



Preparation of *Vidangakrishnadi* Syrup: An Ayurvedic formulation in *Pureeshaja Krimi* in the Paediatric age group

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ABSTRACT

Helminthic infestations contribute to significant disease burden in children particularly in the under privileged and in developing countries of Children because of their habits directly or indirectly consume soil/mud and are commonly more heavily affected than adults.

The syrup is a sweet, viscous, concentrated solution of sucrose or other sugars in aqueous solutions. It can be a form of *sarkara Kalpana* in Ayurveda. The preparation of the syrup is done by using modern pharmaceutical equipments and the method of preparation of *Sharkara Kalpana* explained in the classics have been incorporated.

The clinical features of helminthic infestations can be correlated to *krimiroga* (helminthic infestations) and of the 20 types explained *pureeshajakrimi* can be specifically correlated with the intestinal nematodes. The *Vidangakrishnadiyoga* contains *Vidanga, Pippali, Maricha, Nirgundi, Shigru, Bharangi, Musta* and *Aakhukarni* have *Krimihara* property and the remaining *Shunti* with *Deepana Pachana* property. The ingredients of this combination are easily available and are also cost effective and the syrup form of medicine can be more palatable in children.

In this article, details of the individual drugs of *Vidangakrishnadi* syrup and the method of preparation of the formulation have been detailed.

Key Words: *Vidangakrishnadi, syrup, Formulation, Krimiroga*

INTRODUCTION

Krimiroga has been mentioned by all the *Acharyas* in Ayurveda. They are explained to be 20 types of *Krimi* which is broadly classified as *Bahya* and *Abhyanthara*. *Abhyanthara Krimi* includes *Sleshmaja, Pureeshaja* and *Raktaja krimis*. Of these in *Pureeshaja Krimi* the *nidana* is explained as *Madhurarasa pradhana ahara* and

*sleshmalaahara*¹. *Krimiroga* is very common in children which mainly occur as intestinal infections.

The condition can be potentially correlated to helminthic infestations which is one of the major causes of childhood malnutrition, anemia, stunted physical and mental growth, psycho-social problems and along with this repeated



gastrointestinal and upper respiratory tract infection contributes to high morbidity in children and remains a major cause of high infant and child mortality in our country².

According to Ayurveda, the principles of treatment for *Krimi* includes *Apakarshana*, *Prakruti vighata* and *Nidana parivarjana*³. Among these *Samshamana* is easier to be administered in children, so such a line of treatment is being adopted.

The aim behind the administration of any formulation is to reach out the target tissue or organ for reversing the disease pathology. For this, various pharmaceutical preparations termed as “*Kalpanas*” and “*Upakalpanas*” were mentioned in Ayurveda.

Sarkarakalpana is a palatable liquid formulation which will be in consistency of honey with a higher shelf life which is an upakalpana of kwatha. Syrups are similar pharmaceutical preparation as per modern pharmaceuticals⁴.

*Vidangakrishnadiyoga*⁵ which is mentioned in *Sahasrayoga* has 9 drugs in it. The ingredients of this combination are easily available, cost-effective and has krimihara properties. This article highlights the different ingredients and mode of preparation of Vidangakrishnadi syrup.

MATERIALS AND METHODS

Ingredients of the formulation are:

1. VIDANGA *Embelia ribes*
2. KRISHNA *Piper longum*
3. SIGRU *Moringa pterygosperma*
4. AKHUKARNI *Merremia emarginata*

5. MUSTHA *Cyperus rotundus*
6. NIRGUNDI *Vitex negundo*
7. MARICHA *Piper nigrum*
8. BHARNGI *Clerodendrum indicum*
9. VISWA *Zingiber officinale*
10. WATER
11. HONEY
12. SORBITOL

Figures of the drugs are given as from figure 1-9
VIDANGA⁶ (figure 1)



Figure 1 Vidanga

A large scandent shrub, branches long, slender. The bark studded with lenticles. It contains Embelin, Christembine, Homoembelin, Homorapanone, Vilangine, Quercitol

Part used: Fruits, root

Ayurvedic properties:

Rasa *Katu, Kasaya*

Guna *Laghu, Ruksha, Tikсна*

Virya *Usna*

Vipaka *Katu*

Karma *Krimighna, Visaghna, Dipana*

It is used in conditions like *Krimi, Udara, Adhmana, Sula, Kustha*.

KRISHNA/ PIPPALI⁷ (figure 2)



An aromatic slender climber, creeping, jointed, attached to other plants while climbing. It contains essential oil, mono and sesquiterpenes, caryophyllene, piperine, pipartine, piperlongumine, piperlonguminine, pipernonaline, piperundecalidine, pipericide, sesamine, β -sitosterol, four aristolactams (sepharanone B, aristolactum AII, piperlactum A, piperolactum B), five 4,5-dioxoaporphines.



Figure 2 Pippali
Part used: Fruit, root

Ayurvedic properties

Rasa *Katu*
Guna *Laghu, snigdha, tiksna*
Virya *Usna*
Vipaka *Madhura*
Karma *Vata-slesmahara, dipana, vrsya, rasayana*

It is used in conditions like *Udara, pliharoga, jvara, kustha, prameha, gulma, arsas, sula, amavata.*



Figure 3 Sigrum

SIGRU⁸ (figure 3)

A small or medium sized tree growing upto 10m. Its bark contains Steroles, terpenes, leaves contains Amino acids viz aspartic and glutamic acid, serine, glycine, Whole plant has Moringine, moringinine, barenol, indolacetic acid

Part used: Root bark, stem bark, leaves, fruits, seeds

Ayurvedic properties:

Rasa *Katu, tikta*
Guna *Laghu, ruksa, tiksna*
Virya *Usna*
Vipaka *Katu*
Karma *Kapha-vatahara, sukrala, grahi, dipana, hradya, krimigna, chaksusya*

It is used in conditions like *Udara, pliharoga, jvara, kustha, prameha, gulma, arsas, sula, amavata.*

AKHUKARNI⁹ (figure 4)

Akhuparni is a small plant found in damp and moist regions. Root grows from each nodule of the plant spreading quickly in the ground. It contains Ceaffeic, p-coumaric, ferulic and sinapic acid, esters from seeds.



Figure 4 Akhukarni
Part used: whole plant

Ayurvedic properties

Rasa *Katu, tikta*



Guna *Laghu, ruksa, tiksna*
Virya *usna*
Vipaka *Katu*
Karma *Kapha-vatahara, recana*
It is used in *vibandha, krimi, mutrakrcchra, prameha*



Figure 5 Musta
MUSTHA¹⁰ (figure 5)

It is Perennial, slender herb, stem nodosely thickened at base and suddenly constructed into a wiry rhizome, sub solitary, triquestrous at top. It contains Cineol(+), copadiene, copaene, cyperen I & II, cyperenone, isopatchoulenone, cyperotundone, cyperole, cyperolone, α-cyperone, (+)epoxyguaiene, isocyperole, isokobusone, kobusone, mustakone, patchulene, (+)rotundone, α- & β- selinene, sugenol, β-sitosterol

Part used: tubers

Ayurvedic properties

Rasa *Tikta, katu, kasaya*
Guna *Laghu, ruksa*
Virya *Sita*
Vipaka *Katu*
Karma *Kapha-pittahara, dipana-pacana, grahi, lekhana.*

It is used in *jvara, krimi, trsna, atisara, kandu, grahani, kasa, nidranasa, savranasukla, raktavikara, visarpa, apasmara, kustha*

NIRGUNDI¹¹ (figure 6)

A shrub or small tree. Branchlets and underside of leaves pubescent. It contains Phenol, dulcitol, alkaloid- vitricine, β-sytosterol, camphene, α- & β- pinenes, angoside, aucubin, casticin, artimetine, orientine



Figure 6 Nirgundi

Part used: Leaf, root, seeds

Ayurvedic properties

Rasa *Katu, tikta*
Guna *Laghu, ruksa*
Virya *Usna*
Vipaka *Katu*
Karma *Vata-kaphahara, caksusya, kesya, krimigna, vranaropana*

It is used in *sula, sotha, krmi, kustha, aruci, vrana, jrdhrasi, snayuka, visarpa, netraroga, sutikaroga, visaroga, gandamala.*



Figure 7 Maricha

MARICHA¹² (figure 7)



A branching and climbing perennial shrub, branches stout, trailing and rooting at the nodes.

It contains Piperene, piperethine, piperolein A & B, feruperine, dihydroferuperine, citronellol, cryptone, dihydrocarveol, α - & β -penine, piperonal, camphene, β -caryophyllene, β -alanine, pipercolic acid, carotene, ascorbic acid, pipericide.

Part used : Fruits

Ayurvedic properties

Rasa Katu

Guna Laghu, tiksna

Virya Usna

Vipaka Katu

Karma Kapha-vatahara, avrsya, dipana, pramathi

It is used in kasa, pinasa, krimi, svasa, sula, hridroga, pravahika



Figure 8 Bharngi

BHARNGI¹³ (figure 8)

A shrub 1.5-3m high, glabrous, hollow branches.

It contains Hispidulin, 7-O-glucuronides, scutellarein, uncinatone, pectolarigenin.

Part used: Root

Ayurvedic properties

Rasa Tikta, Katu

Guna Laghu, Ruksha

Virya Usna

Vipaka

Katu

Karma

Kapha-vatahara, jvarahara,

kasahara

It is used in Svasa, kasa, krimi, sotha, vrana, daha, jvara, pinasa



Figure 9 Shunti

VISWA/ SUNTHI¹⁴ (figure 9)

An erect perennial herb with aromatic rhizome, stem erect leafy, 50-150cm tall. It contains α -curcumene, β -D-curcumene, β -bourbornene, D-borneol, citral, D-camphene, citronellol, geraniol, gingerol, α - & β -zingiberenes, zingiberol, zingerone, gingerols, paradol, gingerenone A, ginger glycolipids A, B & C, [6]gingerdiol, gingerone B & C etc

Part used: Rhizome

Ayurvedic properties

Rasa Katu

Guna Guru, Ruksha, tiksna

Virya Usna

Vipaka Madhura

Karma Vata-kaphahara, Dipana, Bhedana

It is used in Sula, amavata, adhmana, atisara, slipada, kasa, svasa, hridroga, sophia, arsas, hikka, vibandha, raktapitta, pandu, vrana, jvara, kustha, agnimandya

MADHU¹⁵

Rasa:

Madhura; Kashaya anurasa



Guna: Laghu, ruksa
Virya: Sita
Vipaka: Madhura
Karma: Grahi, lekhanam, srotoshodanam, deepanam, chaksusya, vrana shodhana and ropana

It is used in *krimi, kushta, arsas, kasa, raktapitta, prameha, vitgraha, athisara etc.*

Collection and authentication of raw drugs

All the above-mentioned drugs were collected from the GMP certified Sri Dharmasthala Manjunatheshwara Pharmacy, Kuthpady, Udupi, Karnataka, India.

Method of preparation:

One kilogram of dried drugs (Figure. 1 –9) were collected and were soaked in cold water overnight, next day kwatha (decoction) of drugs was prepared by adding 8 times of water (72 litres), boiled, reduced and filtered down to 7 litres (figure-10). The kashaya thus obtained was allowed to cool up to 50 °C and to this, 3 litres of sorbitol and 3 litres of honey were added (figure 11). Total quantity of suspension obtained is 13 litres which was cooled down and transferred to 10ml bottles. They were packed in plastic containers which were then sealed. Then the containers were labeled and made ready for distribution (Figure- 12).



Figure 10 Kashaya



Figure 11 mixing honey and sorbitol



Figure 12 packed and labelled syrup

Temperature noted at different intervals are:

Initial stage- 100°C

Material differentiating stage - 70-80°C

Sorbitol and honey mixing stage - 50°C

Organoleptic parameters of the finished product

Colour: Dark brown colour

Consistency: liquid form

Smell: specific odour

Taste: sweet with little pungent.

DISCUSSION

The syrup was prepared based on the classical Ayurvedic formulation of *Sharkara Kalpana*. More modern practical approaches can be inculcated for better extraction of the active principles from the raw drugs. Honey based syrup was prepared as the indication is *krimi*. The properties of *madhu* and *yogavahi* property can enhance the therapeutic efficacy. Sorbitol is used as a sugar substitute in syrup preparation, in view of increasing the potency of the drug in the *krimiroga*. The prepared syrup produced was dark brown in color and liquid in consistency which are optimum characteristics for a syrup. The



cumulative effect of the drugs gives the syrup a sweet but little pungent taste. The syrup can be used in children presenting symptoms of *krimiroga*.

CONCLUSION

The paediatric age group presents a wide spectrum of simple as well as complex disease conditions which pose a challenge to the paediatrician. The key to the successful management is to provide medications which are safe, effective, and more importantly palatable so that it becomes more acceptable to the subjects in the age group. Hence, for the wider acceptance of Ayurvedic medications a standardized formulation along these lines must be ensured.



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