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**A CRITICAL REVIEW ON THE ANTIHELMINTHIC ACTIVITY OF AN  
UNEXPLORED POLYHERBAL FORMULATION: KETAKI SARKARA  
FROM AROGYA RAKSHA KALPADRUMAH**

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**ABSTRACT**

**Background:** Being the oldest methodical branch of knowledge, Ayurveda speaks its reality in the sketch of philosophy. There are many classical formulations which are commonly practiced for treating various diseases but in maximum cases there is lack of data regarding their detailed mechanism of action. Such one multidrug classical formulation is Ketaki Sarkara<sup>i</sup> mainly practiced in Kerala. It is an unexplored formulation mentioned in Arogya Raksha Kalpadrumah - (Kerala's Tradition of Ayurvedic Pediatric Care) Text in Krimi Chikitsa (Treatment of Worm Infestation) chapter. The ingredients are Ketaki (root) [*Pandanus tectorius Soland*], Vilanga [*Embelia ribes Burm.F.*], Vyosha [*Zingiber officinale Roxb.*], Bhunimba *Andrographis paniculata (Roxb.) Wall. Ex Nees*, Palasa (flower) [*Butea monosperma (Lam.) Kuntze, Syn.B.*], Abhaya [*Terminalia chebula Retz.*] and Guda (Jaggery).

**Material:** Material related to *Ketaki Sarkara* is collected by online articles, journals, ayurvedic text books.

**Conclusion:** In this review different properties of *Ketaki Sarkara* is being focused and its widely use in present day general practice is suggested for the purpose of dose uniformity, palatability and applicability.

**Keywords:** *Ketaki Sarkara, Ayurveda, Arogya Raksha Kalpadrumah, Krimi roga*

## 1. INTRODUCTION

*Krimi roga* (Worm Infestation) is found in all age groups, but they are much more of a problem in children who are just beginning to learn to cope with their parasitic enemies. Prevalence in some areas appears very high while it is less elsewhere in the country. More than 50% prevalence for *T. trichiura* was reported from two different locations from the states of Assam and Andhra Pradesh and more than 50% prevalence for hookworm was reported from a single location from the state of Andhra Pradesh. The states of Uttarakhand, Uttar Pradesh, Jharkhand, Manipur, Maharashtra and Puducherry reported a prevalence higher than 20%. Less than 20% prevalence was reported from another seven states of Delhi, Himachal Pradesh, Chandigarh, Madhya Pradesh, Rajasthan, Gujarat and Karnataka.<sup>ii</sup>

Being considered as the most important phase of life, childhood determines the well-being, learning and behavior across the lifespan of an individual. Many authors have mentioned the important concepts of

Kaumarbhritya (Pediatric). One can find the lighthouse to ayurvedic pediatric concepts on exploring the Kaikkulangara Rama Warriar written treasure of Kerala's splendid tradition of Ayurveda, Arogya Raksha Kalpadrumah (original name Arogya kalpadrumah) - (Kerala's Tradition of Ayurvedic Pediatric Care) Text. Many new diseases and formulations are mentioned in this book one of which is "*Ketaki Sarkara*", an unexplored formulation mentioned in Krimiroga Chikitsa (Treatment of Worm Infestation) chapter.

## 2. CONCEPT OF KRIMI

The term "*Krimi*" is derived from the word *Kramu*, which means to step, to roam, or to walk. It has come out from "*Kramu Padavikshepe*", means which move with the legs are termed as *Krimis*.

In Ayurveda's classical literature called Samhita detailed descriptions of *Krimi* are available.

- a) **Charaka Samhita** - In 19th chapter of *Sutra Sthana* "*Ashtodariya Adhyaya*" total 20 numbers of *Krimi*

were mentioned where they are classified into *Bahya krimi* like *Yuka & Pipilika* and *Abhyantara Krimi* as *Purishaja, Kaphaja, Shonitaja* and *Malaja*. It is also mentioned that this classification is for those other than the *Sahaja Krimi* which are usually found in humans in plenty.

Later in 7th chapter of *Vimana sthana*, “*Vyadhitarupiya Vimana*” after describing the difficulty in determining serious or mild disease in patients, *Krimiroga* is described in detail with respect to its management.

- b) **Sushruta Samhita** - In *Uttartantra* under title of “*Krimiroga pratishedha*” Number of *Krimi, Nidan, Rupa*, classification and treatment were described. Detail descriptions of “*Gandupada Krimis*” have been mentioned in *Purishaja* type of *Krimi*.
- c) **Kashyapa Samhita** - Only the treatment portion of *Krimi roga* is found in the *Chikitsa sthan* “*Krimi chikitsita*”. Administration of bitter and pungent drugs in *Krimi roga* are well explained in this chapter. Medicated bath for the external *Krimi* in *Dwivraniya adhyaya* and only the

total number of *krimi* in *Sutra sthan* chapter is mentioned.

- d) **Harita Samhita** - Acharya Harita has described nomenclature, number, classification, etiology, symptomatology, pathogenesis and treatment in the 5th chapter clearly. Questions related with survival of *Krimi* in *Kostha* and their answers were unique to the author. *Krimis* like 7 types of external *Krimis* and 6 types of internal *Krimis* are classified. *Purisha* accumulation is the main cause for internal type of *Krimi*, infesting which more like snake in the *Kaphakoshtha* is explained here. *Krimis* name according to their shape, size and habitat. For example *Pruthumunda, Sukshma, Anavaha* and *Suchimukha* etc. etiology, pathogenesis, symptomatology and treatment of these *Krimis* are explained in a nice way in the 3rd *Sthana* 5th chapter.
- e) **Bhela Samhita** - In the available *Bhela Samhita* only the number of *Krimi* i.e. 20 and their names are mentioned.

## 2.1 NUMBER OF KRIMI

S. No.	Texts	Number
1.	Charaka Samhita	20
2.	Sushruta Samhita	20
3.	Ashtanga Sangraha	20
4.	Harita Samhita	13
5.	Bhela Samhita	20
6.	Madhava Nidanam	20
7.	Sharangadhara Samhita	22
8.	Bhava Prakasha	20

## 2.2 TREATMENT OF KRIMI<sup>iii</sup>

As per Ayurved principle there are three basic methods for the treatment of Krimi:-

a) **APAKARSANA**- Scratching of dosha, mala and krimisanghata forcefully.

Different types of apkarsana methods are:-

- (i) *Vamana* (Therapeutic Emesis)
- (ii) *Virechana* (Therapeutic Purgation)
- (iii) *Shirovirechana* (Nasal Therapy)
- (iv) *Asthapana Basti* (Medicated enema)

2. **PRAKRITI VIGHATA** - Destruction of the producing environment.

3. **NIDANA PARIVARJANA**- Elimination the causative factor which promote the germinating and growing of the Krimi. It emphasizes on importance of Ahara, Vihara and life style as same as treatment.

## 3. **KETAKI SARKARA**<sup>iv</sup>

This drug is mentioned in the 10<sup>th</sup> chapter of Arogya Raksha Kalpadrumah (original name Arogya kalpadrumah) - (Kerala's Tradition of Ayurvedic Pediatric Care) Text written by Kaikkulangara Rama Warriar.

बालकेतकी मूलस्य पलान्यम्भसि षोडश। पक्त्वा द्रोणेत्र पादस्थे पूते वस्त्रावगालनात् ॥

सितापलाष्टकं दत्त्वा विपक्के सान्द्रतांगते। विलङ्ग व्योष भूनिंब पलाशकुसुमाभयाः॥ कर्षाशश्चूर्णिताक्षिप्त्वा संयोज्याथावतारयेत्। प्राग्विरेचनमाधाय पश्चादेतां प्रयोज्येत् ॥

मस्तुना सह सयुंक्तां मधुना वा रसेन वा। धात्रीफलानां मुस्ताया यदा केतकी शर्काम्।

(Arogya Raksha Kalpadrumah. Ch-10/Pg-65)

## 3.1 INGREDIENTS OF **KETAKI SARKARA**

S. No.	INGREDIENTS	MATRA
1	<i>Ketaki (root)</i>	1 Part
2	<i>Vilanga</i>	¼ Part
3	<i>Vyosha</i>	¼ Part
4	<i>Bhunimba</i>	¼ Part
5	<i>Palasa (flower)</i>	¼ Part
6	<i>Abhaya</i>	¼ Part
7	<i>Guda (Jaggery)</i>	8 Part

### 3.2 METHOD OF PREPARATION

One *pala* (48 gm) of *Ketaki* root is added with the sixteen *pala* (768 gm) of water, is boiled and reduced to one fourth of the total amount and filtered well. Eight *pala* (384 gm) of jaggery is added to it and boiled till the mixture attains the consistency to prepare *lehya*. The drugs *vilanga*, *vyosha*, *bhunimba*, *palasa* flower and *abhaya* are taken in the amount of one *karsha* (12 gm) separately and

powdered is added to the above mixture and stirred well.

**ANUPANA** - Honey, Mastu, Juices of Dhatri, Musta.

- Prior to administer this drug to a patient proper purgation should be done.

### DISCUSSION

#### ANALYSIS OF ACTION

#### 4.1 AYURVEDIC PROPERTIES OF DRUGS<sup>v</sup>

Sr. No.	NAME	BOTANICAL NAME	RASA (Taste)	GUNA (Quality)	VIRYA (Potency)	VIPAKA (Assimilation)
1	<i>Ketaki</i>	<i>Pandanus tectorius Soland</i>	Bitter, Sweet, Pungent	Light	Hot	Pungent
2	<i>Vilanga</i>	<i>Embelia ribes Burm.F.</i>	Pungent, Astringent	Light, Dry	Hot	Pungent
3	<i>Vyosha</i>	<i>Zingiber officinale Roxb.</i>	Pungent	Light, Unctuous	Hot	Sweet
4	<i>Bhunimba</i> <sup>vi</sup>	<i>Andrographis paniculata(Roxb) Wall. Ex Nees</i>	Bitter	Light, Dry	Hot	Pungent
5	<i>Palasa</i>	<i>Butea monosperma (Lam.) Kuntze, Syn.B.</i>	Pungent, Bitter, Astringent, Sweet	Light, Dry, Movable	Cold	Sweet
6	<i>Abhaya</i>	<i>Terminalia chebula Retz.</i>	Astringent, Sour, Sweet, Bitter, Pungent	Light, Dry	Hot	Sweet
7	Jaggery ( <i>Guda</i> )	Madhuram (sweet), Sakshram, Katuteekshnam (pungent-bitter), Snigham (unctuous), Saram (mobility), Ushnam (hot), Natiseetam (not so cold), Madhurapaka (sweet assimilation), Pittagham, Vatagham, Natipittagham, Kaphakaram, Vatapittakaram, Mootrala sodhanam (urinary cleaner), Balaam (promotes strength), Vrusyam (aphrodisiac), Ruchyam (appetizer), Brimhanam (nourishes), Raktha sodhanam (blood cleaner)				

Due to ingredient's rasapanchak (properties) (Pungent, Bitter rasa and Usna virya) environment in which *Krimi* (worms) develops is destructed resulting in the destruction and inhibition of the growth of *Krimi* (worms).

#### Pharmacological Activity

- **KETAKI** - Performs anthelmintic properties due to its ethyl acetate and ethanol extracts.<sup>vii</sup>
- **VILANGA** - Water and alcoholic extracts are anthelmintic against earthworms and decreased the motility leading to mortality. Embelin

salts are anthelmintic. Di - isobutyl amino derivatives of embelin showed anthelmintic activity. Alcoholic extract was effective in 80 % infestation by *A.lumbricoid*.<sup>viii</sup>

- **VYOSHA** - Anthelmintic activity of alcoholic extracts of rhizomes of *Z. officinale* against human *Ascaris lumbricoides* is reported. Lethal effect of *Z. officinale* on *Anisakis* larvae *in vitro* was also found.<sup>ix</sup>
- **BHUNIMBA** - The water extract of dried leaves of bhunimba was found to be active against adult worms of *Brugia malayi in vitro* and the aqueous and methanol extracts for *in vitro* has anthelmintic activity against adult earth worms *Pheretima posthuma*.<sup>x</sup>
- **PALASA** - Effect of aqueous extracts of *B. monosperma* (Lam.) Kuntze is seen on the mature live *H. contortus* from sheep and goats.<sup>xi</sup>
- **ABHAYA** - Anthelmintic Activity of Alcoholic and Aqueous Extract of Fruits of *Terminalia chebula* Retz was reported.<sup>xii</sup>
- **JAGGERY**- *Elettaria cardamomum* (L.) enriched jiggery exhibited anthelmintic properties against earthworm was found.<sup>xiii</sup>

## CONCLUSION

The review literature of *Ketaki Sarkara* shows that all the ingredients due to their rasapanchak (properties) (Bitter, Pungent taste and Hot potency) performs prakriti vighata of *Krimi* (worm). Pharmacological studies have demonstrated the antihelminthic activity from Ethanol Extracts of *Ketaki* [*Pandanus tectorius Soland*], *Vyosha* [*Zingiber officinale Roxb.*] and *Abhaya* [*Terminalia chebula Retz.*] and aqueous extract of *Vilanga* [*Embelia ribes Burm.F.*], *Bhunimba* [*Andrographis paniculata(Roxb.) Wall. Ex Nees*], *Palasa* [*Butea monosperma (Lam.) Kuntze, Syn.B.*] and *Abhaya* [*Terminalia chebula Retz.*].

Jaggery with *Elettaria cardamomum* (L.) also shows anthelmintic properties.

## CONSENT

Not applicable

## ETHICAL APPROVAL

Not applicable

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

- <sup>i</sup> Dr. Lal Krishnan. *Krimi roga chikitsa*. Arogya Raksha Kalpadrumah. Varanasi: Chowkhamba Sanskrit Series Office; Edition 2<sup>nd</sup> 2012.p. 65.

- <sup>ii</sup> Salam, N., Azam, S. Prevalence and distribution of soil-transmitted helminth infections in India. *BMC Public Health* **17**, 201 (2017). <https://doi.org/10.1186/s12889-017-4113-2>
- <sup>iii</sup> Charaka Samhita Vimana Sthana; Vyadhitirupiya Adhyaya: Chapter 7 verse 14, Charaka Samhita, Vidyotini hindi commentary by Kashinath Shastri & Gorakhnath Chaturvedi, Part-I, Published by Chaukhambha Bharati Academy, Varanasi, India, reprint year; 2009.
- <sup>iv</sup> Dr. Lal Krishnan. Krimi roga chikitsa. Arogya Raksha Kalpadrumah. Varanasi: Chowkhamba Sanskrit Series Office; Edition 2<sup>nd</sup> 2012.p. 65.
- <sup>v</sup> (*The Ayurvedic Pharmacopoeia of India*, n.d.)
- <sup>vi</sup> Kumar, Praveen & Naik, Raghavendra & Nishteswar, K. & Panara, Kalpesh & Joshi, Krutika. (2013). Experimental and Clinical Evidence of *Andrographis paniculata* (Roxb.) Wall. Ex Nees (Bhunimba) -A Review. *IJPBA*. **4**. 1086-1093.
- <sup>vii</sup> Adkar, Dr. Prafulla. (2014). Review Article *Pandanus odoratissimus*(Kewda): A Review on Ethnopharmacology, Phytochemistry, and Nutritional Aspects. *Advances in Pharmacological Sciences*. Volume 2014. **19**. 10.1155/2014/120895.
- <sup>viii</sup> Singhal, Tina & Kumar, Ajay. (2019). *Vidanga-An Ayurvedic Contraceptive*.
- <sup>ix</sup> Iqbal, Zafar & NADEEM, QAZI & Khan, M.N. & Akhtar, Muhammad & WARAICH, FAISAL. (2000). In Vitro Anthelmintic Activity of *Allium sativum*, *Zingiber officinale*, *Curcubita mexicana* and *Ficus religiosa*. *Int J Agr Biol*. **3**.
- <sup>x</sup> Hossain, Md & Urbi, Zannat & Sule, Abubakar & Rahman, K.M.. (2014). *Andrographis paniculata* (Burm. f.) Wall. ex Nees: A Review of Ethnobotany, Phytochemistry, and Pharmacology. *The Scientific World Journal*. 2014. **28**. 10.1155/2014/274905.
- <sup>xi</sup> Singh, Gagandeep & Singh, Rajeev & Verma, Pawan & Singh, R. & Anand, A.. (2013). Anthelmintic efficacy of aqueous extract of *Butea monosperma* (Lam.) Kuntze against *Haemonchus contortus* of sheep and goats. *Journal of Parasitic Diseases*. **39**. 10.1007/s12639-013-0324-3.
- <sup>xii</sup> Dwivedi, Dr. Sumeet. (2008). Anthelmintic Activity of Alcoholic and Aqueous Extract of Fruits of *Terminalia chebula* Retz.. *Ethnobotanical Leaflets*.
- <sup>xiii</sup> Ravish, Mushfique & Ahmad, Wasim & Zeenat, Fahmeeda & Mustafa, Suboohi. (2020). An Appraisal of Medicinal Properties of Jaggery: A Review. **12**. 75-80.