

CONCEPTUAL STUDY ON ANTI TOXIC EFFECT OF DASANGA AGADA IN
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ABSTRACT

Poison has been a challenge and threat to well being; even existence of life. *Ayurveda* has mentioned the bite of *Sarpa*, *Keeta*, *Luta*, *Vrishchika* etc., the *Jangama Visha* (animate poisons), their characteristic symptoms and its management, in a very special branch called as *Agadatantra*. Even though *Vrishchika* (scorpions) is a type of *Keeta* (insect) due to its severity of poisoning and disease manifestations *Ayurveda acharyas* have given special attention to *Vrishchika visha* and are described in the classics as a special entity. *Vrishchika damsa* is specific envenomation that needs medical attention. Much fruitful traditional and regional knowledge are there in the management of *Vrishchika damsa*. In India also in several places *Vrishchika damsa* occurrence is high. As India had to bear with invasions of foreign forces, several knowledge streams were deported and destroyed from the land. Several works on *Agadatantra* also suffered in this on slaughter. The presently available descriptions of *Vrishchika visha* in *Agadatantra* are from *Susruta samhita kalpa sthana*, *Uttara sthana* of *Ashtanga samgraha* & *Ashtanga hridaya* and *Charaka samhita Chikitsa sthana*. *Dasanga agada* mentioned by *Vagbhatacharya* (A.H.U.37/28) indicated in *Keetavisha* is a commonly used drug in *Vrishchika damsa*. So present paper gives an idea of medicinal effect of *Dasanga agada* in *Vrishchika damsha*.

KEYWORDS: *Vrishchika damsha*, Scorpion poison, *Dasanga agada*.

INTRODUCTION

Agada tantra is a branch that always demands the practical training (*Drushtakarmatwa*) more than any other branches of *Ayurveda* as it has to deal with fatal cases and emergency management. *Vrishchika* is said to be oldest poisonous creature of the earth. This eight legged creature causes more than five thousand deaths worldwide in a year. Among 800-1000 species, 30 species are lethal to humans.^[1] Red scorpion is said to be most lethal among which found in India. Scorpions are mainly found in warm dry climates almost all over the world. Most scorpions are nocturnal, hiding under rocks, in cracks, or within burrows during the day, and coming out after sunset. Although they are normally associated with hot, dry areas like deserts, scorpions are found in a variety of habitats including grasslands, savannas, deciduous forests, mountain pine forests, rain forest, and caves. Scorpions have even been found under snow-covered rocks at elevations of over 12,000 feet in the Himalayas of Asia and the Andes Mountains of South America. The toxicity of scorpion venom is due to the presence of non-enzymatic protein serotonin.^[2]

AIMS AND OBJECTIVES

- To study anti toxic effect of *Dasanga agada* in *vrishchika damsha*.
- To evaluate and discuss the Ayurvedic property of *Dashang agad* and its mode of action in *vrishchika damsha*

MATERIALS AND METHODS

The study on *Vrishchika visha* and *Dasanga agada* was done with the help of Ayurvedic Samhitas especially *Sushruta Samhita* and *Asthang Sangreha* and conceptualize and summarize the data of different samhita and respective commentaries. The text book of modern medicine and index medical journal has been also referred to review of material of consent topic.

CONCEPTUAL STUDY

General features of *vrishchika visha* according to *Acharya Vagbhata*. The features of *visha* in *vrishchika* are:

- *Tiskhnan* (highly potent) in nature
- *Ushna* (hot potency), so it causes *daha* (burning sensation like fire)

- In the beginning there will be *daha* on the *damshasthana* (bite site) and there after it spreads upwards (general spread)
- At the end, it localizes at the site of the sting. It produces severe pain, blackish discoloration and throbbing type of pain at the site of the sting.^[3]

Scorpion Venom^[4]

scorpion venom is a cocktail of several neurotoxins, cardiotoxins, nephrotoxins, hemolytic toxins, nucleotides, amino acids, oligopeptides, phospholipase-A, hyaluronidase, acetylcholine esterase, histamine, serotonin, 5- hydroxyptamine and proteins that inhibit protease, angiotensin's and succinate dehydrogenase.

Mechanism of action Scorpion venom^[5]

Scorpion venom is a potent sodium channel activator. It causes, delay in closing of neuronal sodium channels, which results in "autonomic storm" leading to sudden pouring of endogenous catecholamine's into circulation leading to transient sympathetic and parasympathetic stimulation.

Scorpion bite symptoms^[6]

Scorpion venom (sting) causes massive release of neurotransmitters, which result in various clinical features resulting from envenomation. Scorpion bite Symptoms such as profuse sweating, vomiting, increased salivation, bradycardia, priapism, cold extremities or transient hypertension followed by development of severe cardiovascular manifestations such as hypotension, tachycardia, pulmonary edema, tingling numbness and restlessness. Morbidity and mortality are result due to acute refractory pulmonary edema, cardiogenic shock and multi-organ failure

About Dasanga Agada^[7]

Dasanga Agada mentioned by *Vagbhatacharya* (A.H.U.37/28) indicated in *Keeta visha* is a commonly used drug in *Vrischika dams*. *Dasanga agada* was more effective in the management of Scorpion sting. Also, *Dasanga agada* was found more effective in swelling and itching sensation.

Table 1 presenting contents of *Dasanga agada*^[8,9,10,11,12,13,14,15,16,17]

S. No.	Drug	Botanical name	Ayurvedic properties	Karma	Pharmacological properties
1.	<i>Vacha</i> ^[8]	<i>Acorus calamus</i>	<i>Rasa</i> - <i>Katu, tikta.</i> <i>Guna</i> - <i>Laghu, teekshna.</i> <i>Virya</i> - <i>Ushn'a.</i> <i>Vipaka</i> - <i>Katu.</i> <i>Prabhaava</i> - <i>Medhya.</i> <i>Dośaghnata</i> - <i>Kapha vātaghna</i>	<i>Mootrajanana</i> <i>shothaghna dravya.</i> <i>sangyaasthaapana,</i> <i>deepana, paachana,</i> <i>and aakshepahara</i>	Hypotensive, antimicrobial, anti-inflammatory, antipyretic.
2.	<i>Hingu</i> ^[9]	<i>Ferula asafoetida</i>	<i>Rasa</i> - <i>Katu.</i> <i>Guna</i> - <i>Laghu, snigdha,</i> <i>Virya</i> - <i>Ushna.</i> <i>Vipaka</i> - <i>Katu.</i> <i>Dośaghnata</i> - <i>Kapha vātaghna.</i>	<i>Vedanaasthapana</i> <i>dravya deepana,</i> <i>paachana</i> and <i>mootrajanana,</i> <i>shotha.</i> As it contains Sulphur it is very useful in reducing <i>kandu</i> . It also acts as a <i>krimighna</i>	Antispasmodic, cardiac, Analgesic, Antibacterial.
3.	<i>Vidanga</i> ^[10]	<i>Embelia ribes</i>	<i>Rasa</i> - <i>Katu, kasaya.</i> <i>Guna</i> - <i>Laghu, ruksha,</i> <i>Virya</i> - <i>Ushna.</i> <i>Vipaka</i> - <i>Katu.</i> <i>Prabhaava</i> - <i>Krimighna.</i> <i>Dośaghnata</i> - <i>Kapha vātaghna.</i>	<i>Krimighna dravya,</i> <i>rakta shodhaka,</i> <i>shoolaghna,</i> <i>vedanaashtapana,</i> <i>varnya</i> and <i>shothahara,</i> <i>udarashoola, kushta,</i> <i>aadhmaana,</i>	Antibiotic, anti-inflammatory, hypotensive, antipyretic, immunostimulant,
4.	<i>Saindhava</i> ^[11]	<i>Rock salt</i>	<i>Rasa</i> - <i>Lavana.</i> <i>Guna</i> - <i>Shita, ruksha.</i> <i>Virya</i> - <i>Shita.</i> <i>Vipaka</i> - <i>Madhura.</i> <i>Dośaghnata</i> - <i>Tridoshghna.</i>	<i>Rochana, deepana,</i> <i>mootrala</i> and <i>chhedana shoola</i> and <i>vibandha, kapha</i> <i>nissaaraka</i>	Cardiotonic, anti-inflammatory, antioxidant,
5.	<i>Gajapippalee</i> ^[12]	<i>Scindapsus officinalis</i>	<i>Rasa</i> - <i>Katu.</i> <i>Guna</i> - <i>Laghu, snigdha,</i> <i>Virya</i> - <i>Anushnasita.</i> <i>Vipaka</i> - <i>Katu</i> <i>Doshghnata</i> - <i>Kapha vātaghna.</i>	By its <i>ushna guna</i> it also acts as a <i>shothahara</i> and <i>vedanaa sthapana</i> . It is indicated in	Anti-inflammatory, analgesic, antibacterial, respiratory ailments,

				vaatavyaadhi, jwara, kamala and pleehaa vriddhi. It is yogavaahi and rasaayana in nature	
6.	Patha ^[13]	Cyclea peltata	Rasa - Tikta. Guna -Laghu, teekshna. Virya - Ushna. Vipaka - Katu. Doshaghna -Tridoshghna	Path'a is a vishaghna drug. By its ush'na guna it helps to reduce shotha. vranashodhana and vranaropana dravya. Daaha prashamana and mootralla, deepana, pachana, kandughna and kush'tagha guna.	Kusth aghan, blood purifier, anti inflammatory, heart disorders, blood disorders.
7.	Prativishaa ^[14]	Aconitum heterophyllum	Rasa - Tikta,katu. Guna - Laghu, ruksha. Virya - Ushna. Vipaka - Katu. Dośaghna - Tridoshghna.	By virtue of its ush'na guna, prativish'a is kaphahara, shothahara, and vedanahara. It is deepana, pachana, and jwaraghna. raktasodhaka dravya and indicated in atisara, kasa, and swasa.	Visghan,used in rat vish,,IBS, visha roga
8.	Shunthi ^[15]	Zingiber officinale	Rasa - Katu.. Guna - Laghu,snigdha. Virya - Ushna. Vipaka - Madhura. Doshaghna- Kapha vataghna.	Shunthi is sothahara and vedanaahara drug. vatanulomana and shoola prashamana property. It is rakta sodhaka and aama pachaka in nature. It is capable to remove srotorodha	Anti-inflammatory, Hridya, pain killer, Anti-allergic, Vishaghna.
9.	Maricha ^[16]	Piper nigrum	Rasa - Katu. Guna - Laghu, teekshna. Virya - Ushna. Vipaka - Katu. Doshaghna-Vatakaphaghna.	By the virtue of its ush'na guna, maricha is a deepana, pachana and vataanulomana in action. Due to its ush'na guna it also acts as a sothahara drug. As it possesses the property of srotasasodhana it is called as the pradhana pramathi dravya. It is also helpful in reducing the pain.	Anti-allergic activity, Anti convulsant and anti-inflammatory agent, Analgesic activity, Antioxidant radical scavenging activities.

10.	Pippalee ^[17]	Piper longum	<i>Rasa</i> - <i>Katu</i> . <i>Guna</i> - <i>Laghu, teekshna</i> . <i>Virya</i> - <i>Anush'n'asita</i> . <i>Vipaka</i> - <i>Katu</i> . <i>Doshaghnata</i> - <i>Kapha</i> <i>vàtaghna</i> .	<i>Pippalee is one of the best krimighna dravya. By its ushna guna it also acts as a sothahara and vedana sthapana. It is indicated in vaatavyaadhi, jwara, kaamala and pleehaa vriddhi. It is yogavaahi and rasayana in nature</i>	Anti-inflammatory, immunestimulatory, hepatoprotective, anti-narcotic, anti-ulcerogenic.
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Probable mode of action

Dasanga agada is a *vishahara yoga*. This property may be due to the *prabhava* of the yoga than the effect of its individual ingredients. The poison entered in the body would be soon distributed in the body after vitiating the *rakta dhatu*. To neutralize the poison internal administration of *vishahara* drug is essential. Also, the *acharyas* are described the importance of complete elimination or neutralization of the poison is necessary; as partial neutralization or elimination can cause delayed effects on the body. Mode of action of drugs depends on many factors like *rasa, guna, veerya, vipaka, prabhava, karma, doshaghnata* etc. *Dasanga agada* is used in Kerala very widely for toxic conditions and is found to be very effective in insect-bite. It is a clinically proved effective drug in *Vrishchika dams*. The *prabhava* of the yoga is said "*sarva keeta visham jayte*" (A.H.U 37 / 28). i.e., it relieves the effects of poison of insect bite. By virtue of the unique combination of the *yogadravyas*, this yoga acts as *vishaghna*. However action of yoga is due to its *yoga prabhava*, the properties of that yoga can be understood by properties of individual ingredient also. While analyzing the *doshaghnata* property of the ingredients of the yoga, the drug is having *vata kaphaghna* and *tridoshaghna* property. On analyzing the *guna* of the individual ingredients, the drug is *laghu teekshna* predominant. Likewise its *rasa* is *katu, tikta; vipaka* is *katu, madhura*; and *veerya* is *ushna Anushnaseeta* predominant in combination. By virtue of these properties the properties of *Dasanga agada* can be *vata kaphaghna, laghu teekshna guna, katu rasa, katu vipaka* and *ushna veerya*.

DISCUSSION

The cases of scorpion poisoning reported in India was 3-22% Scorpion venom symptoms are produces are mostly classified into Two group Local and Systemic, in local-Swelling, sweating and radiating pain, along the involve dermatome (area of skin that is supplied by a single spinal nerve). Systemic manifestation includes – vomiting, hyper salivation, midriasis, priapism, hypotension. Pulmonary edema is common cause of fatality. Scorpion Antivenom is one of the line of treatment in India, though it is specific antidote to venom action it does not prevent or reverse the cardio vascular morbidity. So it is the time need to evaluate the Anti venom activity of medicinal plant. Since ancient time many herbs are use

in the treatment of scorpion bite and it is also scientifically proved. there are so many plant which has a therapeutic value in the scorpion bite treatment. As we know that *Damsa* of *Vrishchika* causes *vata* vitiation in the body So this *dasanga agada* contains various *vatahara* drugs *Dasanga agada* contains some plants which have *vishghna, hridyak* property (Table no-1) – *Vacha, gajpippali, patha, hingu, vidang* produces the Analgesic, Anti-inflammatory, Anti-Oxidant, Anti-depressant, Hypotensive and Wound healing properties. In spite of this *patha, hingu, saindhav, shunthi* present in yoga produces cardioprotective property. Most of the contents of drug showing *Vedanasthapan Vranropan, Shothahar, Hridya, Vishaghana* which is scientifically proved.

CONCLUSION

According to the classical references in *Ayurveda* the poisoning caused due to scorpion bite can be treated successfully if it is in *sadhya* (easily curable) condition. Table mentioned above clearly envisage that the herbal medications have excellent potential to treat various ailments including scorpion bite. The contents of *Dasanga Yoga* used in the treatment of scorpion stings shows makeable properties which could help in treating ailment. The method of preparation and mode of action is also simple and convenient. They are comparatively safer than synthetic drugs However; further studies are required to identify the phytochemicals responsible for antiscorpion activity of these medicinal yoga and also various other formulations.

REFERENCES

1. Chippaux JP and Goyffon M. Epidemiology of scorpionism: a global appraisal. *Acta Trop*, 2008; 107: 71-9.
2. Muller GJ. Scorpionism in South Africa. A report of 42 serious envenomations. *South Afr Med J*, 1993; 83: 405- 11.
3. Asthang Sangraha by Dr K.R. Srikantha Murthy, Chaukhambha Orientalia, published-1999, Uttartantra Adhaya 37-355.
4. Bawaskar HS, Bawaskar PH, Scorpion Sting: Update. *JAPI* January, 2012; 60: 46-55.
5. Vasconcelos F, Lanchote VL, Bendhack LM, Giglio JR, Sampaio SV, Arantes EC. Effects of voltage-

- gated Na⁺channel toxins from *Tityusserrulatus* venom on rat arterial blood pressure and plasma catecholamines. *Comp BiochemPhysiol C ToxicolPharmacol*, 2005; 141: 85– 92. [PubMed]
6. Deshmukh Sunil Dnyaneshwar, Chalakhi Sonali A. Critical Review on Anti-Scorpion Activity of Herbs www.iamj.in IAMJ, November- 2016; 4(11).
 7. Asthang Sangraha by Dr K.R.Srikantha Murthy, Chaukhamba Orientalia, published-1999, Uttartantra Adhaya no. page 37 -355.
 8. Sharma P.; Dravyaguna Vigyan; Chaukhamba Bharati Academy Varanasi; Reprint 2009.
 9. Gyanendra Pandey Dravyaguna Vijana Vol 1, 3rd edition 2005 Chaukhamba Krishna Das Academy, Varanasi pp 386-391.
 10. Gyanendra Pandey Dravyaguna Vijana Vol 1, 3rd edition 2005 Chaukhamba Krishna Das Academy, Varanasi pp-102-112.
 11. Gyanendra Pandey Dravyaguna Vijana Vol 1, 3rd edition 2005 Chaukhamba Krishna Das Academy, Varanasi pp-366-375.
 12. Gyanendra Pandey Dravyaguna Vijana Vol 1, 3rd edition 2005 Chaukhamba Krishna Das Academy, Varanasi pp-102-112.
 13. Dr.K.Nishteshwar Text book of Dravyaguna, Ist Edition 2007 Chaukhamba Surbharati Prakashn Varanasi pp 240.
 14. Gyanendra Pandey Dravyaguna Vijana Vol 3, 3rd edition Reprint 2014 Chaukhamba Krishna Das Academy, Varanasi pp-428-434.
 15. Dr.K.Nishteshwar Text book of Dravyaguna, Ist Edition 2007 Chaukhamba Surbharati Prakashn Varanasi pp 240.
 16. Gyanendra Pandey Dravyaguna Vijana Vol 3, 3rd edition Reprint 2014 Chaukhamba Krishna Das Academy, Varanasi pp-428-434.
 17. Gyanendra Pandey Dravyaguna Vijana Vol 3, 3rd edition Reprint 2014 Chaukhamba Krishna Das Academy, Varanasi pp-428-434.