *beeja curna* with water relieves *Mutraghata* and *Asmari* <sup>61</sup>.

11) Asoka *beeja* with *vidanga*, *anjana*, *padmaka*, *vida lavana* and mixed with *gritha* cures *kasa* along with *ksavaka* <sup>62</sup>.

12) Asoka *valkalakwatha* along with milk has been mentioned in excessive blood loss during menstruation associated with pain <sup>63</sup>.

13) Asoka bark, flowers, and fruits are prescribed in combination with other drugs for the treatment of snake bite and *scorpion* sting <sup>64</sup>.

14) *Rakthapradara* - *ksheerapaka* with stem bark cures it <sup>61</sup>.

### **OUSHADA YOGA**<sup>65, 66</sup>

*Asokaristham*

*Asokagritham*

*Madhukadyavaleha*

*Devadarvyaristha*

*Mahamarichyadi taila*

*Pradarari rasa*

*Kasisadi taila*

*Kachoradi tailam*

### **FOLKLORE USE** <sup>67</sup>

#### **Root**

- Root powder mixed with water, applied to the face in case of blackish discoloration of the face
- Root powder of Asoka is found useful in the treatment of skin complications such as eczema, psoriasis, acne, dermatitis, herpes etc.
- Dried root of Asoka is found useful in paralysis and visceral numbness.

- Roots powder of Asoka used as herbal remedy for mental problems.
- The root decoction of Asoka consumed after delivery for enhanced lochial discharge.

### **Stem**

- Decoction of the stem is useful in the case of Eczema.

### **Stem Bark**

- Bark decoction administered orally in dysfunctional uterine bleeding, fever, anaemia etc.
- It is used also in uterine debility and hysteria.
- The decoction of the bark is a popular uterine tonic and sedative.
- As the bark is astringent, used in uterine affections, biliousness, dyspepsia, dysentery, colic, piles, ulcers, pimples etc.
- It is also useful in fracture of the bones.

### **Leaf**

- Decoction of the leaves given internally in case of Intestinal worms and abdominal pain.
- Tender leaves paste with rose water/ water/milk applied to the face in case of Acne.
- Tender leaves roasted with ghee, ground with coconut and then mixed with butter milk and salt is called as *tambuli* is consumed with rice is a tasty food as well as medicine for Gastritis.
- Decoction of the leaf of Asoka is very good blood purifier.
- Leaf juice mixed with cumin seeds cures pain abdomen.
- Leaf paste of Asoka along with coconut oil applied over scalp 2-3 times in a week cures dandruff and hair fall.

### **Flower:**

- Juice prepared by the flowers is said to be coolant.
- The flowers are used in the treatment of dysentery.
- Flowers pounded and mixed with water are used in the retention of urine.
- Flowers are also useful in scabies in children and other skin diseases.
- Dried flower powder of the plant Asoka is taken with milk or honey in case of diabetes.
- Asoka bark decoction is taken twice a day for the treatment of diabetes.

- The flowers are taken and cleaned properly with water. It is grinded with grated coconut, pepper, and little water and salt. To this mixture, buttermilk is added and served as *Tambuli* with rice.
- The flowers are taken and cleaned properly with water. These are taken in a vessel and to this, hot water is added. The lid is closed and let it to cool. After cooling it is filtered and only liquid is collected. To this liquid, sugar candy and cardamom are added and taken internally.
- *Pushpa Churna* mixed with water can be used in *Raktatisara*.
- Flower paste used as face pack in acne vulgaris
- Dried flowers with honey are used for itching in scrotum, joint pain, chest pain, neck pain, heartburn, sleeplessness, and breathing problems.
- Flower powder mixed with coconut oil and applied over skin for scabies and eczema

### **Fruit**

- In Assam fruits are chewed as a substitute for arecanut.

### **Seed:**

- 2-3 grams of the powders of seeds are useful in urinary disorders such as urinary calculi, burning micturition and also in fever.
- Decoction of the bark is given internally and the paste of the bark is applied externally in skin diseases.
- The decoction of the bark or wood is given in menorrhagia but not recommended for pregnant women.
- The decoction of the bark or wood is given for intestinal worms, diarrhoea, fever and gastric complaints.
- Hot infusion of flowers are useful in fever.
- Seed oil used in rheumatism and piles.

### **Botanical Identification**

The catalogue of Medicinal plants mentioned the botanical identity of Asoka as *Saraca indica* Linn<sup>68</sup>. The Indian Medicinal plants detailed the drug as *Saraca indica* Linn with the synonym *Jonesia asoca* Roxb<sup>69</sup>. Supplement to the glossary of Indian Medicinal Plants revealed the botanical identity of Asoka as *Saraca indica* Linn<sup>70</sup>. In Ayurvedic Pharmacopoeia of India, Asoka is described as *Saraca indica* Linn, belonging to the family

Leguminaceae<sup>2</sup>. In the Indian Medicinal Plants – A compendium of 500 species identified as *Saraca asoca* (Roxb.) de Wilde<sup>71</sup>. In the compendium of India medicinal Plants, the binomial nomenclature of the drug Asoka is mentioned as *Saraca indica* auct (non L.) belonging to the family Caesalpiniaceae<sup>72</sup>. In drug plants of India tree having scarlet orange flowers has been identified as *Saraca asoca* (Roxb.) de Wilde<sup>73</sup>. In Quality Standards of Indian Medicinal Plants published by ICMR, the drug is mentioned as *Saraca asoca* (Roxb.) de Wilde<sup>74</sup>. Database on Medicinal Plants used in Ayurveda Vol III mentioned it as *Saraca asoca* (Roxb.) de Wilde<sup>75</sup>.

**Botanical Synonyms:** *Saraca asoca* (Roxb.) de Wilde

*Jonesia asoca* Roxb.

Family: Fabaceae

### **Systemic Position<sup>76</sup>**

Kingdom : Plantae

Subkingdom : Tracheobionta

Superdivision : Spermatophyta

Divison : Magnoliophyta

Class : Magnoliopsida

Subclass: Rosidae

Order : Fabales

Family : Fabaceae

Subfamily : Caesalpinaceae

Genus : *Saraca*

Species : *Indica/asoca*

### **Vernacular Names<sup>2</sup>**

A vernacular name is regional name specific to a language which is given to an organism by local people, for the easy identification of an organism in a specific geological region. In biology a vernacular name of a taxon or organism also known as (a common name, English name, colloquial name, trivial name, trivial epithet, country name, popular name or farmer's name) is a name that is based on the normal language of everyday life; this kind of name is often contrasted with the scientific name for the same organism, which is Latinized. The



vernacular names of Asoka from different botanical texts like Indian Medicinal Plants, Pharmacognosy of Ayurvedic drugs, and Ayurvedic Pharmacopoeia of India are listed below:

Sanskrit: Asokah, Gatasokah.

Hindi: Ashoka

Bengali: Ashoka

Tamil name: Asogam, Asogm, Malaikkarunai, Asogu, Asokam, Sasubam.

Kannada: Aksunkar, Ashokadamara, Aksunkara.

Telugu: Asoka, Asokapatta, Vanjalamu.

Malayalam: Asokam.

Marathi: Ashoka, Jasundi.

Gujarati: Asoka, Ashopalava

Orissa: Asoka

Kashmiri: Ashok

Punjabi: Asok

Assamese: Asoka

English: Asoka

Manipur: Asoka

Arabic: Shabuqa

Urdu: Asoka

Sinhalese: Diyaratambala, Asoka, Diyaratmal

Sidha: Asoku

Burmese: Thawgabo, Thawka

Chinese: Wu you hua

German: Ashokbaum

### **Morphological Character of Family Fabaceae<sup>77</sup>**

Fabaceae is a large and agriculturally important family of flowering plants. This family is with a high degree of diversity in habit and habitat<sup>78</sup>. It includes trees, shrubs, and perennial or annual herbaceous plants, which are easily recognized by their fruit and their compound, stipulate leaves. The family is widely distributed and is the third largest land plant family in number of species, with about 765 genera and nearly 20,000 known species. 24 % of species are facing rarity and 14.6 % are in endemism in this family<sup>78</sup>.

Fabaceae is very often bearing root – nodules that harbour nitrogen-fixing bacteria. Leaves alternate or rarely opposite, pinnate or bipinnate, less often palmately compound or 3-foliolate, seldom 1- foliolate or simple, or modified into narrow phyllodes, petioles present or absent, stipules present or absent, sometimes stipules developed into spines. Flowers bisexual, rarely unisexual.

### **Morphological Character of Sub-Family Caesalpinaceae <sup>79</sup>**

#### **Distribution of Caesalpinaceae:**

It is commonly called cassia family. The sub-family contains 135 genera which are cosmopolitan in distribution. In India it is represented by 110 species and more than 21 genera. *Saraca indica* Linn in this subfamily is almost endangered in the wild <sup>78</sup>.

#### **A. Vegetative characters**

##### **Habit**

It shows great variation in habit, may be trees (*Delonix regia*, *Tamarindus*, *Caesalpinia*, *Saraca indica*, *Cassia fistula*, *Bauhinia* etc.), shrubs, undershrubs or herbs. Besides this sometimes all types of plants occur in the same genus eg; *Cassia fistula* - tree, *Cassia sophera* – shrub, *Cassia occidentalis* – undershrub, and *Cassia tora* – annual herb. *Bauhinia vahlii* is a woody climber.

**Root:** Tap root and branched

**Stem:** Erect, woody, herbaceous or climbing, branched, glabrous or covered with prickles and spines.

**Leaf:** Alternate, leaf base pulvinate, compound unipinnate (*Cassia*, *Tamarindus*), bipinnate (*Delnoix*, *Caesalpinia*) or rarely simple; stipulate. In *Bauhinia* the leaf is deeply emarginated – perhaps due to the fusion of two leaflets.

#### **B. Floral characters:**

##### **Inflorescence**

Racemose

**Flower:** Pedicellate, bracteates, zygomorphic, complete, hermaphrodite, slightly perigynous, pentamerous.

**Calyx:** Sepals 5, free, or connate, odd sepal anterior, imbricate aestivation. In tamarindus the two posterior sepals are united.

**Corolla:** Petals 5, in Tamarindus, there are only three posterior petals are totally reduced; free ascending imbricate aestivation, posterior petal is innermost.

**Androecium:** Stamens 10, free, reduction in number of stamens by the formation of staminodes. In cassia there are 3 posterior staminodes; *Saraca indica* Linn 3- 8 stamens; in Tamarindus indicus only 3 stamens and monadelphous; ditheous, introrse.

**Gynoecium:** Monocarpellary, ovary superior or slightly inferior, unilocular with marginal placentation, straight or curved, hairy; style long; stigma simple.

**Fruit:** Legume and never breaks up into seeded parts.

**Seed:** Non endospermic

**Pollination:** Entomophilous

#### **Distribution of Asoka (*Saraca Indica* Linn)**

*Saraca indica* Linn, is distributed throughout India, particularly in Central and Eastern Himalayas, ascending to 2000 ft in Kumaon, East Bengal, Khasi Hills, Chittagong and Aracan hills, forests of N Circars, Orissa, Ganjam and Mysore and southwards to Travancore. It is said to be indigenous in the eastern frontier of Bengal, but very rarely found in a wild state<sup>80</sup>. In Kerala region of Western Ghats, it is seen in Patagiri, Kaikatty and Pothundi of Palakkad district; in Thrissur, Karadipara, and Peechi of Thrissur district; in Kulathupuzha of Kollam district; in Taliparamba of Kannur and rarely in Thiruvananthapuram and Pathanamthitta districts<sup>81</sup>.

#### **Habitat and general features<sup>82</sup>**

Asoka (*Saraca indica* Linn) is a small to medium-sized, handsome, evergreen tree-quite beautiful when in full bloom with a somewhat erect, though not very straight trunk covered with greyish to dark brown scabrous bark and numerous spreading somewhat drooping branches bearing nearly sessile large abruptly pinnate leaves, one to two feet long, having

two or three pairs of large oblong lanceolate leaflets, large dense corymbs of brilliant orange-red fragrant flowers, and rigidly coriaceous or almost woody smooth turgid pods about six inches long containing four or eight seeds. The plant usually flowers from January to March and fruits appear from May onwards.

#### **A) External morphology**

**a) Leaves:** alternate, abruptly pinnate, sessile or subsessile, usually more than a foot long, with the rachis smooth and six to nine inches long. The leaves when young are drooping and have a beautiful light rose to deep crimson colour. Stipules: connate, intrafoliaceous; leaflets – opposite, four to six pairs, two to three pairs, two to three inches long, one to one and a half inches broad, glabrous, rigidly coriaceous, with slightly wavy margins, the lower pairs broad or oblong – lanceolate, the upper lanceolate.

**b) Flowers:** many, polygamous, apetalous, but pretty large and showy, on stout pedicels a quarter to half an inch long and aggregated in nearly sessile, short but large dense, almost globular generally laterally placed corymbose axillary panicles, three to four inches broad. Each flower has a small deciduous bract and subpetaloid, subpersistent, oblong spatulate ascending amplexicaul reddish bracteoles. They have a beautiful orange color as they open, but gradually the color changes to red. Calyx lobes (sepals) – four, unequal ovate to oblong, petaloid, reddish, imbricate in bud. Petals absent stamens – usually seven but may vary from five to eight, exserted; filaments – filiform, distinct about three to four times the length of the calyx lobes; anthers – reniform – oblong, incumbent, versatile, dehiscing longitudinally. Ovary- superior, stipitate with the stalk adnate below to one side of the disc, unilocular, many- ovuled; style long, filiform, declinate ending in a minute, capitate stigma.

**c) Fruit:** a rigidly coriaceous to nearly woody, somewhat smooth scimitar-shaped, dehiscent pod four to eight inches long and one and half to two inches broad tapering at both ends and reticulated on one side, with the cavity continuous within, and containing four to eight large seeds.

**d) Seeds:** non-endospermic, one to one and a half inches long, obovate or orbicular, slightly compressed, greyish smooth; hairless embryo – large with thick cotyledons. Seed size highly variable, which ranged from 2.06 to 11.56 gm. The average length and breadth of the seeds varied from 2.80 to 5.80 cm and 1.60 m to 4.10 cm respectively.





**Asoka tree**



**Leaves, Buds and Flowers of Asoka (*Saraca indica* Linn)**





**Leaves of Asoka**



**Bud of Asoka**



**Fruit of Asoka**



**Seed of Asoka**

## **CHEMICAL CONSTITUENTS**

The phytochemical studies show the presence of following chemical constituent

**Chemical constituents of Asoka (*Saraca Indica* Linn)**

Part of the tree	Chemical constituents
Whole plant	Glycosidic principles, non-phenolic, epigenetic glycoside, sterols and aliphatic alcohols <sup>83</sup>
Stem bark	Alkanes, esters and primary alcohols. It gave n-octacosanol, tannin (6 %), catechin, (+)-catechol, (-)- epicatechin, (-)-epicatechol, leucocyanidin, leucopelargonidin, procyanidin derivatives, methyl-and ethylcholesterol derivatives, minerals like silica, sodium, potassium, phosphate, magnesium, iron, calcium, strontium and aluminium <sup>84</sup>
Wood	Quercetin <sup>84</sup>
Leaves	Quercetin and its 3-O-rhamnoside, kaempferol-3-O- $\alpha$ - L rhamnoside, amyrin, ceryl alcohol and $\beta$ -sitosterol <sup>83</sup>
Flowers	Flowers Fatty acids and gallic acid; apigenin-7-O-beta-Dglucoside, cyanidin-3, 5-diglucoside, kaempferol 3-O-beta-D-glucoside, pelargonidin-3, 5- diglucoside, quercetin and its 3-O-beta-Dglucoside and sitosterol <sup>85</sup>
Pods	Pods Catechol, (-) epicatechol and leucocyanidin <sup>85</sup>  Presence of various fatty acids such as oleic, linoleic, palmitic and stearic acids <sup>86</sup> .
Seeds	Oleic, Linoleic, Palmitic, and Stearic acids <sup>85</sup>  Saracin, a lectin has been reported as an inducer of apoptosis or even mitogenic in human T – lymphocytes <sup>87, 88</sup>  Phenols, flavonoids, tannins, saponins <sup>88</sup> .

**Identity, Purity and Strength<sup>2</sup>**

Foreign matter – Not more than 2%

Total ash – Not more than 11%

Acid - insoluble ash – Not more than 1%

Alcohol – soluble extractive – Not less than 15%

Water–soluble extractive – Not less than 11%

## Ecology and Cultivation <sup>89</sup>

1. Soil and climate: The plant requires slightly acidic to neutral soils for good growth with medium to deep well-drained fertile soils. It grows well in tropical to sub-tropical situations under irrigation.
2. Nursery raising and planting: The crop can be propagated by seeds and stem grafting. The seedlings are planted in the well manured field during the rainy season.
3. Thinning and weeding: Weeding and thinning of the plants may be done as and when required usually after 15-30 days for better growth.
4. Manures, fertilizers and pesticides: The medicinal plants have to be grown without chemical fertilizers and use of pesticides. Organic manures like, Farm Yard Manure (FYM), Vermi-Compost, Green Manure etc. may be used as per requirement of the species. To prevent diseases, bio-pesticides could be prepared (either single or mixture) from *Neem* (kernel, seeds & leaves), *Chitrakmool*, *Dhatura*, Cow's urine etc.
5. Irrigation: Normally grown as rainfed crop but for better yield irrigation may be done as per requirement (weekly/fortnightly).
6. Harvesting/ post harvesting operation: Bark is removed from about ten years or older tree and then it has to be sun dried.

### 1.2.12 PROPAGATION AND CULTIVATION

It is an evergreen tree much cultivated in the garden for its very beautiful orange red flowers. Propagation from seed provides an easy and relatively rapid means of producing this species. The plants may be raised by direct sowing or by transplanting nursery beds or pots. Pruning of taproot should be avoided and it is liable to check the plant growth considerably. Saplings have been transplanted at various stages from one month old to 2 year old, with success. The seeds may be sown directly using 2 or 3 seeds per pit. Later the more robust of the plants are retained and pulled out.

Seeds should be sown shortly after gathering to prevent loss in germination, which may be from 50 to 100 percent. Young plants grow best in porous soil and if sheltered from direct sun in the earlier stages. Effect of weeding, hoeing and watering on the development of



seedling is marked. Growth is rapid, a bare stem 8 – 10 cm long is formed with 2 or 3 scale leaf nodes before the first leaf appears<sup>90</sup>.

It does best in localities with a rainfall over 200 cm. However, sites with good soil moisture are said to be suitable. If cultivated in dry localities it requires watering for several years. According to Macmillan, it thrives in shady situations and especially found along streams in the wet and semi- dry localities<sup>91</sup>.

### 1.2.13 *Bijopacara* (Seed Viability treatment)<sup>92</sup>

Seed viability treatment have been mentioned in *Vrksayurveda* very keenly and elaborately. The steps of treatment are:

- First of all, the seeds should be treated by sprinkling with milk.
- Then the seeds should be pasted with a *kalka* consisting of *brhati*, *tila*, *bhasma* and *sarsapa*. Again with cow dung and clay soil.
- Fumigation to seed with fat.

Another method mentioned was:

- The seeds should be soaked in milk and allowed for drying up.
- Then, the fine powder consisting *sarsapa*, *brihati*, *tila*, *nala* should be dusted.

#### a) **Effects of seed treatment**

Those seeds which are duly treated and preserved under proper procedures have attained good viability and they become perfect for sowing. The trees produced from such seeds (properly processed) produce flowers and fruits in ample quantity and with the best quality in attributes as well as the product itself.

#### b) **Seed Sowing**

First of all, the owner of land should take bath and wear clean garments. He should worship God, salute teacher and donate to eligible person. Give respect to *vasumatibhumidevi*. Then the person begins to start sowing the seeds and further engage family members and other persons too. After sowing material like grass or alike should be spread over the same and sprinkle water too.

## Conclusion

The literature review reveals the classical references of Asoka, that all *Samhitakaras* and *Nighantukaras* mentioned Asoka and its wide applications in different disease conditions. Vrindha Madhava was the first person who explained its action in *Rakthapradara*. Previous studies indicate that Asoka bark and its different formulations are very much popular and have tremendous action in the treatment of gynecological disorders. Seeds of Asoka have wonderful action in *mutravaha srotas*, in *Mootraghata* and *Mootrakrichra*. The word Asoka means “without sorrow or sorrow-less tree”, a reference to bark’s importance is yoshithapriya, for keeping women healthy and youthful. The bark of the tree is bitter, astringent, refrigerant, anti - helminthic, demulcent and emollient. The bark is much used by the Physicians in uterine problems and especially in menorrhagia, dyspepsia, diseases of blood, burning sensation, tumours, biliousness, enlargement of abdomen, colic, piles and ulcers. *Nighantukaras* explained its morphology and synonyms along with it’s medicinal uses. Researches have been proved it’s antimenorrhagic activity, antimicrobial activity, uterine tonic activity, anti-oxytotic activity, anti-cancer activity, anti-inflammatory activity and analgesic activity. The aim of the present review focuses on the reference of Asoka from samhitas, botanical description, phytochemical constituents, therapeutic indications and folklore indications. This review contains the Pharmacognostical account of various parts of plant, Phytochemical constituent and different reported pharmacological activity. *Saraca indica* Linn as a valuable resource for health care and suggests that more research is needed to systematically evaluate its Phytochemical, Pharmacological and clinical properties.

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