

A Critical review of Anti-Poisonous Properties of *Shirish* (*Albezia Lebbeck*)**1. Dr. Datal Sheila B.**

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Abstract

Agadatantra is one of branch of Ayurveda which deals with not only signs and symptoms of *Visha* (poison) but also its treatment. There are many modalities of treatment for *Visha* have described in Ayurvedic texts. Uses of *Agad Kalpa* (anti poisonous formulations) are one of the modality of treatment which is used on large scale. In these *Agada Kalpa* many *Vishaghna* (anti poisonous) *Dravyas* are used. Our Acharyas has already mentioned that *Shirish* (*Albezia lebbeck*) is one of the best *Vishaghna Dravya*. Synonyms & properties of *Shirish* in *Nighantu Granthas* also proved its anti poisonous property. Many research articles proven its therapeutic efficacy but anti poisonous effect is not yet proven. *Shirish* plant contains chemical constituents like saponins, tannins which have anti poisonous property. In Ayurvedic texts mainly *Brihatrayee* mentioned *Shirish* in many *Agada Kalpa*. There are total about 44 antipoissonous of *Shirish* are described according to their route of administration like *Nasya*, *Pan*, *Anjan*, *Lepa* etc. They also categorised with respect to type of poisoning such as number of *Kalpas* are used in all poisoning or in snake, or in rat, or in frog, or in spider bite etc. It is used as one of the ingredient of *Kalpa* or as main ingredient or only it is an ingredient in *Agada Kalpa*. All parts of *Shirish* are used in *Agada Kalpa* for treatment of almost all types of poisoning & it can be used by all routes of administration. It is need to further research in antipoissonous property of *Shirish*.

Key words – *Agadatantra*, *Vishaghna*, *Shirish*, *Agad Kalpa*, *Anti poisonous*

Introduction-

A*gadatantra* is one branch of *Ashtanga Ayurveda* mainly deals with signs & symptoms produced by various types of poison with their general as well as specific management and their antidotes. *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Samgraha* & *Ashtanga Hridaya* are main texts of *Ayurveda*. In these *Samhita's* Acharya have mentioned that *Shirish* (*Albezia lebbeck*) is an important *Vishaghna* (anti poisonous) herb. Also it is a one of the main content of *Vishaghna Mahakashaya*^[1] and *Ekasar Gana*^[2] which are well known antidotes for all types of poisons – Animal as well as vegetable and synthetic. Acharyas mentioned that all five parts of *Shirish* tree i.e Root, Bark, Flower, Fruit & Leaves are having antipoissonous properties. For example the antipoissonous preparation namely *Panchashirish Agad*^[3] is prepared by using *Panchanga* (five parts) of *Shirish*.

As per modern pharmacognosy *Shirish* tree is belongs to *Mimosoidae* family. The tree *Albezia*

lebbeck (L.) Benth is locally known as *Shirish*. It is tall, unarmed deciduous woody tree of 12-21 m in height. It is an ornamental plants cultivated in garden because of its pleasant appearance. Also it is cultivated many parts of India from plains up to 900 m in Himalayas also in the regions of Andaman. Because of easily availability, more therapeutic actions and potent antipoissonous activity it has been used in the variety of diseases and in cases of poisoning.

Many Research articles were elaborate the therapeutic efficacy of *Albezia lebbeck* in many ways but it's antipoissonous properties can't be critically studied with respect to anti poisonous formulations (*Agad*) which are described in *Brihatrayee* by *Charaka*, *Sushruta* & *Vagbhata Acharya*. This Review article includes critical evaluation of various *Ayurvedic* texts, scriptures and also recent advances and relevant topics related to *Albezia lebbeck*. This article enlightened critical evaluation of anti poisonous activity of *Shirish* tree comparison with pharmacological efficacy.

Materials And Methods –

This critical review mainly based on Ayurvedic texts *Brihatrayee*, *Nighantu Grantha* and various published article. This review was carried out with respect to following steps.

1] Drug Description –

a) Taxonomy –

Family- Mimosoideae

Genus- *Albezia*

Species- *Lebbeck*

b) Classical Categorization –

1) **Charaka** – *Vishaghna* (group of anti poisonous herbs), *Vedanasthapana*^[4] (analgesic group of herbs) *Shirovirechana* (group of herbs used to cleanse & detoxify sense organs & brain *Kashaya skanda* (astringent group of herbs)

2) **Sushruta** – *Salsaradi gana*^[5]

3) **Vagbhata** – *Asanadi Gand*^[6]

c) Properties –

Guna (qualities)- *Laghu* (light to digest), *Rooksha* (dry), *Teekshna* (piercing)

Rasa (taste)- *Kashaya* (astringent), *Tikta* (bitter), *Madhur* (sweet)

Vipaka (taste conversion after digestion)- *Katu* (pungent)

Veerya (potency) – *Ishat Ushna* (slightly hot)

Effect on Tridosh - *Tridosahar* (balances all three *Doshas*)

Parts used- Bark, seeds, leaves, flowers

Dose- powder- 3-6 g, Water decoction- 50-100 ml, Fresh juice- 10-20 ml

2] Pharmacokinetic & Pharmacodynamic study –

a) Properties of shirish as per Ayurvedic texts have been mentioned in tabulation form.

Table 1

CHARACTERS	DHANVANTARI NIGHANTU	MADANPAL NIGHANTU	KAIYAD EV NIGHANTU	BHAVPRAKASHA NIGHANTU	RAJNIGHANTU
GUNA	<i>Laghu</i> (light),		<i>Laghu</i>	<i>Laghu</i>	
KARMA	<i>Vishaha</i> (anti poisonous), <i>varnya</i> (complexion)	<i>Varnya</i>		<i>Vishaghna</i>	<i>Sheeta, vishahar, vatahar</i>

RAS	<i>Tikta</i> (bitter)		<i>Tikta, kashaya</i> (astringent)	<i>Madhur</i> (sweet), <i>tikta, kashaya</i>	<i>Katu</i> (pungent)
VEERYA	<i>Ushna</i> (hot)	<i>Sheeta</i> (cold)	<i>Anushna</i> (mild hot)	<i>Anushna</i>	<i>Sheeta</i>
VIPAKA	--	--	--	--	--
DOSHAGHATA	<i>Tridosha</i>			<i>Tridosha</i>	<i>Vata</i>
ROGAGHATA	<i>Kushtha</i> (leprosy), <i>kandu</i> (itching), <i>twak vicar</i> (skin diseases), <i>shwas</i> (dyspnoea), <i>kas</i> (cough)	<i>Visha Chikitsa, Visarpa</i> (erysipals), <i>Shotha</i> (swelling)	<i>Visarpa, shotaha, kas, vishaja rog, vranahar</i>	<i>Shotha</i> (swelling), <i>visarpa, kas</i> (cough), <i>vranahar</i> (injury), <i>visha</i>	<i>Pama, raktavikar, kushtha, kandu, twak vicar</i>

b) Phytochemical (chemical constituent)-

Flowers, pods, seeds & wood of plant contain saponins particularly labekanins and sapogenins. Bark- contains gum, tannins, d-catechin & d-leucocyanidin, friedelanone & B-sitosterol. Leaves- contain echynocystic acid, flavones & vicenin 11, B-sitosterol. Seeds contain mixture of sapogenins, labbekanins A & B, echynocystic, oleanolic acid, triterpenoid and saponins. Seed oil contains fatty acid oleic, linoleic, linolenic, arachidic & behemic acids.

Flowers yield triterpenoid, saponin labbekanin D & four saponin glycosides, labbekanins D, F, G, & H. Wood contain saponin labbekanin E, malanoxetin, d-pinitol, okanin, lucopelargonidin, melacacidin & its 3 me ether & melanoxetin & its 3 me ether. Lupeol, oleanolic acid, decosanoic acid, B-sitosterol & new acyclic ester have been isolated from plant. Pods also yield albigenic acid.

C] Therapeutic uses of Shirish-

a) As per Ayurveda - *Vishaghna* (Shirish is best among all herbs that are useful to treat poisoning), *Shothahar* (relieves inflammation), *Visarpaghna* (relieve herpes), *Kasahar* (relieve cold & cough), *Vranahar* (quick wound healing), *Varnya*

(improve complexion), *Kushtaghna* (useful in skin diseases), *Kandughna* (relieve itching), *Twaka Doshahar* (detoxify skin), *Shwasahar* (useful in asthma) etc.

b) As per Pharmacology - According to modern science many therapeutic effects have been proved. Likewise it is used as Anti- inflammatory, Analgesic, Anti- asthmatic, Anti- Allergic, Anti-diarrheal, Nootropic & Anxiolytic, anti microbial, anti ulcer, anti oxidant, diuretic effect, role in allergic conjunctivitis, hepato protective, gums & teeth protective etc.

D] Anti poisonous activity of Shirish –

Acharyas have mentioned various anti poisonous formulations while describing treatment of poisoning. Among these formulations which are mainly contains *Shirish* are enlisted below with respect to Route of administration of medications.

Observation & Results

Shirish plant has a remarkable reputation due to its therapeutic efficacy. It is considered as a potent Anti poisonous drug. It can be prescribed to the treatment of bites and stings from venomous animals. Near about 44 anti poisonous formulations which are having *shirish* as and one of the ingredient or main ingredient or only one ingredient are studied in this critical evaluation. These anti poisonous formulations are described in *Brihatrayee*.

These anti poisonous formulations can be classified as per their route of administrations-

Table 2

Sr.No.	Anti poisonous formulations	Route of Administration	No.of Formulation
1	Agad preparation	By all routes	14
2	Yog preparation	By all routes but more Pan & Lehan	13
3	Lepa preparation	External topical application	6
4	Pratisaran preparation	External rubbing application	3
5	Nasya preparation	Nasal	3
6	Ghruta preparation	Pan, Abhyanga, Anjan, Nasya	3

7	Dhupan	Inhalation	1
8	Vamaka Yog	Pan	1

All these anti poisonous preparations are useful in following types of poisoning.

Table 3

SR.NO.	TYPES OF POISONING	NO. OF FORMULATION
1	All Visha	13
2	Mushaka Visha	6
3	Sarpa Visha	4
4	Vruschik Visha	4
5	Keeta Visha	3
6	Luta Visha	3
7	Manduka Visha	2
8	Keeta & Luta Visha	2
9	In comatose stage of poisoning	4
10	Keeta, Sarpa, Luta & Vruschik	1
11	Vishalipta Shalya (poisoned arrow)	1
12	Dantakashthagat & Jivhanirlekhangat Visha	1

Discussion

Anti poisonous mechanism of *shirish* plant can be elaborated in both ways as per *Ayurvedic* & Modern pharmacology. As per *Ayurvedic* classical texts *shirish* is having *Kashaya, Tikta & Madhur Ras* (taste), *Ishat Ushna Veerya, Tridoshashamaka* effect. It is also *Shothahar, Kushtaghna, Vishaghna, Twaka vikar nashak & Vedanashamaka* etc. *Madhur, Tikta* and *Kashaya Rasa* has anti poisonous property. Due to these *Rasa Shirish* tree counteracts the properties of *Visha* and nullifies the effect of *Visha*. Acharyas have mentioned that *Shirish* tree acts as Antidote due to its *Prabhava*. *Kashaya Ras* also help in wound healing process in animals bite. It clears the Vitiation of *Tridosha* as it has *tridoshashamaka* property. And due to its *Vedanashamaka & Shothahar Guna* it is beneficial in cases of snake bite, insect bite, scorpion bite etc.

As per modern pharmacology phytochemical profile of this plant shows Bark contains 7-11% tannins. Tannin is an astringent which precipitate proteins and organic compounds like amino acid & alkaloids which are active ingredients in many toxic plants. Thus it has anti poisonous activity. Saponins

are present in parts of *shirish* plant. Saponin leads to hydrolysis of glycosides which is active ingredient in many toxic plants. By destroying these active principles *shirish* act as an antidote of various poisons.

In conjunction with activated charcoal and magnesium, tannic acid was once used as a treatment for many toxic substances such as strychnine, mushroom and ptomaine poisoning in the late 19th & early 20th centuries.^[7] The introduction of tannic acid treatment of severe burn injuries in the 1920 s significantly reduced mortality rates ^[8]. Also tannic acid dressing was prescribed during World War I, to treat burns whether caused by incendiary bombs, mustard gas or lewisite^[9].

Conclusion

As per *Ayurvedic* classics the *Shirish* tree has been recognised as a potent anti poisonous property. All parts of *shirish* are used in formulation of anti poisonous remedies. And by all means of routes of administration like *Pan, Nasya, Anjan* etc. And *shirish* is used during the treatment of various, almost all types of poisoning.

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