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KUPILU SHODHANA BY DIFFERENT MEDIAS - A REVIEW

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ABSTRACT

Kupilu (*Strychnous Nux-vomica*) is one among *Upavisha varga,* well known poisonous plant used in Indian system of medicine. *Kupilu* seeds contain highly poisonous alkaloids like strychnine and brucine. *Kupilu* when used in *Ashodhita* (unprocessed/without purification) form is a spinal poison. After *Shodhana* (purification) it is used to prepare various formulations that helps to cure many disorders. Hence an attempt to compile and analyse all *Shodhana* methods used in purification of *Kupilu* are done in this article. According to various classical texts of Ayurveda, purification/detoxification of *Kupilu* can be done with various methods which are *swedhana, bharjana, Nimajjana* and *Nikshiptha. Shodhana* is done with different medias like *Goksheera* (cow milk), *Gogritha* (cow ghee), *Kanji* (fermented rice water), Gomaya (cow dung) etc.

KEYWORDS: *Kupilu, shodhana, Strychnos nux-vomica, upavisha.*

INTRODUCTION

The strychnine tree, known as Nux-vomica tree and its seeds are called as poison nut, Nux-vomica, semen strychnus, dog buttons and quaker buttons. It is named as *Kupilu* because its fruit is similar to *Pilu* fruit (*Salvadora persica*), '*Ku'pilu* is inferior variety due to its poison content. The synonyms are *Kupilu, Vishatinduka, Karaskara, Tindu, Tinduka, Ramyaphala, Kakatinduka, Musikavisha, Dirgapatra, Vishamustika, Kuchelaka, Kuchela, Kalakoota, Kuchila*, etc. The vernacular names are, in English- nuxvomica, Hindi-kuchala, Malayalam-Kajjila, Tamil- Ettimaram, Telugu-Mushini chettu. *Kupilu* is mentioned under *Amraphaladhi Varga* in *Bhavaprakasha Nigantu*, *Aushadhi Varga* in *Kaiyadeva Nigantu*, *Satavari Varga*

and *Paribhadradhi Varga* in *Raja Nigantu*.[1] Strychnos denotes poison and vomica denotes emetic properties. It is an evergreen tree native to south east Asia, especially India and grown elsewhere. It is distributed in moist deciduous forests.[2] The major chemical constituents of *Kupilu* are strychnine, brucine, Isostrychnine, vomicine, loganic acid and novicine derived from the seeds. This chemical constituent is considered as deadly poisonous alkaloids and it can cause severe convulsions. Some studies shown that, cotyledon portion contains higher percentage of strychnine than in seeds.

Kupilu even though possessing poisonous properties Ayurveda scholars used them without any untoward effects as they are using them after doing certain processing called Shodhana methods. *Kupilu beeja* as their basic ingredient in many Ayurveda medicinal formulations like *Agnitundi Vati, Karaskara Ghrtam, Krimimudgara Ras, Laksmivilasarasa, Navajivana Rasa, Sulanirmulanarasa, Sulaharanaras, Suptivaatarirasa, Vishatinduka Taila* and *Vishatinduka Vati. etc* There are multiple mentioned in various textbooks. It is need of the hour to evaluate the methods and ingredients used for *Shodhana* and their relevance. So, this study is focused on this area. In this work author has gone through various textbooks like Rasa Ratna Samuccaya, Rasa Tarangini, Ayurveda Patrika etc., Also collected information from scientific publications.

The process of *shodhana* includes both physical purification as well as bringing alteration of chemical structure of seeds for enhancing efficacy and safety. All the pharmaceutical procedures such as washing, trituration, heating and dipping was carried out over a medicinal drug with the intention of getting it purified known as *shodhana*. It was divided into *samanya shodhana* and *vishesha shodhana*. *Shodhana* media has role in either breaking down or destroying the toxic effects.

Different types of *Shodhana* processes of *Kupilu* are as follows:

Table 1: Various Methods and Drugs used for shodhana of kupilu.

S.No	Source	Principle	*Shodhana* Media	Method
1.	Rasa Tarangini	*Bharjana*	Goghritam (Cow ghee):	Seeds were fried in an open iron vessel along with required quantity of cow ghee on low flame till it gets reddish yellow colour (*kapisa varna*). Then its outer covering was removed and seeds were immediately

				pounded in *khalva yantra*. Then the powder was filtered and stored.[3]
2.	Rasa tarangini	*Swedana*	Gokshiram (Cow milk):	Seeds were boiled in cow milk for three hours by *Dola Yantra* method. Then its outer covering was removed and the seeds were dried in sunlight. When dried properly it was then pulverized.[4]
3.	Rasa tarangini	*Nimajjana*	Kanji (sour gruel):	Seeds were soaked in *kanji* for three days. The *kanji* was changed for every day. In fourth day, the outer covering was removed and seeds were properly dried in sunlight, then it is grinded and stored.[5]
4.	Ayurveda patrika	*Nikshipta*	Gomayam (Cow dung):	Seeds remained drenched in cow dung for 7 days. Fresh cow dung was changed each day. After 7 days seeds were washed with warm water. Then the outer covering of seeds was removed and it was dried in sunlight followed by pulverization.[6]
5.	Ayurveda patrika	*Nikshipta* + *Bharjana*	Gomayam (Cow dung) + Goghritam (Cow ghee):	Seeds were drenched in cow dung for 7 days. Fresh cow dung was changed each day. After 7 days seeds were cleaned with warm water. Then the outer covering was removed and then seeds were dried in sunlight. Then it was followed by frying in cow ghee on low flame till it gets light brown colour and then seeds were pulverized soon.[7]
6.	siddhayaoga sangraha	*Bhavana*+ *Swedana*+	(Gomutram) Cow urine + Gokshiram (Cow milk):	Seeds were soaked in cow urine for 7 days, then seeds were cleaned with warm water, then boiled in cow milk for 3 hours by *dolayantra* method. Then the outer covering was removed and then seeds were dried in sunlight properly then pulverized.[8]
7.	Ayurvedic pharmacopoeia	*Bhavana*+ *Swedana*+ *Bharjana*	*Gomutram* (Cow urine) + *Gokshiram* (Cow milk) +	Seeds were soaked in cow urine for 7 days. Fresh cow urine was taken each day. Then

			Goghritam (Cow ghee):	seeds were cleaned with warm water followed by boiling in cow milk for 3 hours with *dolayantra* method. Then the outer covering of seeds was removed and then seeds were dried in sunlight properly; then fried in cow ghee on low flame till it gets *kapish* (slightly brownish) colour and then seeds were immediately pulverized.[9]
8.	Indian system of medicine, research and reviews	*Nimajjana*	*Ardraka Swarasa* (Fresh ginger juice):	Seeds are dipped in *Ardraka swarasa* for 20 days with daily stirring by a glass rod. Then the seeds are washed with lukewarm water, the outer seed coat and embryo are removed, cotyledons are dried and pulverized.[10]
9.	Vanousadhi Ratnakar	*Swedana*	Multanimitti: (Multani soil)	Boiling in *Multanimitti*, it is one type of soil obtained from a place known as Multan.[11]
10.	Dhanwantari Banausadhi Visesanka	*Bharjana*	*Eranda tailam* (castor oil):	100g of seeds were fried with 20 ml. castor oil in mild temperature until the seeds became swollen and reddish yellow in colour. Seeds were then taken out from the heater; seed coats were removed as much as possible by rubbing them over the fingers and immediately made into powder form. The powdered materials were kept in an airtight glass container.[12]

DISCUSSION

An age-old adage from Charaka Samhita quotes "There is no medicine without any therapeutic effect, even poison which is administered in a proper way can act as *Amrita.*[13]" Rasa Shastra proves it by using poisonous substances like kupilu can be used after certain *samskaras* like *Shodhana* by *swedana, bhavana, mardana* in proper dose.

The poisoning effects of *Kupilu* are *Brama* (Giddiness), *Tandra*, *Lalashrava* (drooling), *Rakta chapa* (rise in blood pressure), *Hridspandana (*rise in heart rate). It stimulates central nervous system and followed by depression. Patient complaints of lockjaw and phototonus, it

also stimulates medulla oblongata, raises in blood pressure, convulsions, finally leads to Asphyxia, death due to respiratory failure. Poisoning of *Kupilu* mimics tetanus and acute gastroenteritis. Poisoning stimulates sensory or motor ganglion in spinal cord, its causes rise in blood pressure. Brucine was less poisonous than strychnine but can able to cause paralysis of peripheral motor neurons. The treatment is stomach wash as soon as possible, then antidote Atropine is given as IV and treated symptomatically. *Paribhadra*, *Gunjamoola Kalkam* and *Vibhitaki churnam* is considered as the antidote for *Kupilu* poison.[14]

For doing *Shodhana*, the seeds are removed from the fruits when they are completely ripe. The seeds are dark brown in colour and have the shape of a flattened disk completely covered with hairs radiating from the centre to the sides. While cleaning seeds, the seeds floating in water are discarded. Then it was cleaned and stored. Many types of *shodhana* methods are involved in the purification of *Kupilu*. The *shodhana* methods are *swedhana, bharjana, Bhavana, Nimajjana, nikshiptha.*

Swedhana: Dola yantra filling with liquid specified for swedana *(godugdha, triphala kwatha* etc) while the medicinal drug in tied in a clean cloth like a pottali with a thread then the boiling is done for specific period of time.

***Bhavana*:** The process of triturating the fine powders of any drug material in clean *khalva yantra,* by adding any specified liquid, enough only to soak the drug. The trituration should be continued until the soaked wet powder becomes dry again. This procedure is known as *bhavana*.

Nimajjana: Immersion of medicated dravyas in any one of specified dravyas for purification purpose.

Bharjana: Roasting of any specific dravyas in specific liquid medias until the moisture content gets evaporated.

Nikshiptha: Plunging dravyas in specific medias for particular period of time for the process of purification.

Shodhana process not only reduces the toxic effect, but also increasing the therapeutic effect. After *Shodhana* process the dosage of *Kupilu* is ¼th *Ratti* to one *Ratti* (32mg-125mg). However, the dosage is finalized after thorough consideration of all the relevant factors. By giving heat also can be able to reduce the toxic properties of *Kupilu*. Heat treatment of drug in particular media for specific period of time also able to reduce the toxic constituents of the drug. In *swedana* process, toxic principles can able to dissolve in media use for boiling.

Bharjana process can able to decrease strychnine and brucine in heat treated seeds with significant increase in the number of novel alkaloids such as isostrychnine, isobrucine, strychnine-N oxide.[15]

The seeds of *Kupilu* possess *Katu rasa*, *Ushna Virya* and *Agni Deepana* property. By virtue of its *Ushna Virya*, the influence over the body was too quick and acute in nature. Ayurveda successfully employed this drug & preparations containing it in a number of diseases after proper purification. After purification it is used in the treatment of various diseases like *Visuchi, Vranam, Jvaram, Arshas, Krimi, Alarkavisam, Vatavyadhis, Kandu-Kushtam, Prameham, Medoroga, Svasa-Kasa, Gulma, Kantarogas, Katisula, Gridrasi* etc.

Among the *Shodhana* medias for the purification of *Kupilu* seeds, while purifying with *goksheera, gomutra and kanji* the moisture content was increased and while purifying with *goghritha* and *eranda thaila* the moisture content was decreased.

According to Rasa Tarangini, *Shodhana* in *goghritha* is the quick method of *shuddhi* also it can be used in emergency purpose as time taken for this method is very less. Previous study showed that purification with *godugdha* markedly reduces the toxicity of crude Nux-vomica than that treated with *ghritha*.[16] Castor oil (*Eranda taila*) is an effective media for purification of *Kupilu* seeds as far as toxic alkaloids are concerned. The findings in the earlier studies strongly confirm the claims of the traditional practitioners of Ayurveda that *Shodhana* of *Kupilu* by *Eranda taila* successfully reduces the toxic elements of the drug. This method was found to be very simple, less time consuming and cost effective also.[16]

While using cow milk as *shodhana* media, it is having properties like, *Madhura rasa*, *sheeta veerya* and *Madhura vipaka*. This property was entirely opposite to *Kupilu* properties, so it can able to nullify the toxic effect of *Kupilu*. Also, it is useful in nourishing the body and improves the *Ojas*. Cow milk and cow ghee is *vatapitta shamaka* in nature, so it will act on reducing *vatapitta* properties of seeds.

Eranda taila is useful in *amavata*, *sotha*, *katisula* and *virechana* properties. After purification in *Eranda taila*, *Kupilu* is used in preparations, it was much beneficial in *vata* related *rogas*. Cow urine having *lavana rasa*, *teekshna*, *ushna* and *katu* properties, *Kupilu* processed with cow urine as *shodhana* medium is useful in skin disorders. It also contains *vishahara* properties, it helps in reducing the toxic effect of *Kupilu*. Cow urine, cow dung and *Kanji* are

Vatakapha shamaka in nature, so it will predominantly act on *vatakaphaja* properties of seeds. *Kanji* is acidic in nature, so it facilitates extraction of alkaloids like strychnine and brucine. *Ardraka* having antioxidant and other property can able to reduce the toxicity effect. *Visha* predominantly have *pitta* properties compared to *kapha*, so *vata pitta shamaka* medias may have good results in toxicity reduction. Processing *Kupilu* seeds with different medias helps in reducing the three *doshas* and also in reducing the toxic effects.

All *shodhana* procedures help in reducing the toxic effect of *Kupilu*. According to Rasa Tarangini, cow milk is considered as best media, it doing its *utthama shuddhi. Go gritha* and *eranda thaila* was easy *shodhana* procedure in reducing the toxic effect of *Kupilu*. The juice of cowdung is effective in the treatment of visha chikitsa. So, it is effective in purification process.[17] It is having *vishahara* property, so it's reducing the toxic effect of *Kupilu*. Purification of *Kupilu* done with combination of different *shodhana* medias can able to give the maximum effect. Cow milk will do *utthama shuddhi* and cow ghee is will do *Twaritam shuddhi*. According to recent researches cows'milk is able to remove the toxic contents when comparing with other *shodhana* medias. *Kanji* is acidic media it can able to reduce the toxic effect, also according to Rasa tarangini it can able to do the *sarvartha shuddhi*. Cow milk and cow ghee having *vatapitta shamana* properties while, cow urine and kanji having *vatakapha shamana* properties. All *shodhana* procedures not only reducing the toxic effects, but also it can able to increase the therapeutic effects. So, by choosing proper media for *Kupilu* purification gives maximum results in various disorders.

CONCLUSION

Poisonous Kupilu seeds become safe and efficacious after Shodhana. Shodhana methods explained from different references are swedhana in cow's milk, nimajjana in kanji, bharjana in cows' ghee, *Eranda Taila* etc. In that bharjana method takes less duration and swedhana methods takes more duration. And combination of more than one method is tedious but more effective in detoxifying *Kupilu* seeds.

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