



## Review Article

ISSN: 2454-5023  
J. Ayu. Herb. Med.  
2019; 5(2): 76-81  
© 2019, All rights reserved  
www.ayurvedjournal.com  
Received: 17-04-2019  
Accepted: 30-04-2019

## Critical review of *Albizia lebbek*- A multi potent drug

Samata Tomar<sup>1</sup>, Pravin Jawanj<sup>2</sup>

<sup>1</sup> HOD, Department of Agadatantra, Shri Gulabkunverba Ayurved Mahavidyalaya Chikitsalaya (SGAM), Jamnagar, Gujarat, India

<sup>2</sup> Ph.D. Scholar, Department of Ras Shastra, Institute for Postgraduate Teaching & Research in Ayurveda (IPGT & RA), Gujarat Ayurved University, Jamnagar, Gujarat, India

### ABSTRACT

**Introduction:** *Agadatantra* is the sixth branch of Ayurveda which deals with management of animate & inanimate poisoning. Due to enhancement in technology the environment is polluted & hence we come across more toxic substances which interfere with the living creature of the world. The present study is an attempt to focus on different therapeutic uses of *Shirisha* (*Albizialebeck*). It is considered as best antitoxic drug in Ayurveda. **Aim:** To study the detail about *Shirisha* in overall perspective of its therapeutic uses. **Materials and methods:** All related texts were reviewed. Relevant data was also collected from the internet. **Discussion:** On detail study, it was found that *Shirisha* is useful in 24 modalities of treatment of poisoning. It is best among all the antipoisonous drugs described in the great Trio of *Ayurveda*. It is a large tree. Its habitation covers almost all the parts of India. It can be effective in the cases of environmental poisoning. Its plantation should be recommended in the greenbelt scheme around the industrial areas. *Sushruta* had explained in air pollution *Agadas* should be released in air in *Dumdubhiswaniya* chapter of *Kalpsthana*. **Conclusion:** *Shirish* is not only used as *Vishagna* (antipoisonous) drug but it has multiple therapeutic values, which are discussed in the article.

**Keywords:** *Shirisha*, *Ayurveda*, *Vishagna*, Multiple therapeutic uses.

### INTRODUCTION

The Human being is the end product of a long process of evolution. There are elements of birds and beasts, and even plants and other living organisms, in a human being. There is a close relationship of Human with his natural environment. So, whenever a person falls sick, there is some imbalance between his own nature. Plants in one's own habitat are more beneficial for treatment than the medicines. But the physician should be well learned about the identification and therapeutic use of any drug. So here is a brief account of *Shirish* is presented.

*Acharya Charaka* also quotes about the importance of knowledge of drugs as "*Aushadham .....Visham*" (Ch. Su. 1/126) i.e. the drug is worthless without appropriate knowledge of its name, morphological identification and specific qualities and if the above criteria have been fulfilled, the knowledge about proper formulation of the same is an indispensable fact for a physician.

### SHIRISHA <sup>[1]</sup>

Botanical name : *Albizialebeck*

Family : Fabaceae (Mimosoideae)

Authority : Benth

**Synonyms:** *Visha hanta*, *Madhupushpa*, *Kapitana*, *Shyamala*, *Shukataru*, *Uddanaka*, *Barhapushpa*, *Bhandi*, *Bhandika*, *Shirisha* etc.

The importance of synonyms in prescription writing is to use the appropriate synonym name of the drug. This selection depends on the exact action he wanted from the drug, specific to the signs of patient. This practice also helps the physician to recall, for what purpose he had used that drug for treatment. For example, if doctor wants to use *Shirish* in the case of insect bite, then he should write, '*Vishahanta*' in the prescription. Synonyms are indicators of its variety, color, mode of action, habitat etc.

### \*Corresponding author:

**Prof Vd. Samata Tomar**  
HOD, Department of Agadatantra,  
Shri Gulabkunverba Ayurved  
Mahavidyalaya Chikitsalaya  
(SGAM), Jamnagar, Gujarat, India  
Email: samatatomar@gmail.com

**Vernacular names:**

Hindi : *Garso, Kalshish, Shirish, Siras, Sirin*

English : Parrot tree, Acacia amarilla, EastIndian walnut.

Bengali : *Siris, Sirisha*

Punjabi : *Sirish, Sareehn*

Gujarati : *Kalosadasado, Kaliosaras, Pilosarashio*

Marathi : *Chichola, Kalashiras, Mothasiras*

Kannada : *Bagey, Bage mara, Hombage*

Malayala : *Kuttuvaka, Nenmani*

Tamil : *Vakai*

Telugu : *Dirisena*

Nepal : *Harrasiris*

**Varieties:**

2 types : *Shweta: Albizzia odoratissima*

*Krishna: Albizzia procera*

**Classification:**

- **Charaka Samhita :**

*Shiro virechana* : Ch.Su. 2 / 3 - 6

*Vishaghna*: Ch.Su. 4/11, Ch.Su. 25/40

*Vedanasthapana*: Ch.Su. 4/18

*Sarayoni*: Ch.Su.25/49

*Kashaya Skandha*: Ch.Vi. 8/144

- **Sushruta Samhita :**

*Avasadaka*: S.Su. 36/33

*ShiroVirecana*: S. Su. 39/5

*Pitta - Nashana*: S. Chi. 7/9-13

*Vishahara*: S. K. 5/84-85

- *Ashtanga Hridaya: Kashayagana (A.H. Su. 10/31-32)*
- *KashyapaSamhita: Shirovirechana (K.Si. 4)*
- *Bhela Samhita: Shiro virechana (B.Si. 2)*
- *Bhaishajya Ratnavali: Nyagrodhadi gana (Bh.R. 86/77)*
- *Bhavaprakasa: Vatadivarga (13-14)*
- *Madanapala Nighantu:Vatadi Varga, Panchamavarga, p132, (14)*
- *Dhanwantari Nighantu: Amradi Panchamvarga, p179, (102-103)*

- *Dravyaguna Samgraha: Anupaana Varga (D.G.S.14/11)*
- *Madhava Dravyaguna : Lavanavarga, Anupaanavarga*
- *Raj Nighantu : Prabhadrdivarga (9/58-60)*
- *Raj Vallabha Nighantu : Aushadhashraya Parichcheda (6/50)*
- *Shabda Chandrika : Vrukshadi Varga (Chap.1), Triphaladi Varga*
- *(Chap. 9)*
- *Saraswati Nighantu : Mahavruksh Varga (1/34)*
- *Siddha Mantra: Kaphavaatghnavarga*
- *Sodhal Nighantu : Amradi Varga*
- *Sausruta Nighantu:Saalsaaradi Gana, Arkadi Gana.*
- *HridayaDipaka Nighantu: Ekapaada Varga (94)*
- *Abhidhana Manjari : Velladi Varga (4/84)*
- *Abhidhan Ratna mala : Kashaya Sakandha (6/2)*
- *Amarakosha: Vanaushadhi Varga (1/63)*
- *Ashtanga Nighantu: AsanadiVarga (10/84)*

**Citations from Sanskrit literature:** The delicacy, nicety and the sensitivity of the *Shirisha* flowers are compared with *Sita*. Similarly in *Kumarasambhava* of *Kalidasa*, *soukumarytaof* Goddess *Parvati* is exemplified by the *Shirisha* flowers. Its flowers are so delicate and are having pleasant smell. As *Gandha* is the property of *Pruthvi Mahabhuta*, *Shirisha* can purify the polluted air by its fragrance. Further study is needed in this context. *Shirisha* was also used for beautification in lieu of ear ornaments. *Shirisha* flowers were also extensively used in Astrological practices to predict the good crop of *Priyangu* and *Kanguni*.

**Distribution and habitat:** Fairly common through-out India from sea level to about 4000 feet. It is recorded as occurring in "Tropical Himalayas" the Central Provinces, Bombay, Konkan, South-Karnatic and drier parts of Travancore-Cochin. All soils seem to suit its growth. In South India it is very common cultivated as a shade tree, along road sides, by the side of irrigation wells, and tanks <sup>[2]</sup>.

**Habit and general features:** Moderate size to large, unarmed tree, deciduous during cold season growing to about 60 feet in height, with a dense shade-producing crown. Trunk is comparatively short, about two to three feet in diameter. The stem and branches are covered with deeply irregularly cracked dark grey to brownish bark and bear evenly bipinnate leaves having fairly large obliquely oblong leaflets, globose heads of whitish or yellowish- white sessile flowers and characteristic straw- colored strap- shaped pendulous pods. The plant blooms in hot season, usually March, April and May and fruits from September onwards but usually persist on tree even up to next March <sup>[3]</sup>.

**Bark:** Appreciably thick and rough, dark brown to grayish black with vertical & transverse deep fissures. The rind or outer bark comprises nearly a third or more of the thickness of the entire bark. On the trunks and older branches, the bark has a composite structure composed of discontinuous alternating strata of 'woody' and sub serous layers. Excluding the corky layer, the middle and inner barks which comprises the officinal tissue is nearly two thirds the thickness of the entire bark. Its outer part has a characteristic reddish-brown tinge.

**Leaf:** about 9" long, alternate, stipulate, evenly bipinnate, grooves on upper side, tapering.

**Leaf lets:** 4 – 8 pairs, opposite, short stalked, 1-2" long, ½ -3/4" broad, entire, oblong and pale.

**Flower:** Sessile or short pedicelled, all bisexual, regular, whitish or yellowish white, fragrant, calyx -0.125" long, petal-5, connate below the middle to form funnel shaped corolla, stamens-indefinite.

**Fruit:** 6'-1", straight or slightly curved, ¾ - 1 ½" broad, thin but firm, straw to yellowish brown.

**Seeds:** Non endospermic, yellowish brown, ¼ - ¾" long, ovate, horse shaped compression near margin. The name of genus is derived from Filippo del Albizzi, a native of Florence, Italy. In 1749 introduction of *A. julibriss* into cultivation is done by this Noble-minded man. 'laebach' is the species name for this plant which is derived from the Arabic name, When the wind blows and agitate the tree, the pods and enclosed seeds are said to produce the voice like an incessant rattle similar to women's chatter, That's why 'woman's tongue' is the name.

**Height:** 18-30 m

**Domestication:** : *A. lebbek* develops widely throughout the Indian subcontinent and in Thailand and Malaysia. Geographically it is very commonly seen on roadsides of the water deficient areas, West Indies and Africa has been cultivating it widely and also naturalized it in the area [4-8].

**Ecology:** It is found in semi-deciduous microphyll vine thicket on screes of quartz Sandstone Mountains, in semi-evergreen vine forests (monsoon forest) having mean annual rainfall of 1300-1500 mm and where winter is very dry. In short, it is able to withstand long, hot, dry periods and cold winters. The species also found on soils overlying basalt and laterite among sandstone boulders and basalt outcrops on breakaway slopes. It can occur on the banks of riverine sites, on stabilized dunes or low lateritic ledges above the beach. After the 1<sup>st</sup> year, droughts and frost can be tolerated by it [9].

#### Chemical constituents:

Sr. No.	Part of the plant	Chemical constituents
1	Leaf	saponins tanins and Two new tri- <i>O</i> -glycoside flavonols, kaempferol and quercetin-3- <i>O</i> - $\alpha$ -rhamnopyranosyl (1'6)- $\alpha$ -glucopyranosyl (1'6)- $\alpha$ -galactopyranosides [11,12].
2	Pod	7 dimethoxy flavone, 3',5 dihydroxy4' and N-benzoyl L Phenyl alaninol [13].
3	<i>Beeja</i> (The beans)	albiginc acid – its a triterpenoid sapogenin [14].
4	<i>Chaal</i> (Plant bark)	two saponin known as libbekenin A&B, Three Saponin albiziasaponins A, B and C [15-17] Condensed tannins (7-11%) & d-catechin, libbecacidin, isomers of leucocyanidin, friedellin-3-one, acacic acid; Echinocystic acid and $\beta$ - sitosterol, a saponin - libbekenin C - on acid hydrolysis yielded echinocystic acid, 5glucose and rhamnose. friedelan -3-one (friedelin) and $\gamma$ -sitosterol from bark [18-20]
5	<i>Sara</i> (Heart wood)	Me7lanoxetin, d-pinitol, okanin & leucopelanganidin, a stereoisomer (-) melacacidin (7,8,3',4'- tetrahydroxyflavan-3,4-diol), and libbecacidin in addition to melacacidin and melanoxetin, two new compounds – (-)2,3-cis-3,4-cis-3,4-methyl-melacacidin as its methyl ether and 3'-O-methylmelanoxetin-isolated from heartwood [21].
6	<i>Moola</i> (Tap Root)	Saponin are characterized as echinocystic acid-3- <i>O</i> -L-rhamnopyranosyl (1→5)- $\beta$ - D-xylofuranolsyl (1→4)- $\beta$ -D-glucopyranoside [22,23].
7	Inflorescence	Striterpene, Saponin glycosides, Saponin libbekenin, benzyl benzoate, benzyl acetate, and crocetin libbekenin-D,F,G & H. Flowers on stem distillation yield a sweet odoured oil having no colour-4.3%, the residue gave lupiol [24].
8	Pharmaceutical chemistry (as a whole plant)	the presence of triterpenoids, flavonoids, saponin [25,26]. Macrocyclic alkaloids, [27, 28], and Phenolic glycosides [29].

**Indigenous origin, growth, or production:** seen in India, Myanmar, Nepal, Thailand, Malaysia, Indonesia, Australia [9].

**Reproductive Biology:** Reproductive organs of both sexes are present in Shireesh. In its natural habitat, September to October is the period of flowering ; mature florescent pods remain on the tree for long periods and are available upto May-July. Flowers possesses both sexual [9]. Hence, it is considered as symbol of *Ardhnnarineshwar* (Combination of shiva and shakti according to Indian Mythology) possessing supernatural qualities, one of it is its antitoxic effect by Prabhava.

**Folk Medicine:** Folk remedial claims of *Shirish* according to Hartwell (1967–1971) is the tree is used for boils, cough, eye ailments, flu, and lung ailments; for abdominal tumors, in bowel enemas, ghees or powders. It is reported as an astringent, pectoral, rejuvenant, and tonic. The seed oil is effective in leprosy. Seed powder is useful in scrofulous swellings. Indians use the flowers in the condition of abnormally frequent and involuntary no orgasmic emission of semen [10].

#### Properties:

##### *Rasa Pancaka:*

*Rasa: Madhura, Tikta, Kasaya,*

*Guna: Grahi*

*Veerya: Anushna*

*Vipaka: Katu*

*Bija: Shukra Stambhaka*

*Doshaghnata: Tridosha*

*Rogaghnata: Twakroga, Shwasa, Shotha,*

*Agrya (Foremost- best) Aushadha for Visha Chikitsa*

**Official parts:** Stem-bark, flowers, seeds and Panchanga (whole plant).

## PHARMACOLOGICAL CONTRIBUTION:

**Anti-asthmatic activity:** A significant decrease in WBC, eosinophilic count, ESR, and 56% marked improvement is reported in the Clinical studies of stem bark decoction [30]. *Shrisha* is used for one month in the dose of 40 ml per day in cases of bronchial asthma provided percentage of 36.59% , 43.90%, 7.32% mild, moderate and marked improvement [31]. *Shirishadi GhanaVati* at a dose of 1000 mg four times in a day with water for 30 days provided marked improvement in 40% patients are improved markedly, mild improvement in 20% patients [32]. Decoction of the Inflorescence significantly protected the guinea pig from bronchospasm induced by histamine. The activity could be due to smooth muscle relaxation [33]. Aqueous extract of *Albizialebbeck* Benth. may prove protective in bronchial asthma as it has been proven to decrease histamine-induced bronchospasm in guinea pigs [34].

**Effect on anaphylactic shock:** Bark decoction reported to possess cromoglycate like action on mast cells of albino rats. Studies indicate the anti-anaphylactic activity is due to inhibition of the synthesis antibodies and suppression of T-lymphocytes [35]. Extract of Crude seeds and a dose of 0.5 mg/ml of a pure saponin fraction had displayed stabilizing action on the mast cells in the mesentery and peritoneal fluid of rats undergone anaphylaxis [36].

**Pulmonary eosinophilia:** Preliminary screening in 35 tropical pulmonary eosinophilia cases treated with extracts of *Shirishapushpa* 200 mg dose with water twice a day indicated 82%, 12% , 6% marked response, good response and poor response respectively. Zero (AE) Adverse Effects were reported in the study [37].

**Anti-tussive activity:** *Shirishavaleha* exhibits anti-tussive property. It shows significant decreased in cough episodes in comparison to control group was observed in experimental animals of sulphur dioxide induced cough [38].

**Allergic conjunctivitis:** In a comparative clinical study, *Ghana satva* of *Shirisha* bark and capsules of *Shirisha Churna* had showed significant results in all types of allergic conjunctivitis [39].

**Anti- spermatogenic activity:** Methanolic extract of pod of *Shirisha* exhibited anti-spermatogenic activity by decreasing spermatogonia count & spermatocyte, reduction in sperm motility & density and lessened the size of testes, seminal vesicle ,epididymis, and prostate in male rats [40]. The dose of 50 mg/kg body weight in male rats isolated saponin from bark of *Shirisha* administered Orally, resulted in a considerable decrease in weight of testes, seminal vesicle, epididymis & ventral prostate. No substantial changes could be observed in biochemical and hematological parameters as well [41]. Saponins extracted from seeds in the dose of 200 mg/kg shows inhibition of copper-induced ovulation in 60% of rabbits. There was also significant reduction in average number of bleeding points in the ovaries [42]. The 2% concentration of ethanolic extract of pods and root, saponins, lebbekinin-E exhibited spermicidal activity in human and rat's semen [43-45].

**Anti-diarrheal activity:** Aqueous and methanolic extracts of *Shirisha* is able to act against *E. coli* & *Salmonella species*, but Petroleum ether & hexane extracts had not exhibited such activity. All of the extracts had shown neutral activity against *Shigella* and *Candida sp* [46]. In the cases of *V. cholerae*, *A. hydrophilis* and *B. subtilis*, it has also been shown moderate activity against it [47].

**Antimicrobial activity:** The glycosides extracted from the stem bark presented anti-microbial activity against *S aureus*, *P aeruginosa*, *Trichophyton rubrum* [48].

**Anti-inflammatory activity:** At the end of 4 hr, Methanol extract of bark in the dose of 400 mg/kg inhibited 36.68% (p<0.001) oedema [49].

*Shirishavaleha* exhibited significant Anti-inflammatory activity at the end of 6 hours (60.14%, p<0.05) in compared to control group (35.55%) [50]. *Aller-7*, an *Ayurvedic* formulation of *Albizia lebbek* Benth. exhibited potent anti-inflammatory activity as various inflammatory responses because of lipoxygenase inhibition, mast cell stabilization, hyaluronidase inhibition in different *in-vitro* models tested [51].

**Analgesic activity:** The acetic acid induced writhing test had been used to measure the peripheral analgesic activity of *Shirisha*. It is observed that the bark extract at the dose of 400 mg/kg had showed significant (p<0.001) decrease in the number of writhes with 52.4% of inhibition [52]. By measuring the drug induced changes in the sensitivity of the prescreened (Reaction time 2-4 sec) mice to heat stress applied to their tails by using a medicraft Analgesiometer-N (D'Amour and Smith 1941), the central analgesic activity of the plant material was studied. The crude extract produced 61.48 % (p<0.001) delaying of tail flicking time 30 min after oral dose of 400 mg/kg. The plant extract showed longer stress tolerance capacity in the mice, indicating the possible involvement of higher centres [53]. Bark given in a dose of 250 mg/kg i.p. showed analgesic activity lesser than novalgin [54].

**Cognitive behavior and Anti-anxiety Study:** Saponins extracted from dried leaves contains n-butanolic fraction which is potent enough to inhibit baclofen-induced hypothermia and passivity in amnesic mice. The studies concluded that anxiolytic activity and nootropic activity was possessed by n-butanolic fraction [54].

**Immunomodulatory activity:** Immunomodulatory activity is more significant in *Shirishavaleha* prepared from *Sara* (Heartwood) than in prepared from *Twak* (Bark) [54].

**Hypoglycemic activity.** - Ethanolic extract of *Shirishadi* poly herbal compound demonstrates good  $\alpha$ -glucosidase and  $\alpha$ -amylase inhibitory activity Extract of *Shirisha* compound in ethanol exhibits 76.40% + 0.88% decrease in alpha amylase activity and 63.85% + 0.36% in alpha glucosidase activity with IC<sub>50</sub> 0.68 mg/ml and 2.89 mg/ml, consecutively. *Shirishadi* extracts have the dual advantage of having  $\alpha$ -glucosidase and pancreatic  $\alpha$ -amylase inhibitor action; hence, it may prove to be best drug for the management of bronchial asthma associated with diabetes mellitus. This study suggests that the ethanolic extract of *Shirishadi* polyherbal compound effectively corresponds as alpha amylase and glucosidase inhibitor. It also leads to a decrease in starch hydrolysis and thus acts as hypoglycemic as well as anti-asthmatic drug [54].

## DISCUSSION

From all the above facts given above, it is a wonder drug useful in various ailments. its ethnomedicinal claims are easily applicable and used by folk medicinal practitioners. It can be easily cultivated in arid land with optimum requirement of water. Its large tree give shadow to the walkers and its flowers and smell enhances the beauty of the path. In Metrocities, its plantation is beneficial to cope with the diseases caused by polluted air. Pharmacological contribution of *Shirisha* is discussed under various headings as Anti-asthmatic activity, Effect on anaphylactic shock, Pulmonary eosinophilia: anti-tussive activity, Allergic conjunctivitis, anti-fertility activity, Anti-diarrheal activity, antimicrobial, Anti-inflammatory activity, analgesic, Cognitive behavior and Anti-anxiety Study, Immunomodulatory activity, Hypoglycemic activity. All this function is proved in laboratories but antitoxic effect of *Shirish* is time tested. Still there is a huge scope to explore this drug on different parameters. Its availability and easy plantation methods is the next economical point for research on this drug for cheap and effective formulations for the masses. Naturalization of these tree throughout India may help GOI to fight against toxic air pollutants which are spreading in air day by day, as it is chief among antipoisonous drugs described in *Agyasamgraha* [55].

## CONCLUSION

A single drug is useful in thirteen different diseased condition with evidences are presented here. It is proved that *Shirish* is multipotent drug and can be promoted as a future drug. It's Utility can be explored in the field of environmental poisoning.

## REFERENCES

1. Bhavaprakasa Nighantu, Haritkyadi Varga/13; commontory by K. C. Chuneker, ed 2002, Chaukhambha Barati Academy Varanasi, Pg 518-519
2. Bhavaprakasa Nighantu, Haritkyadi Varga/13; commontory by K. C. Chuneker, ed 2002, Chaukhambha Barati Academy Varanasi, Pg 518-519
3. Kerala Series of "Pharmacognosy of Ayurvedic Drugs", Series I – No.-3, 1957, The Central Res. Inst., Trivendrum
4. Wealth of India, Raw material, Vol. I – A, revised edition, 2005 Council of Scientific and Industrial Research, New Delhi, Pg 126.
5. Agroforestry Database, World Agroforestry Centre (net material)
6. Bhavaprakasa Nighantu, Haritkyadi Varga /14; of Bhavaprakasa commontory by K. C. Chuneker, ed 2002, Chaukhambha Barati Academy Varanasi, Pg 519
7. El-Mousallamy. Amani MD. Leaf flavanoid of Albizia lebbeck., Phytochemistry 1998; 48(4):759-761
8. Rashid RB, Chowdhury R, Jabbar A, Hasan CM and Rashid MA. Constituents of Albizia lebbeck and antibacterial activity of isolated flavone derivatives. Saudi Pharm. J., 2003; 11(1-2): 52-6.
9. Rashid RB, Chowdhury R, Jabbar A, Hasan CM and Rashid MA. Constituents of Albizia lebbeck and antibacterial activity of an isolated flavone derivatives. Saudi Pharm. J., 2003; 11(1-2): 52-6.
10. Barua AK and Raman SP. The constitution of albigenic acid-A new triterpenoid sapogenin from Albizia lebbeck Benth. Tetrahedron, 1959; 7:19-23.
11. Asolkar LB, Kanitkar KK, Chakre OT. Glossary of Indian medicinal plants with active principle, part 1. CCRAS, New Delhi, 1992, pp.38-39
12. Chopra RN, Chopra IC, Verma BS. Supplementary to glossary of Indian medicinal plants. CCRAS, New Delhi, 1969, pp.4-5.
13. Pal BC, Achari B, Yoshikawa K, Arihara S. Saponin from Albizia lebbeck. Phytochemistry, 1995; 38(5):1287-1291.
14. Tripathi VJ, Ray AB, Dasgupta B. Neutral constituents of Albizzia lebbeck. Current Science, 1974; 43: 46-48.
15. Rayuda GVN., Rajadurai S., Occurrence of D-catechin and leucocyanidin in bark of Albizialebbeck. Leather Sci. (Madras), 1965; 12(1),21-22.
16. Shah CS., Bhattacharya AR., Pharmacognostical study of Albizialebbeck Benth. Bark, Sci. Industr. Res.,1960; 19C,199.
17. Kedare, B.S. and C.S. Tendolkar, "Destructive Distillation of Some Hardwood Species of Bombay State". J. Sci. Industr. Res., 1953; 12B, 217 - 221.
18. Shrivastava, K. Saxena, V.K. A new saponin from the roots of Albizia lebbeck. Fitoterapia, 1988; 59,479-480.
19. Rayuda GVN., Rajadurai S., Occurrence of new flavanoid of lebbecacidin and melacacidin in heartwood of Albizialebbeck. Leather Sci.(Madras), 1965; 12(10),362-363.
20. Wealth of India: A dictionary of Indian Raw Materials and Industrial Products.1st ed. Vol. I: A, New Delhi, CSIR; 2006. PP. 127-28.
21. Agrawal PK, Singh B. Chemical constituents of Albizia lebbeck. Indian Journal of Pharmaceutical Sciences, 1991;53:24-26
22. Affandi H, Nuryadin A, Read RW. Studies on natural products of Albizia sp. Biotropia 1998; 11:1-8.
23. Dixit AK and Misra LN. Macrocyclic budmunchiamine alkaloids from Albizia lebbeck. J. Nat. Prod., 60(10): 1036-1037(1997).
24. Misra LN, Dixit AK and Wagner H. N-demethyl budmunchiamines from Albizia lebbeck seeds. Phytochemistry, 39(1): 247-249(1995).
25. Maa YT, Hsiaob SC, Chenb HF and Hsu FL. Tannins from Albizia lebbeck. Phytochemistry, 1997; 46(8): 1451-1452.
26. Kumar S, Bansal P, Gupta V, Sannd R, Rao MM. Clinical efficacy of Albizia lebbeck stem bark decoction on Bronchial asthma, International Journal of Pharmaceutical Science and Drug Research,2010; 2(1):48-50.
27. Jaiswal Mandeep, Prajapati PK., Ravishanker B.,A comparative Pharmaceutico-Pharmaco-Clinical Study of Shirisharishta prepared by Twak and Sara Kastha of Shirisha w.s.r. to it's Shwasahara Effect.(MD Thesis), 2007; Dept. Rasa Shastra and Bhaishjya Kalpana I.P.G.T. & R.A, Jamnagar, Gujarat.
28. Agarawal Sweta, Baghel MS., Effect of Shireeshadighanavati in the management of TamakaShwasa w.s.r. to Bronchial Asthma. (MD Thesis), 2008; Dept. of Kayachikitsa & Panchakarma I.P.G.T. & R.A, Jamnagar, Gujarat.
29. Tripathi RM, Das PK, Studies on anti-asthamatic and anti-anaphylectic activity of Albizia lebbeck, Indian J Pharma. 1977;9(3):189-194.
30. Zamora CS, ReddyVK. Effect of histamine on blood flow to the adrenal glands of pigs, veterinary research communications 1982; 5(1): 377-382.
31. Johri, R.K., Zutshi, U., Kameshwaran, L., and Atal, C. K. Effect of quercetin and Albizzia saponins on rat mast cell. Indian J. Physiol Pharmacol 1985; 29(1):43-46.
32. Shaw BP, Bera B, Treatment of tropical pulmonary eosinophilia with Shirisha flower (Albizia lebbeck Benth.) churna. Nagarjuna, 1986; 29 (6):1-3
33. Shaw BP, Bera B, Treatment of tropical pulmonary eosinophilia with Shirisha flower (Albizia lebbeck Benth.) churna. Nagarjuna, 1986; 29 (6):1-3
34. Shyamlal Singh Yadav, Galib, Prajapati PK, Ravishanker B, Asok BK., Evaluation of Anti-tussive activity of Shirishavaleha - An Ayurvedic Herbal Compound Formulation in Sulphur Dioxide induced Cough in mice, Indian Drugs, 2010; 47(9):38-41
35. Mukhopadhyay B., Nagarjana K., Sharma K. R., J. Res. Edu. Ind.Med. 1992;11(4):17-23
36. Gupta RS, Kachhawa JB and Chaudhary R. Antifertility effects of methanolic pod extract of Albizia lebbeck Benth. in male rats. Asian J. Androl., 2004; 6(2): 155-159
37. Gupta RS, Chaudhary R, Yadav RK, Verma SK and Dobhal MP. Effect of Saponins of Albizia lebbeck Benth. bark on the reproductive system of male albino rats, J. Ethnopharmacol., 2005; 96(1-2): 31-36.
38. Vohora SB, Khan MS. Antifertility studies on unani herbs. Part 3. Antivulatory effects of two plant saponins, Indian J.Pharm 1974; 36:77-79.
39. Settee B.S., Kamboj V.P., Garg H.S., Kanna N.M., Spermicidal potential of saponin isolated from Indian medicinal plants. Contraception, 1976, 14(5):571-578.
40. Settee B.S., Kamboj V.P., Garg H.S., Kanna N.M., screening of Indian plants for biological activity part VII, spermicidal activity of Indian plants. Ind. J. Exp. Biol. 15, 231-232.
41. Varshney IP, Vyas P, Srivastava HC, Singh PP., Study of Albizzia lebbeck Benth wood saponin, Lebbekanin-E, Natl Acad Sci Lett (India), 1979; 2(4): 135-136
42. Acharya S. Patra A.Prasasnta K. Evaluation of the Antimicrobial Activity of Some Medicinal Plants against Enteric Bacteria with Particular Reference to Multi-Drug Resistant Vibrio cholera, Tropical Journal of Pharmaceutical Research, 2009; (3):231-237
43. N.B. Ganguly and E.M. Bhatt. Mode of action of active principle from stem bark of Albizia lebbeck. Indian J Exp Bio. 31:125-129(1993)
44. Bhatnagar S. S., Santapau, H., Desa, J. D. H., Maniar, A. C., Ghadiyally, N. C., Soloman, M. J., Yellore, S. and Rao, T. N. S., Biological activity of Indian medicinal plants. Part I. Antibacterial, antitubercular and antifungal action. Indian J Med Res, 1961; 49: 799-813.
45. Achinto Saha, Ahmad Muniruddin, The analgesic and anti-inflammatory activities of the extract of Albizia lebbeck in animal model, Pak. J. Pharm. Sci., 2009; 22(1):74-77.
46. Shyamlal Singh Yadav, Galib, B. Ravishanker, Prajapati P. K., As Shyamlal Singh Yadav, Galib, B. Ravishanker, Prajapati P. K., Asok B. K., Varun B. Anti-inflammatory activity of Shirishavaleha - An Ayurvedic compound formulation. International Journal of Ayurveda Research,2010;1(4):205-7
47. Pratibha N, Saxena VS, Amit A, D'Souza P, Bagchi M and Bagchi D. Anti-inflammatory activities of Aller-7, a novel polyherbal formulation for allergic rhinitis, Int. J. Tissue. React., 2004; 26(1-2): 43-51.
48. Achinto Saha, Ahmad Muniruddin, The analgesic and anti-inflammatory activities of the extract of Albizia lebbeck in animal model, Pak. J. Pharm. Sci., 2009; 22(1):74-77
49. Whittle BA. The use of changes in capillary permeability in mice to distinguish between narcotic and non-narcotic analgesics. 1964; Br. J. Pharmacol. Chemo- therp., 22: 246-253.
50. Gupta R.A., Singh B.N., Singh R.N.,J. Screening of ayurvedic drugs for analgesic activity. Sci. Res. Plant Med. 1982; 3:115-117.

51. Chintawar SD, Somani RS, Kasture VS and Kasture SB., Nootropic activity of Albizia lebbeck in mice. J. Ethnopharmacol., 2002; 81(3): 299- 05.
52. Kasture VS, SB, Pal SC, Anticonvulsant activity of Albizzia lebbeck leaves, Indian journal of Experimental Biology. 1996; 34(1):78-80.
53. Shyamlal Singh Yadav, Galib, B. Ravishankar, Prajapati P. K., Ashok B.K., Evaluation of Immunomodulatory activity of "Shirishavaleha" - An Ayurvedic Compound formulation in albino rats. Journal of Ayurveda and Integrative Medicine 2011; 2(4): 192-6.
54. Kajaria D, R, Tripathi J, Tripathi YB, Tiwari S. In-vitro  $\alpha$  amylase and glycosidase inhibitory effect of ethanolic extract of antiasthmatic drug - Shirishadi. J Adv Pharm Technol Res 2013;4:206-9.
55. Vagbhat. Ashtang Samgraha Sutrasthanam 13/4 Kaviraj Atridev Gupta; Chaukhamba Krishnadas Academy Varanasi; reprint 2005;

#### HOW TO CITE THIS ARTICLE

Tomar S, Jawanjal P. Critical review of Albizia lebbeck- A multi potent drug. J Ayu Herb Med 2019;5(2):76-81.