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A Comprehensive Literary Review On The *Krimighna* (Anthelmintic) Effect Of *Shigru* (*Moringa Oleifera* Lam.) In Ayurveda

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ABSTRACT: -

Ayurveda is one of the world's oldest medical systems. Since the ancient period, *Krimi roga* (worm infestations) are still present with worldwide cosmopolitan distribution among different classes. India is widely prevalent Asian country with 60% to 80% estimated cases found in West Bengal, Bihar, Orissa, Punjab, Tamil Nādu and Andhrapradesh. The greater infestations in our country due to improper unhygienic diet and behavior due to illiteracy triggered by environmental and socio-economic status make the burden of severe nutritional deficiencies, anaemia and death. All microorganisms like bacteria, virus, parasite and fungus can be included under the word *Krimi*. There are several medicinal plants which have been mentioned by the Ayurvedic classics as *krimighna* or anthelmintic agent, among them *Shigru* (*Moringa oleifera* Lam.) is one of the widely used *krimighna dravya* (Anthelmintic agent) in Ayurveda. So, in present study *Shigru* has been taken into consideration for its literary review through different classical texts from ancient era to till date. The information regarding its pharmacodynamics as well as procedure of therapeutic uses to be placed here in a methodical manner with the conceptual legitimacy. This review will give an idea about the properties, *dosa karma* and therapeutic uses of *Shigru* and the effect of *Shigru* as *krimighna dravya*.

Keywords- *Ayurveda*, *Shigru*, *Moringa oleifera*, *Krimi roga*, *Samhita*, *Nighantu*



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INTRODUCTION

Ayurveda, the most ancient medical system of the world has dealt with the prevention and cure of the disease by introduction of herbs^[1], minerals, organic compounds etc. The terminology “*Krimi*” may be correlated with helminths or parasites or microbial agents of modern medicine. As *krimi* is responsible for causation of several diseases and there are several herbs have been used in Ayurveda to kill *krimi*, or to restrict the multiplication of *Krimi* and also to wash out *krimi* from the host’s intestine. *Shigru* is one of such *krimighna dravya* (Anthelmintic agent) which has been mentioned by different ancient classics. So, in the present study it has been aimed to collect all those information and to present those in a methodical manner with conceptual legitimacy. More than 1.5 billion people, or 24% of the world’s population are infected with soil-transmitted helminth infections worldwide^[2]. Intestinal parasitic infections are a major source of health concern in India like in any other developing nations. The overall prevalence of intestinal infections, caused by enteric parasites ranges from 12.5-67% in India^[3]. Lot of complications can occur in helminth infection, which may include-anaemia, malnutrition, growth retardation, intestinal obstruction, gastrointestinal haemorrhage, etc.

There are several *Krimighna dravyas* in Ayurveda. According to *Charaka Samhita, Sutra Sthana* /4/15, “*akṣīva marica gaṇḍīra kebuka viḍaṅga nirguṇḍī kiṇihī śvadamṣṭrā*

vṛṣaparnīkākhuparnīkā iti daśemāni krimighnāni bhavanti”

Ten *krimighna dravyas* are *akshiva, maricha, gandira, kebuka, vidanga, nirgundi, kinihi, swadamstra, vrisaparnika* and *akhuparnika*. Among them *Akshiva* or *Shigru* was mentioned first.

According to *Rigveda* (4500-1600BC), *Shigru* is a domestic plant which is applied in *Krimirogas* (*Kousika sutra*29/26). The medicinal value of *Shigru* is mentioned in most of the Ayurvedic literatures such as *Charaka Samhita*^[4], *Susruta Samhita*^[5], *Astanga Hridaya*^[6], *BhelSamhita*^[7], *HaritaSamhita*^[8], *Bhavaprakasha Samhita*^[9], *Kashyapa Samhita*^[10], etc. *Shigru* seed is mentioned under *Sirovirechaniya dravya* and effective in *Ardhababhedaka* and *Sirogata krimi roga* etc. (Cha/Su/2/3). It is very much effective in the treatment of *Krimiroga*(Cha/Si/8/10).*Shigru* is mentioned in *Vata kapha janya roga* specially in *Krimiroga, Prameha, Siraroga* etc.(Su/Su/45/115). *Kaiyadeva Nighantu*^[11] has mentioned its uses in abscess, oedema, *Krimi* and wound. It has specifically mentioned karma of flower, fruit and seed of *Shigru*. *Shaligram Nighantu*^[12] has mentioned *Shigru* in *Guduchyadi varga* and mentioned specifically uses of seed, leaves, fruits and flowers. *Acharya Sushruta* has mentioned *Guna* of *Shigru* in his *Samhita* (Su.46/237). *Acharya Vagbhata* has explained *Shigru Guna* in *Sutrasthana* (Su.6/106-107). *Sharangadhara Samhitaha*^[13] mentioned role of *Shigru* in different

forms as *Kwatha, Churna, sneha, Lepa* etc. Bhavaprakasha *Samhita* has used *Shigru beej churna* in *krimaja shiroroga* (M.K.62/40). In *Vangasena Samhita*, it is mentioned to use *Yagavu* of *Shigru* in *Krimi* (P1.11/20). In *Harita Samhita*^[14] *Shigru* is used for pain and fever. *Madanpal Nighantu*^[15] has mentioned its uses in abscess, oedema, *Krimi* and wound.

Scientific Classification (Wealth of India, 1948-76)

Kingdom-Plantae

Order-Brassicales

Family-Moringaceae

Genus-Moringa

Species-oleifera

Scientific Name^[16]-*Moringa oleifera* Lam.

Sanskrit Synonyms^[16]

Shigru-Strong and piercing qualities

Akshiba-Relieves intoxication

Tiksnagandha-Strong and pungent odour

Mocaka-Helps to cure diseases

Sobhajana-Very beautiful auspicious tree with flowers

Ghanachhada / Bahalapallava-having dense foliage

Bahumula-has many roots

Laghupatraka-leaflets are small.

Sweta maricha-looks like *Maricha*, but white in colour.

Common Name- Sajina.

The plant is also known as Horseradish tree (The roots from young plants can also be dried and ground for use as a hot seasoning base with a flavour similar to that of horseradish), Miracle tree (It is fast -growing, multi-purpose and the most useful tree due to its medicinal and nutritional properties), Drumstick tree, and Mother's Best Friend. It is indigenous to north-west India and frequently cultivated all over India¹⁷. It's root, bark, stem bark, leaves, flowers, fruits and seeds¹⁷ are used as medicinal as well as nutritional purposes. Leaves, roots, bark and seeds of *Moringa oleifera* show anti-microbial activity against bacteria and fungi.

Major Chemical Constituents^[17].

Bark- sterols, terpenes (bayrenol)

Leaves- amino acids viz. aspartic and glutamic acid, serine, glycine etc.

Whole plant- moringine, moringinine, bayrenol, indole acitic acid, pteregospermine, carotene etc.

Flowers- Ouercetin, kaempferol

Botanical Description^[18]: The plant *Shigru* is a small or medium-sized tree, growing upto 10m. Bark-corky, soft, thick, deeply fissured. Wood is soft. Leaves-tripinnate, 30.5-61.0 cm long; leaflets elliptic. Flowers-bisexual, irregular, fragrant, white, in large panicles. Fruits-pod, triangular ribbed, pendulous, greenish, 22.5-50.00 cm or more in length. Seeds-trigonal, winged (flowers in February-March and fruits in March-April).



Shigru (*Moringa oleifera* Lam.)**Properties^[19]***Rasa: katu, Tikta**Virya: Ushna**Vipaka: Katu**Guna: Tikshna, Ruksha, Laghu.**Karma: Kapha-vatahara, Krimighna, Sukrala, Grahi, Dipana, Hridya, Caksusya.***Indication¹⁹:** *Krimiroga, Pliharoga, Galaganda, Sirasula, Kandu, Sotha, Apachi, Vrana, Medoroga, Vidradhi, Gulma.*

Root bark, Stem bark, leaves, fruits, flowers and seeds are used as medicinal purpose.

Doses:¹⁹**Root bark juice:** 10-20 ml**Stem bark decoction:** 50-100 ml**Seed Powder:** 3-6 gm**MATERIALS AND METHODS**

The medicinal value of *Shigru* is determined by its pharmacological properties. Ayurvedic physicians generally follow Charaka Samhita, Susruta Samhita, Astanga Sangraha, Bhavaprakasa Nighantu, Raja Nighantu etc. to know the pharmacological properties of *Shigru*. In traditional practice *Shigru* (*Moringa oleifera* Lam.) is used in the management of various diseases. This review will throw a light to be rich with the knowledge on the different properties, classification, dosa Karma and therapeutic action of *Shigru* mentioned in various Ayurveda text books and described in table 1, 2, 3 & 4.

Table No.1: Showing that *Shigru* has been classified into different *ganas* and *vargas* according to *Brihatrayee* and *Nighantus*^[20] are as follows:

<i>Charaka Samhita</i>	<i>Krimighna, Swedopaga, Shiroverechanapaga and Katuka skanda</i>
<i>Susruta Samhita</i>	<i>Pachana gana, Varunadi gana and Shiroverechana gana</i>
<i>Kaidev Nighantu</i>	<i>Aushadhadi varga</i>
<i>Ashtanga Hridaya</i>	<i>Nasya Gana and Shyamadi Varga</i>
<i>Raj Nighantu</i>	<i>Mulakadi varga</i>
<i>Dhanwantari Nighantu</i>	<i>Karaviradi varga</i>
<i>Vagbhata</i>	<i>Varunadi Varga</i>
<i>Bhavaprakasha Nighantu</i>	<i>Guduchtadi varga</i>
<i>Dhanvantari Nighantu</i>	<i>Karviradi Chaturtha varga</i>
<i>Madanpal Nighantu</i>	<i>Saka varga.</i>
<i>Shaligram Nighantu</i>	<i>Guduchyadi varga</i>
<i>Nighantu Adarsa</i>	<i>Sigrudi Varga</i>
<i>Priya Nighantu</i>	<i>Haritakayadi varga</i>

Table No.2: Showing types^[21]of Shigru in different Ayurvedic classics:

Samhitas /Nighantu	Types of Sigrū		
<i>Charaka Samhita</i>	<i>Shigru(white)</i>	<i>Sigruka (red).</i>	-
<i>Sushruta Samhita</i>	<i>Shigru</i>	<i>MadhuShigru</i>	-
<i>Ashtang Hridayam</i>	<i>MadhuShigru</i>	<i>Shigru</i>	-
<i>Dhanvantari Nighantu</i>	<i>Shweta</i>	<i>Rakta</i>	-
<i>Madanpal Nighantu</i>	<i>Shweta</i>	<i>Rakta</i>	-
<i>Raj Nighantu</i>	<i>Shweta</i>	<i>Rakta</i>	<i>Neela</i>
<i>Kaiyadeva Nighantu</i>	<i>Shweta</i>	<i>Rakta</i>	-
<i>Bhavaprakasha Nighantu</i>	<i>Shyama</i>	<i>Shweta</i>	<i>Rakta</i>
<i>Shaligram Nighantu</i>	<i>Shweta</i>	<i>Rakta</i>	-
<i>Nighantu Aadarsha</i>	<i>MadhuShigru</i>	<i>KatuShigru</i>	-

Table No.3: Showing properties of Shigru (Moringa oleifera) in Samhitas, Samgrahas and Nighantus

Sl. No	Samhita/ Samgraha/Nighantu	Rasa	Guna	Virya	Vipaka	Dosa karma
1.	<i>Charaka Samhita²²</i> (Ch.S.)	<i>Katu</i>	<i>Laghu, ruksha, tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavata samak,</i>
2.	<i>Susruta Samhita²³</i> (Su.S.)	<i>Katu</i> <i>Madhura, kshara</i>	<i>Pichhila</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavata samak,</i>
3.	<i>AstangaSamgraha²⁴</i> (As.S.)	<i>Katu</i>	<i>Laghu, ruksha, tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavata samak,</i>
4.	<i>Bhavaprakash Nighantu²⁵</i> (B.N.)	<i>Tikta, katu, madhura</i>	<i>Tikshna laghu, ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vatahara, Kaphahara, Vatanulomaka</i>

			<i>khara</i>			
5.	<i>Kaiyadeva Nighantu</i> ²⁶ (K.N.)	<i>Katu</i> <i>tikta,</i> <i>Madhura</i>	<i>Tikshna,</i> <i>laghuy,</i> <i>ruksha,</i> <i>kshara</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavata</i> <i>samak,</i> <i>Raktapitta</i> <i>prakopa</i>
6.	<i>Madanaphala</i> <i>Nighantu</i> ²⁷ (M.N.)	<i>Not</i> <i>mentioned</i>	<i>Tikshna,</i> <i>laghu</i>	<i>Ushna</i>	<i>Not</i> <i>mentioned</i>	<i>Kaphavata</i> <i>samak</i> <i>Raktapitta</i> <i>prokopaka</i>
7.	<i>Raja Nighantu</i> ²⁸ (R.N.)	<i>Katu,</i> <i>Tikta</i>	<i>Tikshna</i>	<i>Ushna</i>	<i>Not</i> <i>mentioned</i>	<i>Vatahara</i>
8.	<i>Dhanwantari</i> <i>Nighantu</i> ²⁹ (D.N.)	<i>Katu,</i> <i>Tikta</i>	<i>Not</i> <i>mentioned</i>	<i>Ushna</i>	<i>Not</i> <i>mentioned</i>	<i>Vatahara,</i> <i>Kaphahara</i>
9.	<i>Nighantu Adarsa</i> ³⁰ (N.A.)	<i>Katu,</i> <i>Tikta</i>	<i>Tikshna</i> <i>Laghu</i> <i>Ruksha</i> <i>Kshara</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphahara</i>
10.	<i>Shaligram Nighantu</i> ³¹ (S.N.)	<i>Katu,</i> <i>madhura</i>	<i>Ushna,</i> <i>tikshna,</i> <i>Laghu</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Vatahara,</i> <i>Kaphahara</i>
11.	<i>Priya Nighantu</i> ³² (P.N.)	<i>Katu,</i> <i>Tikta</i>	<i>Tikshna</i>	<i>Ushna</i>	<i>Not</i> <i>mentioned</i>	<i>Kaphavata</i> <i>samak,</i> <i>Raktapitta</i> <i>prakopaka</i>
12.	<i>Sankar Nighantu</i> ³³ (S.N.)	<i>Madhura</i>	<i>Tikshna,</i> <i>Laghu</i>	<i>Ushna</i>	<i>Not</i> <i>mentioned</i>	<i>Not mentioned</i>

Table.4: Showing therapeutic action of *Shigru*(*Moringa oleifera*) in *Samhitas*,*Samgraha* and *Nighantus*

<i>Karma</i>	C.S. ^[22]	S.S. ^[23]	A.S. ^[24]	B.N. ^[25]	K.N. ^[26]	M.N. ^[27]	R.N. ^[28]	D.N. ^[29]	N.A. ^[30]	Sh. N ^[31]	P.N. ^[32]	Sa. N ^[33]
<i>Krimighna</i>	+	+	+	+	+		+	+			+	+
<i>Dipan</i>				+	+		+			+		+
<i>Rochan</i>					+		+			+		
<i>Vidahi</i>					+					+		
<i>Medoghna</i>	+	+		+	+			+		+		+
<i>Visaghna</i>				+	+			+		+		+
<i>Vidradhihara</i>		+		+	+	+		+			+	
<i>Gulmaghna</i>			+	+	+			+	+	+	+	+
<i>Shwayathuhara</i>		+		+	+		+				+	
<i>Pliharogahara</i>				+	+					+		+
<i>Samgrahi</i>					+							
<i>Hridya</i>				+	+	+						+
<i>Sulaghna</i>				+	+			+			+	
<i>Sukravardhak</i>				+						+		+
<i>Gandamalanasak</i>										+		+
<i>Apachi nasak</i>				+	+					+		+
<i>Akshepani varaka</i>									+			
<i>Mutrala</i>				+					+			
<i>Chakshyusa</i>				+	+					+		
<i>Amanasak</i>								+				
<i>Vranahara</i>		+		+	+							

DISCUSSION

Shigru is described in Vedas, Brihatrayies & Laghutraies. Various synonyms like *Mochaka*, *Shobhanjana*, *Tikshnagandha*, *Akshiba* etc. are

described in various Nighantus. *Shigru* (*Moringa oleifera* Lam.) belongs to family Moringaceae and commonly known as Horse radish tree or Ben tree or Drum stick plant. Results from above studies, it is found that the plant, *Shigru* has a dominance of *katu* and *tikta rasa*; *laghu*, *ruksha*, *tikshna gunas*. It has *ushna virya* and *katu vipaka*.

The specific action of *Shigru* is *Kaphavatahara*, *Krimighna*, *Sukrala*, *Grāhi*, *Dīpana*, *Hridaya*, *Cakṣusya*, *Granthihara*, *Gulmahara*, *Medorogahara*, *Visarpaghna*, *Shothara*, *Galagandahara*, *Ashamarighna*, *Kushtahara* and *Kshatahara*. Though it is *Vatakaphahara*, so it can be used in the treatment of *Kapha* and *Vataja vikara* and it cannot be used in the treatment of *Pittaja vikara* because the drug will increase *Pitta dosa*. It is indicated in *Krimi roga*, *Plīharoga*, *Galaganda*, *Sirahsūla*, *Kandū*, *Šoṭha*, *Apaci*, *Vrana*, *Medo roga*, *Vidradhi*, *Gulma*. According to different authors, *Shigru* will increase *agni* (enzymes) when taken internally. The information regarding the pharmacodynamics of *Shigru* is highly significant, because the *kaphavatahara* action of *Shigru* plays a great role to restrict the *kleda janaka* environment of the *kostha* (intestine) in proper and other *srotas* in general. It is known that *kledojanana* environment causes genesis and multiplication of *krimi*. As *Vayu* related to cellular division and growth, so by *Kapha vatahara* action *Shigru* is able to restrict genesis as well as multiplication of *Krimi*. As *Shigru* is *usna virya*, so it is against *ama* or *kleda*. So, as an antagonist to those factors it is effective as a *krimighna*. As it carries the properties like *katu-tikta rasa* and *katu vipaka*, so definitely it enhances the *agneya guna* of intestine or *kostha* and prevents from production of *ama* and simultaneously helps in clearing channels, i.e. *Srotasodhana*. So conceptually as well as from literary references, *Shigru* is *deepaka*, *pachaka*, *srotasodhaka*. *ama pachaka*, *kleda nasaka* as well as *krimighna*.

CONCLUSION

From above literary references, it could be concluded that *Shigru* is a potent, *krimighna*

(anthelmintic agent) *dravya*. The *Shigru* seed in a dose of (3-6) gm daily could be helpful to kill *Krimi* and also may show the additional beneficial effects like *deepana* (enhances enzymatic action), *pachana* (digestive), *rochana* (appetiser), *srotasodhana* (channel clearing), *yakrit uddipaka* (hepatostimulant) like actions.

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