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ASOKA - SARACA ASOCA (ROXB.) DE WILDE. - DEPICTION IN AYURVEDIC LITERATURE: A CLASSICAL MEMOIR

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ABSTRACT

Asoka is a well-known medicinal plant considered as a sacred plant throughout the Indian Sub-continent. References about Asoka can be traced from puranas and vedas. Usage of Asoka in treatment has been mentioned during Samhita period. Detailed description of Asoka is available from various Nighantu's. In Ayurvedic pharmacopoeia of India; Saraca asoca (Roxb.) de Wilde. is considered as the source plant of Asoka. A thorough literary review has been done about the drug from the available classics.

KEYWORDS: Asoka, Saraca asoca, Drug review.

INTRODUCTION

Asoka is a well-known medicinal plant. Beyond medicinal importance it is considered as a sacred plant throughout the Indian Sub-continent. References about Asoka can be traced from puranas and vedas. Usage of Asoka in treatment has been mentioned during Samhita period. Acharya Charaka mentioned it as Vedanasthapanamahakashaya (group of ten pain alleviating drugs), Susrutacharya described Asoka in Vranasya Shashti Upakrama (60 treatment principles for wounds). Detailed description of Asoka is available from various Nighantu's. Nowadays owing to non-availability it's usually adulterated in the drug market. In Ayurvedic pharmacopoeia of India; Saraca asoca (Roxb.) de Wilde. is considered as the source plant of Asoka.

Etymology

The explanation of word *Asoka* is "naastishokoyasmat" which means the one which relieves or reduces soka(sorrow). [1][2][3]

MATERIALS AND METHODS

Information regarding the drug Asoka is collected from the available Nighantus in the library of Govt. Ayurveda College, Tripunithura and from online source of E – Nighantus by their thorough screening by the authors.

Classification in Ancient Treatises

Classification of Asoka in the classical texts books are summarized as below.

Table 1: Classification of Asoka in ancient literature.

Sl No	Text	Varga / Gana
1	CharakaSamhita	Vedanasthapanamahakashaya, Kashaya skandha
2	SusrutaSamhita	Rodhradigana
3	AshtangaHrudaya	Lodhradigana
4	SousrutaNighantu	Lodhradigana
5	AshtangaNighantu	Lodhradigana
6	MadanadiNighantu	Ekavimsagana
7	DhanwantariNighantu	Amradivarga
8	SodhalaNighantu	Amradivarga
9	Abhidhanaratnamala	Kashaya skandha
10	Raja Nighantu	Karaveeradivarga
11	KaiyyadevaNighantu	Oushadhivarga
12	BhavaprakashaNighantu	Pushpavarga
13	SaraswatiNighantu	Mahavrukshavarga
14	Abhidhanamanjari	Lodhradivarga
15	PriyaNighantu	Hareetakyadivarga

RESULTS AND DISCUSSION

Morphological identity of *Asoka* is well explained by its synonyms. Synonyms mentioned in various texts are tabulated below.

Table 2: Difference of opinion regarding synonyms of Asoka.

Asoka																
2 Anghrighataka	SI. No	Synonyms	SN	AM	AN	DN	NoS	RN	KN	BPN	SaliNi	NR	SaN	PN	MaNi	AONi
3 Apasoka	1	Asoka	+	+	+	+	+	+	-	+	+	-	+	+	+	+
3 Apasoka	2	Anghrighataka	-	-	-	-	-	+	-	_	-	-	-	-	-	_
4 Chitra	3		-	-	-	-	-	+	-	-	-	-	-	-	-	_
6 Gandhapushpa - + + - <t< td=""><td>4</td><td>*</td><td>-</td><td>+</td><td>-</td><td>+</td><td>-</td><td>+</td><td>+</td><td>_</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>_</td></t<>	4	*	-	+	-	+	-	+	+	_	-	-	-	-	-	_
7 Gatasoka - + -<	5	Doshahari	-		-		-			-	-	-	-	-	-	-
7 Gatasoka - + -<	6	Gandhapushpa	-	-	-	-	-	-	-	+	-	-	-	-	-	+
9 Kamkeli	7		-	+	-	-	-	-	+	_	-	-	-	-	-	_
9 Kamkeli	8	Hemapushpa	+	+	-	-	+	+	+	+	+	-	-	-	+	+
10 Kamasuhrudi	9		-	-	-	-	+	+	-	+	+	-	+	-	-	+
11 Kanakakusumam -	10	Kamasuhrudi	-	-	-	-	-		-	-	-	-	-	+	-	
12 Kelika - </td <td></td> <td></td> <td>-</td> <td>-</td> <td>_</td> <td>-</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>-</td> <td>-</td> <td></td> <td>-</td> <td>_</td>			-	-	_	-	_	_	_	_	_	-	-		-	_
13 Karnapura	12		-	-	_	-	_	+	_	_	_	-	-		-	_
14 Madhupushpa - <t< td=""><td>13</td><td>Karnapura</td><td>+</td><td>+</td><td>-</td><td>+</td><td>+</td><td></td><td>+</td><td>-</td><td>+</td><td>-</td><td>+</td><td>-</td><td>+</td><td>-</td></t<>	13	Karnapura	+	+	-	+	+		+	-	+	-	+	-	+	-
15 Manjarika - + -	14		-	-	-	-	+		-	-	-	-	-	-	-	-
16 Maali - <td>15</td> <td></td> <td>-</td> <td>+</td> <td>_</td> <td>_</td> <td></td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>-</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td>	15		-	+	_	_		_	_	_	_	-	_	_	_	_
17 Nata - <td></td> <td></td> <td>-</td> <td></td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td> <td>-</td> <td>+</td> <td>_</td> <td>_</td> <td>_</td>			-		_	_	_	_	_	_	_	-	+	_	_	_
18 Pallavadruma - <			_	-	_	-	_	+	_	+	_	-	_	_	_	_
19 Pindipushpa + + - - + + + + + + + + + + + + + + + - <t< td=""><td>18</td><td>Pallavadruma</td><td>-</td><td>-</td><td>_</td><td>-</td><td>_</td><td></td><td>_</td><td></td><td>_</td><td>-</td><td>-</td><td>-</td><td>-</td><td>_</td></t<>	18	Pallavadruma	-	-	_	-	_		_		_	-	-	-	-	_
20 Prapallava - <td< td=""><td>19</td><td>Pindipushpa</td><td>+</td><td>+</td><td>-</td><td>-</td><td>+</td><td>+</td><td>+</td><td>+</td><td>+</td><td>-</td><td>+</td><td>-</td><td>+</td><td>+</td></td<>	19	Pindipushpa	+	+	-	-	+	+	+	+	+	-	+	-	+	+
21 Raagi - - + - <td>20</td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td>	20			-	-	-	-			-	-	-	-	-	-	
22 Raagitaru -	21		-	-	-	+	-	-	+	-	-	-	-	-	-	-
23 Raaji - + - <td>22</td> <td>ŭ</td> <td>_</td> <td>-</td> <td>_</td> <td>-</td> <td>_</td> <td>+</td> <td>_</td> <td>_</td> <td>_</td> <td>-</td> <td>_</td> <td>_</td> <td>_</td> <td>_</td>	22	ŭ	_	-	_	-	_	+	_	_	_	-	_	_	_	_
24 Raktaka - + - + -<	23		_	+	_	-	_		_	_	_	-	_	_	_	_
25 Raktapallava - <	24	· · ·	-	+	-	+	-	-	+	-	-	-	-	-	-	-
26 Raamava - - - + + -<	25	1	-	-	-	-	-	+	-	-	-	-	-	-	-	+
27 Shadpadamanjari -	26		-	-	-	-	-		+	-	-	-	-	-	-	
28 Smaradhivaaso -			-	-	_	+	_	_	-	_	_	-	_	-	-	-
29 Sokanashana + + - + + + + + - - - - + - <t< td=""><td></td><td></td><td>-</td><td>-</td><td>_</td><td></td><td>_</td><td>+</td><td>-</td><td>-</td><td>_</td><td>-</td><td>_</td><td>-</td><td>-</td><td>-</td></t<>			-	-	_		_	+	-	-	_	-	_	-	-	-
30 Stripadahatidohata -	29		+	+	-	+	+		+	-	+	-	-	-	+	_
31 Subhaga - - + - - + - - + - - + - - + -<					-		-			-		-	-	-	-	_
32 Supushpaka - <td< td=""><td></td><td>_</td><td></td><td>-</td><td>+</td><td>-</td><td>-</td><td>+</td><td></td><td>-</td><td>-</td><td>-</td><td>+</td><td>-</td><td>+</td><td>_</td></td<>		_		-	+	-	-	+		-	-	-	+	-	+	_
33 Taamrapallava - - + - - + + - + - +			_	-		-	-			-	-	-		-		_
34 Tavakamanjari -			_	-	+	-	-	-	+	+	-	-		-	+	+
35 Vanjuladruma - - - - + - + - + - + - + - + - + - - - + - <			_	-		-	-	-			-	-	-	-		
36 Vichitra - - + + + + -			_	_	_	_	_	+		+	_	_	+	_	_	+
37 Vishoka - + - + - +			-	_	_	+	+				+	_		_	_	
				+	_					-		_	_	-	-	_
	38	Veetasoka	+	+	+		_		+	_	_	_	_	_	+	_

Interpretations of synonyms

Interpretation provides better understanding about the identity, properties and mode of action of *Asoka* mentioned by different *Acharyas*. Synonyms with probable interpretations are given below. [27][28][29]

Based on morphology

1. *Chitra* : Flowers possess different colours.

2. *Gandhapushpa* : The one which possess fragrant flowers.

3. *Hemapushpa* : The plant which possess golden yellow coloured flowers.

4. *Kanakakusumam* : The kusuma or flowers are golden coloured.

5. *Karnapura* : Flowers resembles like ear ornament.

6. *Madhupushpa* : Flowers are like madhuvarna.

7. *Manjarika* : Flowers are found in a group.

8. *Maali* : It possess beautiful flowers.

9. *Pindipushpa* : The flowers occur in clusters.

10. *Raagi* :Flowers are bright red in colour.

11. *Raktaka* : Flowers are red in colour

12. Supushpaka : Flowers are beautiful.

13. *Taamrapallava* : It possess copper coloured leaves.

14. *Pallavadruma* : Trees are well covered with leaves.

15. *Prapallava* : The tender leaves are special.

16. *Raagitaru* : Its wood has bright colour.

17. *Raktapallava* : Tender leaves are red in colour.

Based on properties and action

1. Asoka : The one which relieves soka.

2. *Anghrighataka* :The one which relieves pain.

3. *Apasoka* :The one which removes soka.

4. *Doshahari* :The one which pacifies doshas.

5. *Gatasoka* : The one which removes soka.

6. *Nata* :Flowers are auspicious.

7. Shadpadamanjari : Flowers attracts insects.

8. *Sokanashana* : It pacifies soka.

9. Vishoka : It removes soka.

10. Veetasoka : It removes soka.

Prashasthibodhakajanyanama's

1. Raamava : It's mentioned in Ramayana.

2. *Smaradhivaaso* : It is the abode of devatas.

3. *Stripadahatidohata* : It flowers when striken by women's legs.

Rasa panchaka&Doshakarma analysis

Acharya's explains Rasa of Asoka in a wide array. Madanadi Nighantukara explains Rasa as Tikta, where as in Dhanwantarinighantu, Rasa is said as Madhura and Kaiyyadeva Nighantu explains it as Kashaya. In majority of Nighantu's i.e. Bhavaprakasha Nighantu, Priya Nighantuand Ayurveda Oushadhi Nighantu byThayyilKumaranVaidyar explains the rasa as Tikta- Kashaya. Raja Narahari, Bhavamisra and P V Sharma explains Gunaas Sheeta. Kaiyyadeva Nighantukara added Snigdhaguna along with Sheetha, whereas Thayyil Kumaran Vaidyarin Ayurveda Oushadhi Nighantuexplained the gunaas Laghu-Ruksha. Veerya is mentioned as Sheeta by Madanadi Nighantu and Ayurveda OushadhiNighantu. Its Vipaka is mentioned only by Thayyil Kumaran Vaidyar's Ayurveda OushadhiNighantu and said as Katu. Prabhava is not at all explained by Acharya's.

Dosha karma of Asoka is explained as Pittaharam(alleviates pitta dosha) by Abhidhanaratnamala, whereas it is said to possess kaphapittahara(alleviates both pitta andkaphadosha) property by Thayyil KumaranVaidyar's Ayurveda OushadhiNighantu.

Rasa panchaka and dosha karmas of Asoka from all available nighantus are tabulated as below.

Table 3: Difference of opinion regarding Rasa panchaka of Asoka.

Nighantu	Rasa	Guna	Virya	Vipa-ka	Prabha-va	DoshaKarma
MadanadiNighantu	Tikta	-	Sheeta	-	-	-
DhanwantariNighantu	Madhura	-	-	-	-	-
SodhalaNighantu	-	-	-	-	-	-
Abhidhanaratnamala	-	-	-	-	-	-
Raja Nighantu	-	Sisira	-	-	-	Pittaharam
KaiyyadevaNighantu	Kashaya	Sheetala,	-	-	-	-

		Snigdha				
BhavaprakashaNighantu	Tikta, Kashaya	Sheetala	-	-	-	-
A.O.Nighantu	Kashaya, Tikta	Laghu, Ruksha	Sheeta	Katu	-	Kapha- pittashamanam
PriyaNighantu	Tikta, Tuvara	Sheeta	-	-	-	-

Therapeutic indications

Among *Bruhattrayee*'s, CharakaSamhita mentioned*Asoka*as *Vedanasthapana*. This indicates the ability of the drug to alleviate *vedana*(any unpleasant sensation) and resulting in *prakrutistapana*(replacing normal status of mind and body).^[31]

In SusrutaSamhita, Asoka twak choorna has been mentioned for daruneekaranam(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). AsokaPushpa was mentioned in Mahasugandhiagadaas remedy forSarpaVisha(snake poison) and it is also a content for Pushpanjana which is used for Timira(cataract). AcharyaSusrutaandVagbhata included Asokaamong Lodhradigana. Vagbhatacharya mentions the use of Asokabeeja in kasachikitsaalong withKshavaka, Vidanga, Anjana, Padmaka, Vida Lavana and mixed with Ghruta. Vagbhata further describes use of Asokaghrutam in Vatavyadhichikitsa(anomalies caused by de-arranged vatadosha), avachoornanam(spreading over) of Asokatwakchoorna in vranaand Asokapushpain timira(cataract).

In Madhyamakhanda, Asokarishta Bhavaprakasha, has been mentioned for raktapradara(disease condition characterized by excessive blood loss through vaginaother than menstruation).^[38] In Bhaishajyaratnavali, Asokaas arishtaor ghruta formulation has been mentioned as Jwarahara(anti pyretic). [39] In Chakradatta, Asokavalkalakwatha along with milk has been mentioned as teevrasrugdharanaashanam(excessive blood loss during menstruation associated with pain). [40] Vrundamadhakara added bala-varnakara (increasing strength and complexion) property to the *phalasruti*of above *yoga*. [41] In *Chikitsamanjari*, usage of Asokavalkalakwathaalong withmadhu has been said as Swarasadajith(removes hoarseness of voice). [42] In Yogamruta, ghruta prepared outofAsokavalkalakwatha and Yashti, Gairika, Sahasravedhi, Chandana, Kataka and Laksha as kalka is said to be an ideal Pradarashaamakacombination.[43]

Detailed description about therapeutic indication of *Asoka* can be traced from the *Nighantu*'s. As per *MadanapalaNighantu*, *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). Dhanwantari Nighantu explains that *Asoka* possess *Hrudya* (pleasing) *and Sandhaneeya*(con-joining) properties. In *Shodhala Nighantu*, *Asoka* is indicated for *Raktapradara*. Raja Narahari explains as *Asoka* cures *Daha*, *Srama* (exhaustion), *Gulma* (phantom tumour), *Soola* (pricking pain), *Udara* (ascites), *Adhmana* (abdominal distension) and *Krimi* (worm infestation). 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*. AcharyaBhavamisra also explains the indication of *Asoka* similar to that of *KaiyyadevaNighantu*. In *PriyaNighantu*, *Asoka* is mentioned as *Varnya* and is indicated for *Raktapradara*(disease condition characterized by excessive blood loss through vagina other than menstruation), *Yoni vyapat*(gynecological disorders) and *Visha*.

Therapeutic indications of *Saraca asoca* (Roxb.) de Wilde mentioned in different *Nighantu*'s are tabulated below.

Table 4: Difference of opinion regarding therapeutic indications in Nighantus.

SINo.	Indications	Mad.Ni	DhNi	SoNi	RN	KaNi	ВР	PriNi
1	Hrudyam	ı	+	-	ı	-	-	-
2	Sandhaneeya	-	+	-	-	-	-	-
3	Raktapradarahara	-	-	+	-	-	-	+
4	Daha	+	-	-	+	+	+	-
5	Srama	-	-	-	+	-	-	-
6	Gulma	-	-	-	+	-	-	-
7	Soola	-	-	-	+	-	-	-
8	Udara	-	-	-	+	-	-	-
9	Adhmana	-	-	-	+	-	-	-
10	Krimi	-	-	-	+	+	+	-
11	Varnya	-	-	-	-	+	+	+
12	Grahi	-	-	-	-	+	+	-
13	Apachi	-	-	-	-	+	+	-
14	Trushna	+	-	-	-	+	+	-
15	Sosha	-	-	-	-	+	+	-

16	Visha	+	-	-	-	+	+	+
17	Asrajit	-	-	-	ı	+	+	-
18	Yoni vyapat	-	-	-	ı	-	-	+
19	Soka	+	-	-	1	-	-	-
20	Moha	+	-	-	-	-	-	-
21	Atisaram	+	-	-	ı	-	-	-
22	Vrana	+	-	-	-	-	-	-

Prayojyaanga (Useful part)

Stem bark, Flowers, Seeds. [50]

Mathra (Dose)

Table 5: Dose of different officinal parts of Asoka. [51]

Officinal part	Form of medication	Dose
Stem bark	Choorna	20-30g
Stelli bark	Kashaya	50ml
Flower	Choorna	3-6g
Seed	Choorna	3-6g

Amaykaprayoga

- 1. Avachoornana of Asokatwakchoorna is mentioned for daruneekaranam of mrudumamsa.^[7]
- 2. Asokabeeja choorna along with Kshavaka, Jantughna, Anjana, Padmaka and Bidalavana mixed with ghruta or ghruta prepared out of it will cureskasa. [10]
- 3. Ksheera kashaya prepared with Asokavalkala used assusheetalam is teevrasrugdharanaashanam. [14]
- 4. Asokavalkakwatha taken along with madhu cures swarasada. [17]
- 5. Ghruta prepared out Asokavalkakwatha and Yashti, Gairika, Sahasravedhi, Chandana, Kataka and Laksha as kalkais said to be an ideal Pradarashaamaka combination. [16]
- 6. Seed of *Asoka* powdered and consumed along with water will cure *Mutraghata* and *Asmari*. [14]

Botanical Identity

Botanical name : Saraca asoca(Roxb.) de Wilde

Saraca indica Linn

Saraca confusa (Hassk.) Backer

Jonesia asoca Roxb.

JonesiaconfusaHassk.

JonesiapinnataWilld.

Family : Leguminosae–Caesalpinioideae

Chemical constituents

The phyto-chemical studies shows the presence of following chemical constituents.

Part	Chemical Constituent
Whole plant	Glycosidic principles, non-phenolic, sapogenetic glycoside,
whole plant	sterols and aliphatic alcohols ^[60]
	Alkanes, esters and primary alcohols. It gave n-octacosanol,
	tannin, catechin, (+)-catechol, (-)- epicatechin, (-)-
Stem bark	epicatechol, leucocyanidin, leucopelargonidin, procyanidin
Stelli bark	derivatives, methyl-and ethylcholesterol derivatives, minerals
	like silica, sodium, potassium, phosphate, magnesium, iron,
	calcium, strontium and aluminium ^[60]
Wood	Quercetin
Leaves	Quercetin and its 3-O-rhamnoside, kaempferol-3-O- α-L-
Leaves	rhamnoside, amyrin, ceryl alcohol and β-sitosterol
	Fatty acids and gallic acid; apigenin-7-O-beta-Dglucoside,
Flowers	cyanidin-3, 5-diglucoside, kaempferol 3-O-beta-D-glucoside,
Tiowers	pelargonidin-3, 5- diglucoside, quercetin and its 3-O-beta-D-
	glucoside and sitosterol
Pods	Catechol, (-) epicatechol and leucocyanidin ^[61]

CONCLUSION

The plant whose young leaves are coppery coloured (taamra varna) and bears yellow flowers (hema pushpa, kanaka kusuma, madhu pushpa), completely covered with leaves and possessing a bright coloured wood (raagi taru) is known as Asoka and is equated botanically to Saraca asoca (Roxb.) de Wilde of family Caesalpiniaceae. Ayurvedic pharmacodynamics of Asoka unveils that it possesses Ruksha, Sheeta property and pacifies Kapha-Pitta dosha.

Asoka has been indicated for Daha (burning sensation over whole body), Trushna (excessive thirst), Visha (affliction of poison), Soka(grief), Moha (vertigo), Atisara (diarrhoea) and Vrana(wound). Asoka also possess Hrudya (pleasing) and Sandhaneeya(con-joining) properties. The drug has been extensively used in Rakta-pradara(excessive blood loss associated with mensturation). This review may steer further scientific researches to explore all the pharmacological properties of Asoka delineated in various Nighantus (lexicons) and may be referred as a revisit of classical description of Asoka and its concurrent utility.

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REFERENCES

- 1. Sir Monnier & Williams. Sanskrit English dictionary, 16th reprint, 2011, Delhi, Motilal Barasidass Publishers Private Limited, Vol:1, p:113.
- 2. Raja RadhaKanta Deva. Editor, *Sabdakalpadrumam*, Varanasi, Chaukambha Sanskrit Series, Vol.1, p:137.
- 3. PanditHaragovindaSastri.Editor, *Amarakosham of Amarasimha with Ramasrami Commentary of BhanujiDikshita*, Reprint 2012, Varanasi, ChaukambhaSanskri Series, 2ndkandham, Vanoushadhivarga, p:202.
- 4. Shastry J L N. Illustrated Dravyagunavijnana, Study of Essential Medicinal Plants in Ayurveda, Varanasi, Choukambha Orientalia, Vol.1, p: 13.
- 5. Sharma R K and Dash B. CharakaSamhita: English translation and criticalexposition based on Chakrapanidatta'sAyurvedadipika. Chowkamba Sanskrit Series, Varanasi, 2014 Vol 1: p.100.
- 6. Sreekantha Murthy. Translator, Illustrated SusrutaSamhita, Reprint 2014, Varanasi, Chaukambha Orientalia, Vol:1, p.43.
- 7. Sreekantha Murthy. Translator, Illustrated SusrutaSamhita, Reprint 2014, Varanasi, Chaukambha Orientalia, Vol:2, p:20.
- 8. Sreekantha Murthy. Translator, Illustrated SusrutaSamhita, Reprint 2014, Varanasi, Chaukambha Orientalia, Vol:2, p:453.
- 9. GovndanVaidyar P M. Translator, Ashtangahrudaya with ArunodayaVyakhyana, 15th Reprint 2012, Kodungallur, Devi graphics, Vol:1, p:87.
- Govndan Vaidyar P M. Translator, Ashtangahrudaya with ArunodayaVyakhyana, 15th Reprint 2012, Kodungallur, Devi graphics, Vol:3, p:89.
- 11. Govndan Vaidyar P M. Translator, Ashtangahrudaya with ArunodayaVyakhyana, 15th Reprint 2012, Kodungallur, Devi graphics, Vol:1, p:594.
- 12. Sharma P V. Dravyagunavijnanam, Vol:4, Vedic Plants and History of Dravyagunavijnana, Reprint 2014, Varanasi, Choukambha Bharati Academy, p:20.
- 13. Pandey G S. Editor. Chunekar K C. Commentator, Bhavaprakasha Nighantu of Bhavamisra, Reprint 2009, Varanasi, ChoukambhaBharati Academy, p:56.

- 14. Cheppad K Achuha Warrier. Transcriber, Chakrapanidatta's Chakradatta, Kollam, Printed by S T Reddiyar, 27th Reprint, 2005; 489.
- 15. CheppadAchutaWarrier. Editor, Bhaishajyaratnavali, 5th Reprint, 2012, Kodungallur, Devi graphics, Vol:3, p:89.
- 16. SreemanNambootiri. Editor, Yogamrutam, Kodungallor, Vidyarambham Publishers, 6th edition, Reprint, 2014; 61.
- 17. SreemanNambootiri. Editor, Chikitsamanjari, Kodungallor, Vidyarambham Publications, 7th edition, Reprint, 2005; 141.
- 18. e-nighntu. Delhi, CCRAS, 2012-03-24, 2018-06-18, http://niimh.nic.in/ebooks/e-Nighantu/Ashtanga Nighantu.
- 19. PanditHaragovindaSastri. Editor, Amarakosham of Amarasimha with Ramasrami Commentary of Bhanuji Dikshita, Reprint 2012, Varanasi, Chaukambha Sanskri Series, 2nd kandham, Vanoushadhivarga, p:202.
- 20. Sharma P V. Editor, Dhanwantari Nighantu with commentary by Dr Guru Prasad Sharma, Reprint 2008, Varanasi, Choukambha Orientalia, 146-147.
- 21. R RDwiwedi. Editor, Acharya Shodhala's Shodhala Nighantu, 1st edition, 2009, Varanasi, ChoukambhaKrishnadas Academy, 123.
- 22. e-nighantu. Delhi, CCRAS, 2012-03-24, 2018-06-18, http://niimh.nic.in/ebooks/e-Nighantu/abhidhana ratnamala.
- 23. TripathiIndradeva. Editor, Raja Nighantu of Pandit Raja Narahari, Varanasi, ChoukambhaKrishnadas Academy, p:307-308.
- 24. Sharma P V. & Sharma Guru Prasad, Editor & Translator, KaiyadevaNighantu, Reprint 2013, Varanasi, ChoukambhaOrientalia, p:623.
- 25. Pandey G S. Editor, BhavaprakashaNighantu of Bhavamisra, Reprint 2009, Varanasi, ChoukambhaBharati Academy, p:500.
- 26. Kumaran Vaidyar Thayyil. AyurvediaOushadhiNighantu, 2nd edition, 1984, Kodungallur, Devi Press, p:84.
- 27. PanditHaragovindaSastri. Editor, Amarakosham of Amarasimha with Ramasrami Commentary of BhanujiDikshita, Reprint 2012, Varanasi, ChaukambhaSanskri Series, 2nd kandham, Vanoushadhivarga, p:212.
- 28. GopinathanPillaiVattaparambil. &Sethunadhan P. Editors, Sabdataravali of Sreekantheswara, Reprint 2010, Kottayam, D C Books, p:254.
- 29. Raja Radha Kanta Deva. Editor, Sabdakalpadrumam, Varanasi, Chaukambha Sanskrit Series, Vol.1, p:156.

- 30. VaidyaBapalal. Some Controversial Drugs in Indian Medicine, ChaukambhaOrientalia, Reprint: 2014; p:25-31.
- 31. Sharma R K and Dash B. CharakaSamhita: English translation and critical exposition based on Chakrapanidatta'sAyurvedadipika. Chowkamba Sanskrit Series, Varanasi, Vol 1: p.100.
- 32. Journal of Research in Traditional Medicine, Shashtiupakrama in the management of wound, Rajneesh V Giri, July-August 2017; 3(4): 110-116.
- 33. Sreekantha Murthy. Translator, Illustrated SusrutaSamhita, 5th Reprint, 2014, Varanasi, ChaukambhaOrientalia, 156.
- 34. Sreekantha Murthy. Translator, Illustrated SusrutaSamhita, Reprint 2014, Varanasi, ChaukambhaOrientalia, 178.
- 35. GovndanVaidyar P M. Translator, Ashtangahrudaya with ArunodayaVyakhyana, 15th Reprint 2012, Kodungallur, Devi graphics, Vol:1, p:89.
- 36. GovndanVaidyar P M. Translator, Ashtangahrudaya with ArunodayaVyakhyana, 15th Reprint 2012, Kodungallur, Devi graphics, Vol:1, p:594.
- 37. GovndanVaidyar P M. Translator, Ashtangahrudaya with ArunodayaVyakhyana, 15th Reprint 2012, Kodungallur, Devi graphics, Vol:1, p:594.
- 38. GovndanVaidyar P M. Translator, Chakradatta, 5th Reprint,2012, Kodungallur, Devi graphics, p:89.
- 39. GovndanVaidyar P M. Translator, Bhaishajyaratnavali, 5th Reprint,2012, Kodungallur, Devi graphics, p:125.
- 40. GovndanVaidyar P M. Translator, Chakradatta, 5th Reprint,2012, Kodungallur, Devi graphics, p:89.
- 41. Sharma P V. Dravyagunavijnanam, Vol:4, Vedic Plants and History of Dravyagunavijnana, Reprint 2014, Varanasi, ChoukambhaBharati Academy, p:20.
- 42. GovndanVaidyar P M. Translator, Chikitsamanjari, 5th Reprint,2012, Kodungallur, Devi graphics, p:134.
- 43. GovndanVaidyar P M. Translator, Yogamrutam, 5th Reprint, 2012, Kodungallur, Devi graphics, p:96.
- 44. Sharma P V. & Sharma Guru Prasad, Editor & Translator, MadanapalaNighantu, Reprint 2013, Varanasi, Choukambha Orientalia, p:623.
- 45. Sharma P V. Editor, Dhanwantari Nighantu with commentary by Dr Guru Prasad Sharma, Reprint 2008, Varanasi, Choukambha Orientalia, p.146-147.

- 46. R RDwiwedi. Editor, AcharyaShodhala'sShodhalaNighantu, 1st edition, 2009, Varanasi, ChoukambhaKrishnadas Academy, p.123.
- 47. TripathiIndradeva. Editor, Raja Nighantu of Pandit Raja Narahari, Varanasi, Choukambha Krishnadas Academy, p: 307-308.
- 48. Sharma P V. & Sharma Guru Prasad, Editor & Translator, KaiyadevaNighantu, Reprint 2013, Varanasi, Choukambha Orientalia, p:623.
- 49. Sharma P V. & Sharma Guru Prasad, Editor & Translator, PriyaNighantu, Reprint 2013, Varanasi, Choukambha Orientalia, p:223.
- 50. Sharma P V. Dravyagunavijnanam, Varanasi, ChaukambhaBharati Academy, Reprint, 2012; Vol:2, p: 616.
- 51. Sharma P V. Dravyagunavijnanam, Varanasi, ChaukambhaBharati Academy, Reprint, 2012, Vol:2, p: 617.
- 52. Kirtikar K R and Basu B D. Indian Medicinal Plants. International book ditstributers, 3rd print, 2012; p.1756.
- 53. Government of India. The Ayurvedic Pharmacopoeia of India. Part 1, Vol:1, p:17.
- 54. Blatter et al, editor; Indian Medicinal Plants with Illustrations by K R Kirtikar et al, 2nd Edition, 2012, Volume 4, Oriental Enterprises, p:1174.
- 55. https://www.britannica.com/plant/Fabales#ref595275.
- 56. Mike Dallwitz. Angiosperm families, 2009-03-22, 2016-07-23, United Kingdom, delta-intkey.com/angio/www/caesalpi.htm.
- 57. Mike Dallwitz. Angiosperm families, 2009-03-22, 2016-07-23, United Kingdom, delta-intkey.com/angio/www/caesalpi.htm.
- 58. Iyer K Narayana. & M. Kolammal. Pharmacognosy of Ayurvedic Drugs, 1st edition, Pharmacognosy Unit, Ayurveda College, Thiruvananthapuram, 1992; Vol:4, p:4-6.
- 59. Government of India. The Ayurvedic Pharmacopoeia of India. Part 1, Vol:1, p:17.
- 60. Suja et al. Pharmacognostical and phytochemical studies of an Ayurvedic drug Saraca asoca stem bark. M. Suja et al. / Journal of Pharmacy Research, 2012; 5(2): 1119-1121.
- 61. Divya K R et al. Phytochemical screening of Saraca asoca (Roxb.) de Wilde., Journal of Pharmacognosy and Phytochemistry, 2017; 6(3): 518-521.
- 62. Permender Rathee et al. Quantitative estimation of (+)-Catechin in stem bark of *Saraca* asoca Linn using HPTLC, Der Pharma Chemica, 2010; 2(1): 306-314.