



IJAYUSH
International Journal of AYUSH
AYURVEDA, YOGA, UNANI, SIDDHA AND HOMEOPATHY
<http://internationaljournal.org.in/journal/index.php/ijayush/>

International Journal
Panacea
Research library
ISSN: 2349 7025

Review Article

Volume 13 Issue 2

Feb 2024

A REVIEW ON *VṚŚCIKA* AND ITS TYPES

***Dr Jesney Rodrigues N C¹, Dr Gopikrishna S²**

¹PG Scholar, Department of Agad Tantra, VPSV Ayurveda college Kottakkal

²Associate Professor, Department of Agad Tantra, VPSV Ayurveda college Kottakkal

*Corresponding Author's Email ID: jesneyrodrigues9494@gmail.com

ABSTRACT

Scorpion bite is a common global public health problem in many countries. The estimated annual number of scorpion stings is 1.2 million leading to 32,250 death per year. There are about 1500 species of scorpions worldwide, out of these 50 are dangerous to humans. In India among 86 species, *Mesobuthus tamulus* (Indian red scorpion) and *Heterometrus bengalensis* (Indian black scorpion) are commonly responsible for envenomation of medical importance. Ayurvedic classics have considered *Vṛścika* as one of the types of *kīṭa* which possess ability to produce fatal signs and symptoms just like *Sarpa*. *Vṛścika visa* has been described in detail in ayurvedic literature under *kīṭa viśa*. Severe pain, sharp burning sensation, swelling and erythema are the clinical manifestation in *Vṛścikadamśa*. Immediate acute pain at the site of the sting is an essential factor for the rapid search of medical care in *Vṛścikadamśa*. *Vṛścika* types along with its symptoms, severity is very well explained in our classics and *keraliya vishachiktsa grandhas* which remains unexplored.

Keywords: *Kīṭa*, *Kīṭa viśa*, *Vṛścika*, *Vṛścika visa*, Scorpion

INTRODUCTION

Envenomation caused by bites and stings from venomous animals cause a major public health problem in children and adults worldwide. Following snake bites, scorpion stings are a major public health problem in many underdeveloped tropical and subtropical countries, particularly in America, the Middle East, India and Africa. Globally, several thousands of people die each year from scorpion stings. More than 1.2 million cases are registered each year in the world. Agad Tantra, one among 8 branches of Ayurveda deals with animate, inanimate poisons and their management has given a special importance to *Vṛścika viṣa* even though it is described under *kīṭaviṣa*. It is because, among all types of *kīṭaviṣa*, *Vṛścika viṣa* causes severe manifestation in humans. Severe pain, sharp burning sensation, swelling and erythema are the clinical manifestation in *Vṛścikadamśa*

REVIEW OF LITERATURE

Classical References

In Samhita period (200 BC to 400AD) which is considered as the golden age of Ayurvedic history, poisoning by *Vṛścika* is described in detail in the classical texts *Charaka saṃhitā*, *Susrutha Saṃhitā* and *Ashtanga Hr̥daya* mentioned under the *jangama viṣa* in *kīṭa prakarana*.

Charaka Saṃhitā (2 BC) has explained the origin, classification, symptoms and treatments of *Vṛścika* in detail in 23rd chapter of *cikitsa sthana*^[1]. *Susrutha Saṃhitā* (2AD) has given detailed explanation of *Vṛścika* in *Kīṭa Kalpa Adhyaya* (8th chapter) of *Kalpa Sthana*^[2]. In *Harita Saṃhitā* (2BC), 55th chapter of 3rd *sthana Mantha cikitsa* has been mentioned for the management of *Vṛścikadamśa*. As per the present availability, *sutra sthana* (18th chapter) of *Bhela Saṃhitā* (1-2 BC) deals with some poisoning condition. But no direct reference of *Vṛścika* is available. In *Kasyapa Saṃhitā* also no portion deals with *Vṛścika*.

In *Ashtanga samgraha* (6 AD) *Vṛddha vagbhatacharya* has narrated the details of *Vṛścika* in *sarpa viṣa prathishedha adhyaya* (42nd chapter), *kīṭa viṣa prathishedha adhyaya* (43rd chapter) and *Vishopayogiya adhyaya* (48th chapter) of *uttarasthana*^[3]. While in

Ashtanga Hrdaya (7 AD) of *Vagbhatacharya* describes about *Vṛścika* in 36th and 37th chapter of *uttarasthana*^[4].

In *Madhava nidana* (7AD), 69th chapter, *viṣa roga nidanam*, *Madhavakara* has explained the details about the signs and symptoms due to *Vṛścikadamśa*. The author of *kalyanakara* (9AD), *ugradityacharya* has included *Vṛścika* in *kīta* under 19th *parichchheda* and has mentioned common treatment principles. In *Gadanigraha* (12AD) *shodhala* has explained the consequences which appear after *Vṛścikadamśa* in *Jangama Viṣa nidana adikara*^[6]. Management of *Vṛścikadamśa* are described in *viṣadhikara* (64th chapter) of *chakradatta* (16 AD). *viṣadhikara* (67th chapter) of *Bhāvaprakasha* (16AD) deals with signs and symptoms, prognosis and treatment of *Vṛścikadamśa*^[7]. *Yogarathnākara* (17AD) also explained *Vṛścikadamśa* in *viṣadhikara* chapter. *Bhaishajyaratnāvali* (18AD), *viṣaroga cikitsa prakarana* (72nd chapter)^[8] describe some extra medications from other classical texts.

Keraleeya viṣa Cikitsa References^[9]

Kerala has made many unique contribution to ayurveda , especially to Agada tantra Keraleeya viṣa vaidya has an ancient and renowned background. In this system, both vedic and non vedic schools of thoughts were present. It is interesting to note that the single Ayurvedic subject in which maximum numbers of books are written on Malayalam is probably, Agad Tantra.

- *Viṣa Vaidya Jyotsnika* :- Classification, symptoms and treatment of *Vṛścikadamśa* are described in the 12th *adhikara* named '*Vṛścika viṣa vijñāna Pratiśedham*'.

- *Prayoga Samucchaya* :- In *Saptama pariccheda* we get reference of origin, classification, signs and symptoms and treatments of *Vṛścikadamśa*.

-*Nārayānīyam (Tantra Sara Samgraha)*: Different *yogas* used in *Vṛścikadamśa* are explained in 10th *patala* of written by Narayanan.

-*Kriyā Kaumudi* :- Sri.V.M. Kutti Krishna menon (author) given a detailed description about *vraṇa* which develops as a complication of *Vṛścikadamśa* etc, is available in *Kīta viṣa pratishedham adhyāyam*.

- *Viśacikitsa Tantram* :- By 'Balananda Swamikal' gives detailed description about *Vṛścika* and *dhātugatha viśa lakṣanas*.
- *Lakṣaṇāmṛtam* :- The Malayalam translation of the book which is written in Sanskrit and is translated by Sri Oduvil Sankarankutty Menon, we can see the description about the *Vṛścika* in its 7th *patala*.
- *Viśa vaidyamṛtam* :- C.A Sankaranarayana Pillai, narrates about the signs and symptoms along with *Vṛścikadamśa cikitsa*.
- *Nilakaṇḍīyam*:-By V.K.V. Neelakandan Namboothiri we get references about treatment of *Vṛścikadamśa*
- *Viśa Vaidyam*:- In this book a difference in opinion about the origin of *Vṛścika* and treatment of *Vṛścikadamśa* is mentioned in the 23rd chapter. The book is written by 'Kavi Kesari P. V. Krishna Varier'.
- *Viśa Vaidya Taraṅgini*: By 'Moodolil M. Kungirama Panikkar'. A different classification of *Vṛścika* is given in this book; ie. *Sīta* and *Agnēya*. Detailed description of treatment of *Vṛścika* is also available here.

Dosha Predominance of *Vṛścika* Visa According to Different *āchāryas*^[11]

<i>Charaka Saṃhitā</i>	<i>Vātolbana</i>
<i>Ashtanga sangraha</i>	<i>Vātolbana</i>
<i>Ashtanga hridaya</i>	<i>Vatolbana</i>
<i>Sushruta Saṃhitā</i>	Did not mention specific dosh predominance for <i>vrścika</i> mentions <i>vātakapha</i> predominance for <i>kīṭavisha</i>
<i>Prayoga samucchaya</i>	Mostly <i>vātapittapradana</i> , very few are <i>kapha</i> predominance,
<i>Kriya koumudi</i>	Mostly <i>vātapittapradana</i> , Rarely of <i>kapha</i> predominance.

3. Classification of *vrścika*

A) According to its potency (S.S. Su. K and Ah.Ut) [12,13]

1. *Manda Viṣa*. (Mild variety-12 types)
2. *Madhya Viṣa*. (Moderate variety-3 types)
3. *Maha Viṣa*. (Virulent variety-15 types)

As per *Kriya Kaumudī* [14]

1. *Alpa viṣa vīrya Vṛścika*
2. *Ugra viṣa vīrya Vṛścika*

B) According to its origin (S.S.Su.K and A.H.U)[12,13]

1. Born from putrefied dung of the cow etc . (*Manda Viṣa*)
2. Born from cadaver of the animals killed by the poisoned arrow or born from wood bricks (*Madhya Viṣa*)
3. Born from the cadaver of the snakes (*Maha Viṣa*)

C) Classification according to effect of poison (Ca.Ci)[15]

1. *Duśi visaja Vṛścika*
2. *Prānahara or Asadya Vṛścika*

Detailed description on types of *Vṛścika* is not available in *Caraka Saṃhitā*.

D) Classification according to *doṣa* predominance (P.S and K.K)[16,17]

1. *Vataja (Vayavya)* - 18 types
2. *Pittaja (Agnaya)* - 24 types
3. *Kaphaja (Saumya)* - 13types
4. *Sannipataja (Sankirna)* - 12 types

Table No.1, Morphological features of *Vṛścika* ^[18,19]

	<i>Susrutha Saṃhitā</i> (Su.K.8/59-64)	<i>Aṣṭāṅga Hridaya</i> (A.H.U.37/8-10)
<i>Manda Viṣa</i>	Black, blackish, variegated, pale, resembling cow's urine. rough, blue, yellow, smoky hairy, grass like and red. White abdomen. Many joints in tail.	Yellow, white and blue or of many colour shed of black. Dry, hairy. Abdomen may be red or pale having many joints
<i>Madhya Viṣa</i>	Red, yellow brown. Smoke coloured abdomen. Three joints on their tail.	Brown, slight red or reddish brown spotted body variegated and resembling to the blood. Smoke coloured abdomen. Three joints
<i>Maha Viṣa</i>	White, variegated, bluish, reddish, red white. Red and blue abdomen. Another yellow with slight red or blue yellow. One having no joints or with one or two joints. Many shapes and colours.	Appear like fire. Having one joint. Belly is red, black or white

4.Clinical features

According to *Aṣṭāṅga Hridaya*, *vṛścika viṣa* is penetrating. In the beginning it causes burning sensation just like that of the fire. After that it spreads upwards quickly and then gets stabilized at the site of the sting which results in, bluish discolouration, pricking and bursting pain at the site^[20]. Also, the bite may cause swelling of the tongue, rigidity of the body, fever, and black coloured blood comes out from all the orifices. There may be a loss of sensory perception also^[21]. Further, here is profuse sweating, fainting, dryness of the mouth, unsound mind, suffers from the discomforts, wasting of the muscles, and may lead to death^[22].

According to *Suśrutācārya*, mild poisonous *Vṛścika* by their sting produces ain, trembling sensation, stiffness in body and outflow of black blood. If they stung the extremities, pain

rushes upward along with burning sensation, local swelling and fever. Moderately poisonous *Vṛścika* produces swelling of the tongue, obstruction difficulty in swallowing the food and severe fainting. When stung by the severely poisonous *Vṛścika*, one may feel the impulse of the snake poison; eruptive boils pear along with giddiness, burning sensation, fever and virulent discharge of black blood from all the orifices, due to which person dies soon^[18].

Table No.2, Severity of *Vṛścika damśa*

Sl.	Clinical manifestations	<i>Mandavisa</i>	<i>Madhyavisa</i>	<i>Mahavisa</i>
1	Pain	✓		
2	Stiffness of body	✓		✓
3	Outflow of black blood	✓		✓
4	Local swelling	✓		
5	Fever	✓		✓
6	Trembling sensation			
7	Swelling of tongue		✓	
8	Fainting		✓	
9	Giddiness			✓
10	Eruptive boils			✓
11	Burning sensation			
12	Difficult to swallow		✓	

Apart from all the above mentioned signs and symptoms. *Vṛścikadamśa* can produce other manifestations according to the dominance of the specific dosa. It can be divided as *vatika paittika*, *kaphaja* and *tridosaja*.

Table no: 3, *Vṛścikadamśa lakshana* according to *dośa* predominance ^[21]

<i>Vataja Vṛścikadamśa</i>	<i>Pittaja Vṛścikadamśa</i>	<i>Kaphaja Vṛścikadamśa</i>
Pain in the heart region	Loss of consciousness	Vomiting
Stoppage of movement of the <i>vāta</i> in the upward direction	Warm expiration	Loss of taste or appetite
Engorgement	Burning sensation in the heart	Nausea
Dilatation/ the formation of the network of the veins.	Bitter taste in the mouth	Excess of salivation.
Pain in bones and joints	Scales in the muscles	Running nose
Rolling on the grounds	Reddish yellow coloured swelling	Feeling of the cold
Twisting pain in the calf muscle		Sweet taste in the mouth
Blue discolouration of the body		

The text *Prayoga Samucchaya* explains same symptoms described by *Vagbhatacharya* in *vataja* and *pittaja Vṛścikadamśa*. Little pain, oozing like *lasika* and oedema resembling *udumbara phala* are mentioned as the manifestation of *kaphaja Vṛścikadamśa*^[16].

Kriya Kaumudi has mentioned *śirastoda*, *asthitodo*, *hridvyatha*, fainting, *urdhwa vayu* and darkness of *śira* as the symptoms of *vatholbana Vṛścikadamśa*. *Swasavidhi*, *raktapitta*, *moha* and burning sensation are mentioned in *pittadhika Vṛścikadamśa*. *Hrillāsa*, *chardi*, *śaitya*, *mukhamādhurya* and *praseka* are mentioned in the *kaphaja Vṛścikadamśa* ^[14].

Prayoga Samucchaya mentions about *sannipātaja Vṛścikadamśa laksana*, in which all the manifestations mentioned in *vataja*, *pittaja* and *kaphaja* predominant *Vṛścikadamśa* can

be seen. The prognosis is said to be *asadhya*. The symptoms like gradual increase in the oedema, *raktha durgandha*, heaviness of the head and eyes, *murccha*, *bhrama*, *karnika*, *jwara* and *agnimāndya* are mentioned in *sannipataja Vṛścikadamśa*^[16]. In *Kriya Kaumudi* also *sannipatika Vṛścika* is mentioned but no symptoms are explained^[14].

In *Bhāvaprakāśa*, symptoms are explained as severe burning sensation in the beginning followed by spreading upward as though splitting and after sometime becoming confined to the site of sting only are symptoms of scorpion poison. In this text *asadhya Vṛścikadamśa lakṣaṇas* are mentioned. It can be considered as *sannipataja Vṛścika viṣa lakṣaṇa*, which includes severe pain at *hridaya*, *nasika* and *jihwa*; patient may feel that these organs have stopped functioning. Skin at the site of the sting starts to necroses and shed, and patient may die due to severe symptoms^[23].

The text *Kriya Kaumudi* has mentioned the symptoms due to highly potent *Vṛścikadamśa*^[14]. In such condition, there will be no pain; patient may feel cold (rigor), profuse oedema, numbness of the tongue, convulsions, *mamsasosa*, vomiting and death. In pregnant ladies this may lead to *garbhapata*.

Dhatugata lakṣaṇa of Vṛścikadamśa

Prayoga Samucchaya and *Kriya Kaumudi* explained signs and symptoms of *Vṛścikadamśa* in step by step as it enters deeper and deeper in subsequent *dhātus*. It is referred as *vega* of *Vṛścikadamśa*

According to *Prayoga Samucchaya*, when *Vṛścika viṣa* enter into *twak dhātu*, sudden occurrence of severe pain will result. When *viṣa* enter into *raktha dhātu* then severe burning sensation will occur, when it enter into *māmsa dhatu*, *hidhma* and *grandhi* will occur, when it enter into *medas greevabhaṅga* will result. As well as when the *viṣa* enter into *asthi dhātu*, *jwara* will manifest and when it reaches in *majja dhātu*, the visa cause *manasthāpa* and after entering into *śukla dhātu*, will be red in colour and finally the patient dies.

Table no. 4, Vega lakṣaṇa of Vṛścikadamśa^[24,25]

Sl	Dhātu	P. S.	K. K.
1	<i>Twak</i>	Severe pain (repeated)	Pricking Pain, Vomiting, Delirium, Convulsions etc
2	<i>Rakta</i>	Severe burning sensation	Symptoms of <i>twakgata</i> and Fatigue. Burning sensation, <i>Jwara</i> . <i>Atisara</i> etc
3	<i>Mamsa</i>	<i>Hidhma</i> , Oedema	<i>Granthi</i> all over the body
4	<i>Meda</i>	<i>Grivabhanga</i>	<i>Hidhma</i> , <i>galasośa</i>
5	<i>Asthi</i>	<i>Jwara</i>	<i>Jwara</i>
6	<i>Majja</i>	<i>Manastapaapa</i> , <i>Dukha</i>	<i>Vyasana</i> , <i>manastapana</i>
7	<i>Śukra</i>	<i>Raktanetrata</i> , Death	<i>Raktanetrata</i> , Death

SCORPION

Scorpions are member of Scorpionidae family, class Archinida with head and thorax united, pincers, four pairs of legs and a segmented abdomen including a long tail with sting. Except for *Hemiscorpius Lepturus*, all venomous scorpion species, belong to the large family *Buaidae*.

Classification

Kingdom : Anamalia

Phylum : Arthropoda

Subphylum : Chelicerata

Class : Arachnida

Order : Scorpions

Superfamilies⁽²⁶⁾

1. **Family Buthidae**: - About 598 species widely distributed, even into temperate regions. Include some of the most dangerously venomous creatures. It is one of the oldest living family; often with a spine under the stinger.

2. **Family Chaeriloidae:** 18 species found in southern Asia and continental Southeast Asia. Female reproductive system includes an ovary, uterus, with yolk-rich ova developing within.

3. **Family Chactoidae:** 129 species found from Mexico to northern South America. 2 lateral eyes on each side.

4. **Family Iuroidae:** -21 species found in arid regions of the Americas as well as Turkey and Greece. Female reproductive system includes an ovary uterus. with yolk-poor ova developing within. Hadrurus is the largest species in the United States.

5. **Family Scorpionoidae:** 119 species found mostly in tropics and subtropics of Africa, Asia, and Australia. It includes the largest species, the emperor scorpion.

6. **Family Pseudochactoidae:** 1 species of Central Asia; first described in 1998.

Table No.5, Key to identify a scorpion family⁽²⁶⁾

Sl No	Character	Family
1	Tail very thick, thicker than chela Chela slender and round in cross section	Buthidae
2	Tail thinner than chela. Chela large and flattened in cross section	Scorpionoidae
3	Tail similar to legs in thickness	Ischnuridae
4	Body extremely flattened dorsoventrally. Legs and tail flattened. Dark brown scorpion occurs in rocky habitat	Hadogenes
5	Body slightly flattened or not flattened. Blackish coloured scorpions occur in forest and moist regions.	Opisthacanthus
6	Chela much thicker than tail, yellow to brown coloured scorpions appears in burrows	Opisthophthalmus
7	Chela only slightly thicker than tail.	Bothriuridae Lisposoma.

Envenomation⁽²⁷⁾

The causes of scorpion envenomation are primarily accidental. A clinical effect of the envenomation depends upon the scorpion species, lethality and dose of venom injected at the time of sting and also on the victim's physiological reactions to venom. Commonly scorpion sting produces severe pain that radiates upwards. Then the pain localizes at the sting spot. Slight discolouration with severe pain will be seen. The poisonous apparatus of the scorpion is the sting and associated venom glands. They bear at the tail end of the animal. The dilated basal part is called the ampulla or vesicle. The sting contains a pair of sac-like venom glands that open individually by pear-shaped apparatus, one on each side. The sting is movably articulated on the tail and is controlled by a pair of dorsal and ventro-lateral muscles, those originate on the last tail segment and function antagonistically to each other.

Scorpions use their pincers to grasp their prey; then, they arch their tail over body to drive their stinger into the prey to inject their venom, sometimes more than once. The scorpion can voluntarily regulate how much venom to inject with each sting. The striated muscles in the stinger allow regulation of the amount of venom ejected, which is usually 0.1-0.6 mg. If the entire supply of venom is used, several days must elapse before the supply is replenished. Furthermore, scorpions with large venom sacs, such as the *Parabuthus* species, can even squirt their venom.

The venom glands are located on the tail lateral to the tip of the stinger and are composed of 2 types of tall columnar cells. One type produces the toxins, while the other produces mucus. The potency of the venom varies with the species, with some producing only a mild flu and others producing death within an hour. Generally, the venom is distributed rapidly into the tissue if it is deposited into a venous structure. Venom deposited via the intravenous route can cause symptoms only 4-7 minutes after the injection, with a peak tissue concentration in 30 minutes and an overall toxin elimination half-life of 4.2-13.4 hours through the urine. The more rapidly the venom enters the bloodstream, the higher the venom concentration in the blood and the more rapid the onset of systemic symptoms.

Common symptoms of a scorpion sting

- Pain, tingling or burning sensation at the sting site

- Malaise, sweating, nausea and vomiting
- Salivation, numbness, muscle twitching
- Abnormal neck, eye and head movements/twitching
- Palpitations, breathing difficulties.

Grading of scorpion envenomation ⁽²⁸⁾

The grading of scorpion envenomation depends on whether or not neurological signs predominate and is as follows:

- Non neurological predominance
 - Mild - Local signs
 - Moderate - Ascending local signs or mild systemic signs
 - Severe - Life-threatening systemic signs
- Neurological predominance
 - Grade I - Local pain or paresthesia at the sting site
 - Grade II - Pain or paresthesia that has travelled from the sting site
 - Grade III - Either cranial nerve or somatic neuromuscular dysfunction
 - Grade IV - Both cranial nerve and somatic neuromuscular dysfunction

DISCUSSION AND CONCLUSION

Ayurvedic classics have considered *Vṛścika* as one of the type of *kīṭa* which possess ability to produce fatal signs & symptoms just like *Sarpa*. Severe pain, sharp burning sensation, swelling and erythema are the clinical manifestation in *Vṛścikadamśa*. Immediate acute pain at the site of the sting is an essential factor for the rapid search of medical care in *Vṛścikadamśa*. *Vṛścika viśa* is *vata* predominant in nature. Different types of *Vṛścika* are explained in classic with specific signs and symptoms. It is important to know the type of *Vṛścikadamśa* in order for proper management of the condition. In depth knowledge in this will help to manage the condition appropriately by choosing the concern treatment procedures and medicine

REFERENCE

1. *Caraka, Caraka Samhita, Ayurveda Dipika (Commentary)* Cakrapani Datta, Sharma Ramkaran Dr & Dash Bhagwan Vaidya (Eng.Trans), Chaukhambha Sanskrit Series Office, Reprint 2008, *Cikitsa sthāna* 23/140, page-360

2. *Suśruta, Suśrutasaṃhita, Nibandhasaṅgraha* commentary of Dalhana & *yāyacandrika Panjika* of Gayadasa, Edited by Vaidya Yadavji Trikamji *ācārya* & Narayan Ram *ācārya* 'Kāvyatīrtha', Chaukhamba Sanskrit Sansthan, Varanasi, Reprint, 2010, *Kalpasthāna* 8/56, p- 589
3. *Vṛddha Vāgbhata, Aṣṭāṅga Samgraha*, Indu (commentator), *Śaśilekha* (commentary), Chowkhamba Sanskrit series, Varanasi, *Uttarasthāna* 43/48-54, p-367.
4. *Vāgbhata, Aṣṭāṅga Hṛdaya, Sarvāṅgasundara* commentary of Arunadatta & *Ayurvedarasāyana* of *Hemādri*, Annotated by Dr. Anna moreswar Kunte & Krshna Ramachandra Sastri Navre, Edited by Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit Sansthan, Varanasi Reprint 2011, *Uttarasthāna* 37/15, p- 915
5. Madhavakara, Madhava Nidanam, Murthy KRS (trans.), Choukhambha Orientalia Varanasi, edi- 5, 2003, 69th chapter. p240
6. Sodala, Gadanigraha, Tripathi I (comm), Pandaya GS (edi.), Choukhambha Sanskrit Sansthan Varanasi, 2005; 3.5.166
7. Bhavamisra, Bhavaprakasha Nighantu, Chuneekar K (comm.), Choukhambha bharati academy Varanasi, 1988, 67th chapter. p772
8. Govindadasji, Bhaishajyaratnavali, Mishra B (edi.), edi-1, Lochan K (trans.), Choukhambha Sanskrit Bhawan Varanasi, 2006, 72nd chapter. p413
9. Sreedevi KV. A Randomized Controlled Trial on *Darvihinḡudhūpa* against *Arkapatrasweda* along with *Daśāṅgaagadain Vṛścikadamsa* (MD Dissertation). Trisshur: Kerala University of Health Sciences; 2014
10. Nitin Urmalia, Text book of Agada Tantra, 1st ed. Varanasi. Chaukhamba Orientalia, 2011. 14th chapter. p199.
11. *Suśruta, Suśrutasaṃhita, Nibandhasaṅgraha* commentary of Dalhana & *Nyāyacandrika Panjika* of Gayadasa, Edited by Vaidya Yadavji Trikamji *ācārya* & Narayan Ram *ācārya* 'Kāvyatīrtha', Chaukhamba Sanskrit Sansthan, Varanasi, Reprint, 2010, *Kalpasthāna* 8/56, p- 589.
12. *Vāgbhata, Aṣṭāṅga Hṛdaya, Sarvāṅgasundara* commentary of Arunadatta & *Ayurvedarasāyana* of *Hemādri*, Annotated by Dr. Anna moreswar Kunte & Krshna Ramachandra Sastri Navre, Edited by Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit Sansthan, Varanasi, Reprint 2011, *Uttarasthāna* 37/7, p- 915.
13. Menon Kuttikrishnan V. M, *Kriyā Kaumudi*, 1st Ed- 1986, *Sāhitya Pravartaka* Co-operative Society Ltd, Kottayam, Kerala, chapter- *Kītaviṣa prakaraṇam, śloka*-42-44, p-589.

14. *Caraka, Caraka Samhita*, Ayurveda Dipika (Commentary) Cakrapani Datta, Sharma Ramkaran Dr & Dash Bhagwan Vaidya (Eng.Trans), Chaukhambha Sanskrit Series Office, Reprint 2008, *Cikitsa sthāna* 23/140, page-360.
15. Kocunni Tamburan- *Prayogasamucchayam*, Devi Book Stall, Kodungalloor, Kerela, 1998, 7th chapter- *Vṛścika viṣa cikitsa*, p-210.
16. Menon Kuttikrishnan V. M, *Kriyā Kaumudi*, 1st Ed- 1986, *Sāhitya Pravartaka* Co-operative Society Ltd, Kottayam, Kerala, chapter- *Kīṭaviṣa prakaraṇam*, *śloka*-50-54, p-592.
17. *Suśruta, Suśrutasaṃhita, Nibandhasaṅgraha* commentary of Dalhana & *Nyāyacandrika Panjika* of Gayadasa, Edited by Vaidya Yadavji Trikamji *ācārya* & Narayan Ram *ācārya* 'Kāvyatīrtha', Chaukhamba Sanskrit Sansthan, Varanasi, Reprint, 2010, *Kalpasthāna* 8/59-66, p- 590.
18. *Vāgbhata, Aṣṭāṅga Hṛdaya, Sarvāṅgasundara* commentary of Arunadatta & *Ayurvedarasāyana* of Hemādri, Annotated by Dr.Anna moreswar Kunte & Krishna Ramachandra Sastri Navre, Edited by Pt.Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit Sansthan, Varanasi Reprint 2011, *Uttarasthāna* 37/8-10, p-915.
19. *ibid - Uttaraṣṭhāna* 37/6, p-915
20. *ibid – Uttaraṣṭhāna* 37/11-12, p-915
21. *ibid – Uttaraṣṭhāna* 37/17-23, p-915-916.
22. *Bhāvamiśra, Bhāvaprakāśa* (Srikantamurthy KR,translation,English) 2nd ed. Varanasi: Chaukhambha Orientalia;2002;2:p- 768.
23. Kocunni Tamburan- *Prayogasamucchayam*, Devi Book Stall, Kodungalloor, Kerela, 1998, 7th chapter- *Vṛścika viṣa cikitsa*, p-211
24. Menon Kuttikrishnan V. M, *Kriyā Kaumudi*, 1st Ed- 1986, *Sāhitya Pravartaka* Co-operative Society Ltd, Kottayam, Kerala, chapter- *Kīṭaviṣa prakaraṇam*, *śloka*-44-45, p-590.
25. *ibid- śloka*-6-8, p-590.
26. Bijoy.V et al, Randomized controlled trial on *Arkapatrasweda* against *sakṣāralavaṇa āranāladhāra* in *Vṛścika damśa*, Kottakkal-2009, p- 46-52.
27. Sreedevi KV. A Randomized controlled trial on *Dārvihiṅgu dhūpa* against *Arkapatra sweda* along with *Daśāṅga agada* in *Vṛścika damśa* (MD Dissertation). Trissur: Kerala University of Health Sciences;2014
28. David Cheng, Scorpion Envenomation, Medscape, Updated: April 22, 2016, Accessed 24 April 2016, [http://emedicine.medscape.com/article/168230- Overview](http://emedicine.medscape.com/article/168230-Overview)