ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Review Article

A CRITICAL REVIEW ON *SINDUVARA* (*VITEX NEGUNDO*) WITH SPECIAL REFERENCE TO *VISHA CHIKITSA*

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ABSTRACT

Sinduvara (Vitex negundo) is a deciduous shrub naturalized in many parts of the world including India. It is used in all systems of treatment – Ayurveda, Unani, Siddha, Homeopathy and Allopathy. Referred to as *Sindhuvara* and *Nirgundi* in Ayurveda, it has been used as medicine since ancient times. It is taken in a variety of ways, both internally and externally. The whole plant, leaves, leaf oil, roots, fruits and seeds are administered in the treatment of specific diseases. However, in Ayurveda, the leaves, roots and bark are the most important parts. According to recent researches, the extracts of the plant shows the potential as an antidote for snake poisoning. The plant also exhibits CNS depressant, anti-convulsant, enzyme inhibiting, anti-cancer and anti-bacterial activities. As per Ayurved classics, it is included in the *Vishaghna gana* (Anti poisonous drugs) and is an important constituent of several *Agadas* (Anti-poisonous formulations). *Agada,* one of the modality used for treatment of poisoning is a combination of different herbs. During the study, it was found that *Sinduvara* is included in nearly 10 *Agadas* which are mostly used in case of *Jangam visha* (poisonous bites*).* So this review paper is an attempt of the author to explore the medicinal value of *Sinduvara* and highlight the *Vishaghna* property based on its pharmacological activity.

KEYWORDS: *Sinduvara, Agada, Nirgundi, Visha, Vitex negundo.*

INTRODUCTION

There exists a plethora of knowledge, information and benefits of herbal drugs in our ancient literature of Ayurvedic medicine. One of the earliest treatises of Indian medicine, the *Charaka Samhita*, mentions the use of over 2000 herbs for medicinal purpose. In that system *Sinduvara,* which belongs to family Verbenaceae is a very important herb with a broad spectrum of pharmacological activities, medicinal properties and *Vishaghna* (Anti poisonous) properties. *Charaka* has included *Sinduvara* (with white flowers) in *Vishaghna gana* (Group of anti poisonous drugs) and its another variety *Nirgundi* (with blue flowers) has been included in *Krimighna* gana (Group of wormicidal drugs). [1, 2]

Brihatrayi has described this plant with the synonyms *Sinduvara* and *Nirgundi* for most of the times. In two contexts, *Sushruta* mentioned *Sita Sinduvara* (white variety) indicating existence of two varieties of *Nirgundi*. [3, 4] It is generally believed that *Sinduvara* and *Nirgundi* are the two different species of Vitex bearing white and blue flowers respectively. But *Vitex negundo* itself is found with white and blue flowers as well as greenish and purplish black colored leaves.

Table 1: *Nirgundi/Sinduvara* (Vitex negundo) are described in various Ayurved classics and *Nighantus*[5]

S.No.	*Acharya*/Scholars	Types	Names
1	*Sushruta*	2	*Svetapushpa, Nila pushpa*
2	*Dalhana*	2	*Nirgundi, Sinduvara*
3	*Dhanwantari nighantu*	2	*Shweta, Nila*
4	*Bhavamishra*	2	*Shwetapushpa (Sinduvara), Nilapushpa (Nirgundi)*
5	*Kaiyadeva nighantu*	3	*Nirgundi, Sinduvara, Shephalika*
6	*Shodhal nighantu*	2	*Sinduvara* (White), *Shephalika* (Blue)
7	*Raj nighantu*	3	*Sinduvara, Nila Nirgundi, Shephalika*
8	*Nighantu ratnakar*	2	*Kartari Nirgundi, Aranya Nirgundi*

Although *Sinduvara* and *Nirgundi*, both varieties are important medicinal herbs; *Sinduvara* (with white flowers) has the upper hand as far as *Visha Chikitsa* (Treatment of poisoning) is concerned. *Sinduvara* is included in nearly about 10 *Agadas* (Anti poisonous formulations) used mostly for poisonous bites. The present review explores its description, chemical constituents, pharmacological activity and importance in *Visha chikitsa* (Treatment of poisoning).

MATERIALS AND METHODS

This review has done with an intention to provide an overview on Pharmacological activities and *Vishaghna* (Anti poisonous) property of *Sinduvara.* The data were collected from Ayurveda authentic texts, scientific journals and through the electronic media.

Table 2: Taxonomical classification of *Vitex negundo* (*Sinduvara*)[6]

Kingdom	Plantae- Plants
Subkingdom	Tracheobionta – Vascular plants
Super division	Spermatophyte – Seed plants
Division	Magnoliophyta – Flowering plants
Class	Magnoliopsida – Dicotyledons
Subclass	Asteridae
Order	Lamiales
Family	Verbenaceae – Verbena family
Genus	Vitex Linn.
Species	*Vitex negundo* Linn.

Table 3: Vernacular names [7][8]

Assamese	*Pochotia*
Bengali	*Nirgundi*; *Nishinda*; *Samalu*
Bontok	*Lingei*
Chinese	*Huang jing*
English	Five-leaved chaste ree; Horseshoe *vitex*; *Chinese chaste tree*
Filipino	*Lagundi*
Gujarati	*Nagoda*; *Shamalic*
Hindi	*Mewri*; *Nirgundi*; *Nisinda*; *Sambhalu*; *Sambhalu*
Ifugao	*Dabtan*
Kannada	*Bile-nekki*
Korean	*jommokhyeong*
Malayalam	*Indrani*
Marathi	*Nirgunda*
Nepali	*Simali; Nirgundi*
Punjabi	*Banna*; *Marwan*; *Maura*; *Mawa*; *Swanjan Torbanna*
Sanskrit	*Nirgundi*; *Sephalika*; *Sindhuvara*; *Svetasurasa*; *Vrikshaha*
Sinhala	*Nika*
Konkani	*Lingad*
Tamil	*Chinduvaram*; *Nirnochchi*; *Nochchi*; *Notchi*; *Vellai-nochchi*
Telugu	*Sindhuvara*; *Vavili*; *Nalla-vavili*; *Tella-vavili*, lekkali
Urdu	*Sumbaloo*
Odia	*Nirgundi*

Morphology

A large shrub or sometimes a small slender tree; bark - thin, grey; branchlets quadrangular, whitish with a fine tomentum. Leaves tri or penta-foliate; leaflets lanceolate, acute, entire or crenate, glabrate, dark above and pale beneath; central leaflets larger, the lateral leaflets are smaller with a very short petiole, base acute. Flowers in pedunculate branched lateral cymes, small, bluish purple or white. Fruits are Drupacious, less than 6 mm in diameter, black when ripe. Seeds are obovate or oblong. [9][10]

Chemical constituents

The chemical constituents of *Sinduvara* (*vitex negundo*) are as follows.

- Monoterpens agunoside, eurotoside, aucubin, flavonoids as 5,7,3 – trihydroxy, 6,8,4 –trimethoxy flavones, casticin, chryso – splenol, vitexin.

The CCl4 extract of the seed contains 4 triterpenoids that are.

- 3 beta – acetoxylean – 12 – enhance – 27 – oic acid
- 2 alpha, 3 alpha – dihydroxy olena – 5, 12 – dien – 28 – oic acid
- 2 beta, 3 alpha – diacetoxyoleana – 5, 12 – dien – 28 – oic acid
- 2 alpha, 3 beta – diacetoxy – 18 hydroxyoleana – 5, 12 dien – 28 – oic acid

The oil contains alpha piniene, linalool, terpenyl acetate, beta caryphyllene, caryophyllene, caryophyllene oxide. [11]

Other important constituents are Phenol, Dulcitol, Alkaloid-Vitricine, B-sitosterol, Camphene, Angoside, Artemetin, Orientin etc. [10]

Table 4: Pharmacological properties of *Sinduvara* according to Ayurveda [12]

Rasa	*Katu* (pungent), *Tikta* (bitter)
Guna	*Laghu* (lightness), *Ruksha* (dry)
Virya	*Ushna* (hot)
Vipaka	*Katu* (pungent)
Doshakarma	*Kapha-Vata Shamaka*

Pharmacological activities of *Sinduvara* according to Ayurveda

Internally it acts as an analgesic for its *Vata Nashaka* properties and also acts as a brain tonic (*Medhya*) in the nervous system. In the digestive system, due to its

Katu, Tikta and *Ushna* property, it is a stimulator, promoter, liver stimulator and acts against intestinal worms. Being *Kapha- vata shamaka,* it reduces inflammatory swellings in the circulatory system. It reduces *Kapha* and cures cough, pulmonary and pleural diseases in the respiratory system due to its pungent and bitter tastes. In the urinary system it promotes the production of urine (*Mutrajanaka*). It promotes menstruation due to *Ushna virya*. It cures skin diseases and possesses anti itching properties in the skin. It shows anti pyretic action due to its *Amapachaka* (promoting the digestion of mal-digested food particles and toxic materials) properties and could be specially used in *Vishamajvara* (intermittent fever). It is beneficial in developing eye sight and also cures the ear discharges. [13]

Pharmacological activities and medicinal properties proven by modern research findings

1] Anti-inflammatory activity: The sub-effective dose of *Vitex negundo* Linn. potentiated anti inflammatory activity of phenylbutazone and ibuprofen significantly in carrageenin induced hind paw oedema and cotton pellet granuloma models. The potentiation of anti-inflammatory activities of phenlbutazone and ibuprofen by *Vitex negundo* Linn. indicates that it may be useful as an adjuvant therapy along with standard anti-inflammatory drugs. [14,15]

2] Antinociceptive activity: Tail flick test in rats and acetic acid induced writhing in mice were employed to study the antinociceptive activity of ethanolic leaf extract of *Vitex-negundo* Linn. (100, 250 and 500 mg/kg, p.o). The effect was compared with meperidine (40 mg/kg, sc) in tail flick method and aspirin (50 mg/kg, p.o) in writhing test as a standard control respectively. An interaction with naloxone hydrochloride was also studied in tail flick method for its mechanism of central analgesic action. It showed significant analgesic activity in dose dependant manner in both the experimental models. It suggested that *Vitex negundo* Linn. possesses both central and peripheral analgesic activity. The central analgesic action does not seem to be mediated through opioid receptors. It may prove to be a useful adjuvant therapy along with standard analgesic drug. [16]

3] CNS depressant activity: A methanolic extract of the leaves of *Vitex negundo* Linn. was found to significantly potentiate the sleeping time induced by pentobarbitone sodium, diazepam and chlorpromazine in mice. [17]

4] Antifungal activity: Bioactivity guided fractionation of ethanolic extract of leaves of *Vitex negundo* Linn. resulted in the isolation of new flavone glycoside along with five known compounds. All the isolated compounds were evaluated for their antimicrobial activities. The new flavone glycoside and compound 5 were found to have significant antifungal activity against Trichophyton mentagrophytes and Cryptococcus neoformans at MIC 6.25 µg/ml. [18]

5] Antioxidant Activity: The antioxidant potency of *Vitex negundo* Linn. was investigated by all the fractions of *Vitex negundo* Linn. exhibited a potent scavenging activity for (2, 2′-azino-bis 3-ethyl benzothiazoline-6-sulfuric acid) ABTS radical cations in a concentration dependent manner, showing a direct role in trapping free radicals. The polar fractions of *Vitex negundo* Linn. possess potent antioxidant properties. Tandon and Gupta have also reported similar antioxidant properties of *Vitex negundo* Linn. in rats, by using ethanol induced oxidative stress model. [19][20]

6] Enzyme-inhibitory activity: Root extracts of *Vitex negundo* Linn. showed inhibitory activity against enzymes such as lipoxygenase and butyrylcholinesterase, α-chymotrypsin, xanthine-oxidase and tyrosinase. Also reported the HIV type 1 reverse transcriptase inhibitory activity of the water extract of the aerial parts of *Vitex negundo* Linn. [21]

7] Anticonvulsant activity: Maximal electroshock seizures (MES) in albino rats and pentylenetetarazole (PTZ) induced seizures in albino mice were used to study anticonvulsant activity of *Vitex negundo* Linn. leaf extract. The test drug dose (1000 mg/kg, p.o) showed 50% protection in clonic seizures and 24- hour mortality against PTZ induced seizures. It also decreased number and duration of convulsions significantly. *Vitex negundo* Linn. potentiated anticonvulsant activity of valporic acid. The anticonvulsant activity of *Vitex negundo* Linn. has not been found equi-effective with standard drugs. Moreover, the potentiation of diphenylhydantoin and valporic acid by *Vitex negundo* Linn. indicates that it may be useful as an adjuvant therapy along with standard anticonvulsants and can possibly lower the requirement of diphenylhydantoin and valporic acid3,31. [22]

8] Antibacterial studies: Essential oils and successive ethyl acetate and ethanol extracts of *Vitex negundo* Linn. showed antibacterial activity against Staphylococcus aureus, Bacillus subtilis, Escherichia coli and Pseudomonas aeruginosa bacterial strains. Main constituents identified in leaves oil were dguaiene, carryophyllene epoxide and ethylhexadecenoate; In flowers oil α-selinene, germacren-4-ol, carryophyllene epoxide and (E)- nerolidol while fruit oil showed β -selinene, α- cedrene, germacrene D and hexadecanoic acid as the main constituents which help for antibacterial activity. [23]

9] Antiallergic Activity: Ethanolic extract of *Vitex negundo* Linn. showed antiallergic activity against immunologically induced degranulation of mast cells. It also inhibited edema during active paw anaphylaxis in mice. The extract significantly inhibited both the initial and later sustained phases of tracheal contractions. The initial phase was primarily due to histamine and the latter phase was due to release of lipid mediators from arachidonic acid. Inhibition of the latter phase may be secondary to inhibition of arachidonic acid by the ethanolic extract. [24]

10] Snake venom neutralization activity: The methanolic root extracts of *Vitex negundo* Linn. and *Emblica officinalis* showed antisnake venom activity. The plant *Vitex negundo* Linn. extracts significantly antagonized the Vipera russellii and Naja kaouthia venom induced lethal activity both in in vitro and in vivo studies. Vipera russellii venom-induced haemorrhage, coagulant, defibrinogenating and inflammatory activity were significantly neutralized by both plant extracts. No precipitating bands were observed between the plant extract and snake venom. [25]

11] Effect on reproductive potential: The flavonoid rich fractions of seeds of *Vitex negundo* Linn. caused disruption

of the latter stages of spermatogenesis in dogs and interfered with male reproductive function in rats. It must however be noted that these findings are in sharp contrast with the traditional use of *Vitex negundo* Linn. as aphrodisiac. Hu et al. determined that ethanolic extracts of *Vitex negundo* Linn. showed estrogen-like activity and propounded its use in hormone replacement therapy. [26]

12] Histomorphological and cytotoxic effects: Tandon and Gupta studied the histomorphological effect of *Vitex negundo* Linn. extracts in rats and found the stomach tissue to be unaffected even by toxic doses; while dose-dependent changes were observed in the heart, liver and lung tissues. Cytotoxic effect of leaf extracts of *Vitex negundo* Linn. was tested and affirmed using COLO-320 tumour cells. On one hand, Diaz et al. found the chloroform extracts of *Vitex negundo* leaves to be toxic to a human cancer cell line panel. Yunos et al. reported that *Vitex negundo* Linn. extracts were noncytotoxic on mammary and genito-urinary cells of mice. [27]

13] Hepatoprotective activity: The ethanolic extract of *Vitex negundo* Linn. at 250 and 500 mg/kg doses significantly decrease Serum Bilirubin, Aspartate Aminotransferase (AST), Alanine Aminotransferase (ALT), Alkaline Phosphates (ALP) and Total Protein (TP) levels against hepatotoxicity (HT) produced by administering a combination of three antitubercular drugs isoniazide (7.5 mg/kg), rifampin (10 mg/kg) and pyrazinamide (35 mg/kg). Alcoholic extract of the seeds of *Vitex negundo* Linn. showed the hepatoprotective action against carbon tetrachloride induced liver damage. The extract was found to be effective in preventing liver damage which was evident by morphological, biochemical and functional parameters.

Nirgundi exerts a protective effect on CYP2E1- dependent CCl4 toxicity via inhibition of lipid peroxidation, followed by an improved intracellular calcium homeostasis and inhibition of Ca2+ dependent proteases [28]

14] Hypoglycemic activity: Villasenor and Lamadrid have provided an account of the antihyperglycemic activity of Vitex negundo Linn. leaf extracts. [29]

15] Laxative activity: The aqueous extract of the *Vitex negundo* Linn. leaves at doses 100 and 200 mg/kg was investigated for laxative activity according to Cappaso et al. in albino rats were compared with standard drug agar-agar (300 mg/kg, p.o.) in normal saline. [30]

16] Wormicidal activity: Ethanolic extracts of *Moringa oleifera* and *Vitex negundo* were taken for anthelmintic activity against Indian earthworm Pheritima posthuma. Various concentrations of both extracts were tested and results were expressed in terms of time for paralysis and time for death of worms. Piperazine citrate (10 mg/ml) was used as a reference standard and distilled water as a control group. Dose dependent activity was observed in both plant extracts but *Moringa oleifera* shows more activity as compared to *Vitex negundo*. [31]

Exploration of *Sinduvara* and its formulations in *Visha chikitsa*

As per Ayurvedic texts, *Sinduvara* is renowned for its *Vishaghna* properties and hence it is included in many formulations used in poisoned person especially in *Jangam visha* (insect or animal bite poisoning).

a) In *Darveekar sarpa* (hooded snake) bite

1. Root of *Sinduvara* along with *Shweta* root should be taken in snake poisoning or both drug should be taken along with honey and *Kushtha* for drinking and as nasal drop in snake poisoning. [32]

2. Powder of *Sinduvara*, *Vacha* and *Aparajita* should be taken with water. [33]

3. Root of *Sinduvara* macerated in its own juice, added with honey and consumed is the recipe for poison of hooded snakes. Also root of *Sinduvara* and *Girikarnika* made into paste and consumed. [34]

b) In *Mandali sarpa* (snakes with spots or wheels on body)

An *Agada* (antidote formulation) is prepared with *Sinduvara, Drakshaa, Sarpagandha* etc. with honey and taken in snake poisoning. [35]

c) In spider bite

1. *Sinduvara* along with *Shirisha* and many other drugs is used for eye application, drinking and as nasal drops in all kinds of spider bite. [36,37]

2. *Sinduvara* along with *Pippali*, *Priyangu, Nirgundi, Rasna, Vasa* etc. are made into paste and applied in spider poisoning predominant of *Kapha*. [38]

3. *Sinduvara, Shirisha, Padmaka, Usira, Patali, Pancha Valkala, Nata, Udichya, Kustha* and *Chandana* macerated with fresh juice of *Selu* and preserved. This *Agada* to be used in the form of nasal drops, collyrium, internal potion, external application, and pouring on the body is highly beneficial in spider poisoning. [39]

4. Use of *Sinduvara, Bharangi, Nidigdhika, Nimba, Patali, Durva*, the two *Haridra* and *Vasa* – these removes the poison of *Putigandha* (having foul smell) spider. [40]

5. Use of *Sinduvara* root, *Selu, Arjuna, Amratak* bark is ideal in *Rakta* (red) spider bite. [41]

6. In *Santanika* spider bite, use of *Keshara*, bark of *Kshiri vrikshas*, roots of *Sinduvara, Amra* and *Ashmantaka* is beneficial. [42]

d) In dog bite

Yava, Masa, Kulattha and drugs of *Panchamula* are made into decoction and to this are added one part of *ghee*, two parts of milk and nice paste of *Ashvagandhika, Saha, Kushtha, Brihati,* the two *Rajani, Vidari, Nata, Katvanga, Payasya, Sinduvara, Sarpagandha, Nakha, Abhiru, Sarkara* and *Raktachandana* and medicated *ghee* is prepared. This is used for drinking and anointing which cures all the complications arising from dog bite. [43]

e) In rat bite

1. Person suffering from effect of rat bite should drink the decoction of *Sinduvara, Nata, Sigru,* root of *Bilva, Punarnava, Vacha, Svadamstra* and *Jimuta* added with honey, followed by eating cooked rice along with curds. [44]

2. The paste of *Sinduvara* and the two *Saha* added with more of honey should be applied in *Kulaka* rat bite. [45]

3. Decoction of *Sinduvara, Tagara, Sahajana, Bilva, Punarnava, Gokshura* and *Jimutaka* is taken in all kinds of rat bite. [46]

4. Formulation of root of *Sinduvara*, cat bones, *Vatsanabh*, *Tagara* is used as nasal drops and for drinking in rat bite. [47]

5. A linctus made of *Sinduvara, Mudgaparni* and *Mashparni* with honey is used in *Kulinga* rat bite. [48]

Table 5: *Agada* (Anti poisonous formulations) containing *Sinduvara*

S.No.	Formulations	Ingredients	Indications
1	*Mahagandhahasti Agada*	*Sinduvara, Tejapatra, Agaru, Mustak, Ela, Panchaniryas, Chandan, Sprikka, Twak, Nalada, Utpala, Sugandhabala, Ushira* etc.	Cataract, night blindness, fever, indigestion, ringworm, cholera, scabies, constipation, fainting, poisoned nearing death. [49]
2	*Mrutasanjivan Agada*	*Sinduvara, Sprikka, Plava, Sthouneya, Kankshi, Tagara, Dhyamaka, Keshara, Maansi, Ela, Khadira, Amalatasa* etc.	All kinds of poison, fever, bad dreams. [50]
3	*Sanjivan Agada*	*Sinduvara, Chandana, Kumkuma, Kustha, Kankshi, Laksha, Priyangu, Musta, Sthouneya, Saileya, Cocana, Madana, Plava* etc.	Destroys poison, fever, evil spirits, effects of witchcrafts, subjugatory rites, demons, wild animals, insects, worms, reptiles. [51]
4	*Yapan Agada*	*Sinduvara, Chandana, Valaka, Musta, Dhyamaka, Katuka, Nata, Dadima, Kumkuma, Sunthi, Kapittha,* fruits of *Vatsaka,* seeds of *Karanja, Maricha, Apamarga, Karaveera* etc.	Destroys poison, fever, evil spirits, effects of witchcrafts, subjugatory rites, demons, wild animals, insects, worms, reptiles. [52]
5	*Lodhradi Agada*	*Sinduvara, Lodhra,* Flowers Of *Sirisa, Samanga, Hingu, Renuka, Kana, Ushnaila, Nepali, Vacha, Yashtimadhu, Utpala,* seeds of *Karanja* etc.	Destroys the poison of snakes, rats, wasps, jackal, cat and python. Wards off possession by evil spirits, fevers, epilepsy, insanity, abdominal tumors, indigestion, cholera. [53]
6	*Tarkshya Agada (*by *vagbhata)*	*Sinduvara, Prapoundarika, Katuka, Devdaru, Suvarchika, Kalanusari, Sthouneya, Shaileya, Ghana, Padmaka, Katunnata, Ela, Guggulu, Punnaga, Nata* etc.	It removes the effects of poisoning even of *Takshaka* (serpent of heaven) [54]
7	*Tarkshya Agada (*by *sushruta)*	*Sinduvara, Prapoundarika, Musta, Kutaki, Kalanusari, Devdaru, Kartrina, Nagkeshara, Sthouneya, Ela, Guggulu, Suvarchika, Talishpatra, Lodhra, Priyangu* etc.	It removes the effects of poisoning even of *Takshaka* (serpent of heaven) [55]
8	*Ekasar Yog*	*Sinduvara, Bakuchi, Bakuchi* Flower, *Choraka, Varuna, Kushtha, Sarpagandha, Yavatikta, Punarnava, Shirisa* flower etc.	Destroys all kinds of poison especially snakes. [56]
9	*Mahasugandhi Agada*	*Sinduvara, Chandana, Agaru, Kustha, Tagara, Hulhula, Prapoundarika, Nalada, Sarala, Devdaru, Shwet Chandana, Bharangi, Neelee, Sarvagandha, Madhuyashti, Jatamansi* etc.	It removes effects of poisoning even of *Vasuki* (serpent of heaven). [57]

DISCUSSION

Medicinal plants have provided copious leads to combat diseases, from the dawn of civilization. Herbal medicines are in great demand in the developed as well as developing countries for primary healthcare because of their wide biological and medicinal activities, higher safety margins and lesser costs. The extensive survey of literature revealed that *Sinduvara* (*Vitex negundo*) is important medicinal plant with diverse pharmacological spectrum. The pharmacological activities like anticonvulsant effect, CNS-depressant activity, antiarthritic effect, antiallergic activity were reported in literature.

Sinduvara is renowned for its *Vishaghna* properties and hence it is included in many formulations used in poisoned person especially in *Jangam visha* (insect or animal bite poisoning). The general symptoms of *Jangam visha are pain, oedema and inflammation. Sinduvara* acts as an analgesic for its *Vata Nashaka* property and being *Kapha-Vata shamaka,* it reduces inflammations and swellings. It cures skin diseases and possesses anti itching properties in the skin. Hence its usefulness in animal or insect bite can be understood from its classical pharmoacological properties.

Further evaluation needs to be carried out on *Sinduvara* in order to explore the concealed areas and their practical clinical applications, as far as management of poisoning is concerned.

CONCLUSION

Sinduvara having a tremendous potential deserves a special attention for its *Vishaghna* (anti poisonous) property as it is mentioned in various anti poisonous formulations in classical texts. Its anti snake venom property is proved on scientific basis. Hence, we can conclude that it is a promising herb along with *Shirisha* in *Visha chikitsa* (Treatment of poisoning).

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Cite this article as:
Sachinkumar Baghel, Atul G. Ginode, Karunakar G V. A Critical Review on Sinduvara (Vitex Negundo) with Special Reference to Visha Chikitsa. International Journal of Ayurveda and Pharma Research. 2017;5(7):67-73.
Source of support: Nil, Conflict of interest: None Declared

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