A Critical Review on Shirisha (Albizia Lebback) and Its Formulations with special reference to Visha Chikitsa (Management of Poisoning)

Chalakh Sonali¹* and Kadu Amol²

¹,²Dept. of Agadtantra, MGACH & RC, Salod, Wardha (MH), India

Abstract
Ayurveda is a part of science of wholesome living. Majority of medicine mentioned in Ayurveda are plant based. Agadtantra (Toxicology) is specialized branch of Ayurveda that highlights the different mode of poisoning & its management. While treating different cases of poisoning different modality of treatment are used. Agada (Antidote) is one of the modality which is prepared by the combination of different anti-poisonous herbs. Shirisha (Albizia Lebbeck) is one of the important herbs having a broad range of therapeutic effect. Apart from that in classical textbook it is mentioned as a vishaghna. So present review is aimed to compile up the updated data and highlight the vishaghna property on its pharmacological activity. After compelling the data it was found that near about 12 Agadas contain Shirish which is mostly used in cases of poisonous bite. Scientific researches show its anti-histaminic, anti-allergic, Antiulcer, hepatoprotective, anti-bacterial activity, on this basis it is concluded that our Acharyas’ perception about Shirish as an anti-poisonous is very factual.

Keywords
Shirish, Albizia Lebback, Vishaghna, Agad, Anti-poisonous herb
INTRODUCTION
Ancient toxicological aspect is well described in one of the branch of Ayurveda, which is known as Agadtantra. In Agadtantra detailed description about Visha, its classification, mode of administration of poison its symptoms is well described. After explanation of all these contents some modalities is described in the treatment of Visha. Out of that one of the modalities is use of Agadas which act against Visha. These Agadas is anti-poisonous formulation which is prepared by combination of several drugs. Many Agadas are describe in Samhita including their indication & method of administration. Ancient sage of Ayurveda has illustrated many herbs as a Vishghna. But one of the most important & commonly used herbs in many Agadas is Shirisha (Albizia Lebbeck). It is a tall tree belonging to Mimosoideae family. It is grown all over India. Acharya Bhavprakash mentioned two types of Shirish. Shweta & Krishna (Albizia lebbeck) variety is easily found but Shweta Shirish (Albizia procera) is very rare. While describing its properties Acharya mentioned that it has Madhur Rasa, Anushna Veerya & Tikta Vipak. It is Tridoshshamak. Its action is Shothhara (anti-inflammatory), Vedanasthapan (analgesic) Varnya (complexion promoter), Vrishya (Spermatogogue), Vishaghna (antipoisonous) Shirovirechana (Nasya), Chakhushya (beneficial to eyes) Stambhana (anti diarrhoeal) Raktashodaka (Blood purifier) & Kaphaghna (antitussive).

In Samhita Acharya mention Shirisha as a Vishghna dravya. But its action as an antipoisonous agent is not proven so this review is a small attempt to explore its antipoisonous activity on literature based.

Chemical Constituent:
Spider Poisoning: Application of the paste of Shirisa, Katabhi (Careya arborea), Arjun (Terminalia Arjuna), Shlesmantak (Cordiya diachotoma) to the bite of spider. Rat bite: Paste of Shirisa and Inguda (Balanites Aegyptiaca) should be taken with honey. Scorpion bite: Flowers of Shirisha, Karanja (Pongamia pinnata), Kushtha (Saussurea lappa), Manshila (As$_2$S$_2$), Kashmira (Gmelina arborea) destroy the scorpion poison.

**Insect Bite:**
Shirisa seeds mixed with Pippali (Piper longum) powder are impregnated thrice with Arka latex. This formulation destroys poisons of insects. In the management of rat bite application of paste of Shirish, Rajani (Rubia cordifolia), Vakra (Pistacia integramniya) Kumkum (crocus stivus), Amrutavalli (Tinospora cordifoliya).

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Formulation</th>
<th>Important Ingredients</th>
<th>Indications</th>
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<tbody>
<tr>
<td>1.</td>
<td>Shirisharisha</td>
<td>Shirish, Priyang (Callicarpa macrophylla), Kushtha, Elat, Nagkesha (Mesuea ferrea), Haridra (Curcuma longa), Daruharidra (Berberis Asiatica), Suth.</td>
<td>In all cases of poisoning$^{11}$.</td>
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<tr>
<td>2.</td>
<td>Shirishabjadi lepa</td>
<td>Ark, Shirish, Pimpali,</td>
<td>Insect, snake, spider, Scorpion Bite$^{12}$.</td>
</tr>
<tr>
<td>3.</td>
<td>Shirishadya anjana</td>
<td>Shirish, Pimpali, Marich, Saindhav lavan, Lahsun (Allium stiva), Manshil, Vacha</td>
<td>In unconscious patient$^{13}$.</td>
</tr>
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<td>5.</td>
<td>Dashanga lepa</td>
<td>Shirish, Mulethi, Tagar, Lalchandan, Chhoti ilayachi, Jatamansi, Haridra, Daruharida, Kushtha, Netrabala</td>
<td>Visarpa, kushtha, Jwar, Shoth$^{19}$.</td>
</tr>
<tr>
<td>7.</td>
<td>Amrut Ghrut</td>
<td>Apararg, shirish, Shweta, Mahshweta, Kakmachi, Cow’s urine</td>
<td>Comatose patient$^{17}$.</td>
</tr>
<tr>
<td>8.</td>
<td>Tanduliyak Agad</td>
<td>Tanduliyak, Kashmarya, Kinhti, Girikarnika, Matulungi, Sita, Shehu</td>
<td>Rajiman snake bite$^{18}$.</td>
</tr>
<tr>
<td>10.</td>
<td>Sarvkarimik Agad</td>
<td>Vansh, Amalki, Kapithha, Trikatu, Haimvati, Kushtha, Karanjabeej, Tagar, Shirisha</td>
<td>Spider Bite$^{20}$.</td>
</tr>
</tbody>
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Pharmacological Activity

**Anti asthmatic Activity:**
Clinical studies of stem bark decoction reported significant decrease in WBC, eosinophilic count, ESR, and 56% marked improvement in case of bronchial asthma. Decoction of the flower in the dose of 50mg/kg body weight has significant action against histamine induced bronchospasm. The activity could be due to smooth muscle relaxation.

**Antianaphylactic Activity**
The bark decoction had a significant cromoglycate like action on the mast cells of albino rats and appeared to also inhibit the early process of sensitization & synthesis of reaginic type of humoral antibodies. The studies indicated that the anti-anaphylactic activity of A. lebbeck due to cromoglycate action on the mast cells, is also due to inhibition of the synthesis antibodies and suppression of T-lymphocytes activity.

**Analgesic & Anti inflammatory effect:**
The extract of the bark of Albizia lebbeck obtained by cold extraction of mixture of equal proportions of petroleum ether, ethyl acetate and methanol was prepared. In rat oedema was induced by carrageenan, the extract at the 400 mg/kg dose level showed 36.68% (p<0.001) inhibition of oedema volume at the end of 4 hours. In the acetic acid-induced writhing test, the extract at the 200 and 400 mg/kg dose level showed 39.9% and 52.4% inhibition of writhing, respectively. In radiant heat tail-flick method the crude extract produced 40.74% (p<0.001) and 61.48% (p<0.001) elongation of tail flicking time 30 minutes after oral administration at the 200 and 400 mg/kg dose level, respectively.

**Effect on Cardiovascular Activity:**
It shows a positive inotropic effect on the frog heart, the action being mediated through the adreno receptor.

**Anti Ulcer Property:**
Alcohol extract of A. lebbeck when administered orally exhibits significant anti ulcer activity in ethanol-induced ulceration in rats. The saponin fraction of the plant is considered to be responsible for its anti ulcerogenic activity by protecting the gastric cells.
**Anti-diarrheal effect:**
A Lebbeck possesses anti bacterial activity against infectious diarrhea. Aqueous, methanol & chloroform extracts of A. Lebbeck exhibited activity against E. coli & Salmonella species. It also shows moderate activity against V. cholera, A. hydrophilis and B. subtilis.

**Antimicrobial activity:**
The Glycosides isolated from the stem bark exhibited antimicrobial activity against staphylococcus aureus, Pseudomonas aeruginosa, Trichophyton rubrum.

**DISCUSSION**
While mentioning the source of poisoning Acharya categorized the poison in Sthavar Visha (vegetative poison) & Jangama Visha (animal poison). Acharya Charaka mentioned 24 remedial measures for the treatment of poisoning. One of the measures in treatment of poisoning is use of Agad that means antipoisonous formulation. *Albezzia lebbeck* (Shirish) is one of the most important herb in all this anti-poisonous formulation. *Shirish* is used in many Agadas. Charaka mentioned *Shirish* under the division of Antipoisonous herb. All parts of the plants are recommended for the treatment of snake bite. Panchshirish Agad, a preparation of five parts of *Shirish* is recommended for the treatment of all type of poisoning. Amritaghrita, Tanduliya Agad, Ashtang Agad, Sarvakarmik Agad are some common preparation of *Shirish* which was used indifferent type of poisoning.

While studying the properties of Shirish it was seen that it is Tridoshshamak & it possess qualities like Shothhara (Anti-inflammatory), Vedanasthap (analgesic), Varny (complexion enhancer), Vishaghn (anti-poisonous), Shirovirechana (Raktashodhaka (blood purifier)). Pharmacodyanamics of shirish shows that it possesses Kashay Tikta Rasa. Tikta rasa itself antitoxic in nature & Kashay ras help in the healing procedure in bite cases. In the cases of poisoning specially in insect bite, snake bite, rat bite symptoms are pain, inflammation & oedema. Phytochemical screening of successive extracts of *Albizzia lebbeck* leaves shows presence of carbohydrates, alkaloids, tannin, flavanoids and saponins. Main attraction of phytochemical screening is presence of tannins, saponin and flavanoids where absence of proteins and amino acids. After several experimental model & clinical trial multi dimentional activity of Shirish
like analgesic, anti inflammatory, anti allergic, anti bacterial, antifungal, anti protozoal, anticonvulsant, anti anaphylactic, antioxidative is proved.

**CONCLUSION**

As Shirish contain many alkaloids, flavnoids, tannin, saponin & many of its action proved on scientific basis it can concluded that it is a very promising plant in various activities, therefore ancient Aacharyas have mentioned it as Vishaghna plant.
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