

A REVIEW ON KUKKUTANDA TWAK BHASMA

Dr. Deepak Singla*¹ and Dr. Ruhi Gupta²¹Assistant Professor Dept. of Rasa Shastra, Khalsa Ayurvedic Medical College, Nangal Kalan, Mansa, Punjab.²Assistant Professor Dept. of Agad Tantra, Shiv Shakti Ayurvedic Medical College, Bhikhi, Mansa, Punjab.***Corresponding Author: Dr. Deepak Singla**

Assistant Professor Dept. of Rasa Shastra, Khalsa Ayurvedic Medical College, Nangal Kalan, Mansa, Punjab.

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ABSTRACT

Kukkutanda (Hen's egg shell) is a very commonly known and used food component. *Kukkutanda twak* (egg shell of hen) has been useful for therapeutic purposes in the form of *bhasma* called as *Kukkutanda Twak Bhasma*. *Kukkutanda* is a *jangama dravya*. It is included under *Sudha Varga* & it consists of Calcium compound. In earliest texts *Shukla varga* was the name used to contains Calcium containing drugs such as *Sudha*, *Kurmaprishta*, *Varatika*, etc. Modern texts especially the books that were written in the 19th and 20th century have used the term *Sudha Varga* to add calcium containing drugs. *Kukkutanda Twak* is a very good organic source of Calcium & has more absorbable than that of inorganic form. In this article, details regarding its usage, composition, *Shodhana* (purification), *Marana* (Incineration), dose, *anupana* (adjuvant) & indications are explained and discussed.

KEYWORDS: *Kukkutanda twak*, *bhasma*, *sudha varga*, calcium compound.

INTRODUCTION

Ayurveda is unique system of Indian traditional medicine which is very widely in practice for over nearly thousands of years. *Rasa shastra* which is also commonly known by the name of ancient Indian Alchemy, it is a medical science which deals with many problems such as identification, incineration, purification, collection of metals and minerals along with the wide knowledge of their action, properties, doses and their medicinal preparation. Medicines which is prepared by this process is called *Rasaushadhis* (herbo-mineral preparations).

These metals and minerals should not be given in their raw form directly as it can have very dangerous effects on body, so these substances should be processed by multiple pharmaceutical procedures *shodhana*, *marana* (purification, incineration) etc. Which can transform and manipulate these elements into more convenient, more assimilable, less toxic and bio-available form. *Bhasmas* (incinerated materials) are very widely used preparation.

It is a very fine powder like substance of calcinated or incinerated mineral, it is obtained when metals are continuously combusted in fire and the remaining substance procured also called ash is accepted as *bhasma*. *Bhasmas* are medically more potent and is used in a small quantity because of their very small particle size (micro or nano) and target oriented action. *Acharyas* have very clearly categorized an array of minerals into *varga* known as *uprasa*, *Sudhavarga*, *vish-upvisha*

varga, *maharasa*, *sadharana Rasa*, *dhatu- updhatu varga*, etc. Under the umbrella of *Sudha varga* come these minerals which are very rich in calcium like *Sudha*, *shankha* (conch shell), *shukti* (pearl oyster), *khatika* (cowrieshell) etc. which broadly consists of calcium compounds, *kukkutanda twaka* (egg shell) is also a component of *Sudha varga*.

All the ingredients of *Sudha varga* are of animal origin (*jantavadravaya*). The word *kukkutanda twaka* consists of two words – “*kukkuta+Andatwaka*”. *Kukkuta* means ‘Hen’ and *Andatwaka* is outer covering of hen's egg, it is a generally found in birds which are essentially used for its flesh and eggs. *Kukkutanda* or hen's egg is commonly used raw materials for food items and its ‘*twak*’ (outer shell) has a lot of medical and non-therapeutic uses.

Our ancient *rasashashtri's* discovered very good properties and attributes of the egg shells and by their wisdom, prepared an edible form of *kukkutand twak* which is non-hazardous for the body viz. *Kukkutanda twaka bhasma*. Whereas use of *kukkutanda twak* is already mentioned in various *granthas* of *Samhita kala* and *Sangraha kala* but the internal use of *Kukkutanda twaka bhasma* was first mentioned in *Siddha Bhashaja Manimala* in the treatment of *Upadansha roga*.

Kukkutanda Twak Bhasma is a very important source of calcium and it is also possesses some other minerals in trace amount, it is cheap and treats symptoms due to its

Rasa, Virya, Vipaka and cures many other disorders such as *Asthikshay, Shvetapradar, Vandhyatva* etc.

HISTORICAL REVIEW

Veda purvakala

Since ancient times and very long ago during the immemorial stages, man is widely using birds for many purposes¹. In pre *vedic* period they used it for a very common use case that is their meat and eggs in their diet. They also used their feathers from wings to protect their skin. There are chances that they might have not used *kukkutanda tvak* as such. They did know about *Kukkutānda tvak* but did not use it for its therapeutic uses.

Veda kala

It is very widely known that birds have been used for sending messages with message tied to their legs and also as to extract '*soma*' *vanaspati*. Still, the reference of using of *kukkutanda tvak* as a medicine is not yet found anywhere in *vedas*.^[1] Also in *puranas* and *upnishthas*, there are no extracts and reference of usage of *kukkutanda tvak* as a medicine is not found.

Samhita kala

Charaka samhita in the *sutra sthana, Annapanavidhi adhyaya* the qualities of *Kukkutanda mamsa* are explained.^[2a] In *chikitsa sthana, trimarmiya chikitsa adhyaya* the *kukkutanda tvak* is used as one of the ingredient in the preparation of *sukhavarti and dristiprada varti*.^[2b]

Sushruta samhita

In the *sutra sthana, Annapanavidhi adhyaya*, there is extract about the reference of the word *kukkutandaka*.^[3] In the same chapter, the *kukkuta* is also explained in detail under *vishkiryā varga*.^[4]

In *uttara sthana raktabhisyaṇḍa pratishedha adhyaya*,^[5] and *kriyakalpa adhyaya*.^[6] the *kukkutanda kapala* is also recycled in the preparation of *badrodayanjana, gutikanjana* and *arjuna nashaka lekhyanjana*.

Astanga sangraha

In the extracts of *kukkutanda tvak bhasma, uttara sthana sandhisitasita roga pratishedha adhyaya* has been mentioned as an ingredient.^[7]

Similarly in *timira pratishedha adhyaya, kukkutanda tvak* has been recommended in various *kalpas* which are useful in *timira*.^[8]

Also in the *vrana pratishedha adhyaya, the kukkutanda tvak* is used in *vrana avasadana*.^[9]

Kashyapa samhita

There are references and explanation of *vishkiryā varga*.^[10] There is no reference as such of *kukkutandatvak*.

Harita samhita

There is no reference of *kukkutanda tvak* or portions containing it. There is no reference as such of *kukkutanda tvak*.^[11]

Bhela samhita

There is no reference of *kukkutanda tvak* or portions containing it. There is no reference as such of *Kukkutanda tvak*.^[12]

Cakradatta

There are references and explanations of using *kukkutanda tvak bhasma* in *grahani roga*.^[13]

Sangraha kala

Sharangadhara samhita

There is a reference of *kukkutanda tvak* in *uttara tantra, netra prasadana kalpana*. It is said to be very much beneficial in conditions namely *shuklarma* and *netrapushpa*.^[14]

Bhavaprakasha

Mishraka prakarana defines *vishkiryā varga* and quotes the replacements of *Kukkutanda*.^[15] Description about various eggs of various birds and their *guna karma*. *Kukkutanda tvak* is mentioned in *timira roga*.

Yogaratanakara

Kukkutanda kapala is very widely used to cure eye diseases.^[16]

Vangasena samhita (chikitsa saara sangraha)

There is a reference of *kukkutanda tvak* in *netra roga adhikara*. It is implied mainly for *netra vyadhi* specifically in *arma* as in *varti* preparations.^[17]

Rasashastra kala

After the emergence of *rasashastra*, the references regarding *shodhana, marana, matra, anupana, and amayika prayoga* are found in *rasagranthas*. The period of *rasashastra* starts from 8th century.

They are as follows

Bharata bhaisajya ratnakara

Kukkutanda tvak is has references from II, III & IV volumes in various *kalpas*. It gives crucial and mutual knowledge about these *kalpas*.^[18]

Bhaisajya ratnavali

Kukkutanda tvak is justified to be a *pranija dravya* and its purpose is exploited in eye disorders as *anjana* is explained.^[19]

Ayurveda sara sangraha

In *shodhana and marana prakarana*.^[20] a scrutinized examination regarding *kukkutanda tvak bhasma* its *matra, anupana* and its benefits are listed.

Rasa tantra saara.^[21]

In *dravya shodhana prakarana*, the *shodhana* of *kukkutanda tvak* is explained and in *bhasma prakarana* the preparation of *kukkutanda tvak bhasma*, *vishesha guna vriddhi*, *matra*, *anupana* and benefits are listed.

For vishesha guna vriddhi, three methods are explained

I method

1/2 *tola hingula* is added to *kukkutanda tvak bhasma* of 5 *tola*. *Bhavana* is done for 12 hrs by adding *ghrita kumari svarasa*, after that *chakrika's* are prepared, similarly four *gaja puta paka* is done by adding 1/2 *tola hingula* everytime. Grey coloured *bhasma* is formulated after the process.

II method

1 *tola hingula* is added to *kukkutanda tvak bhasma* of 8 *tola*. *Bhāvanā* is given using *kumari svarasa*, *chakrika's* are prepared and *gaja puta* given. Likewise 4 *gaja puta* are given adding 1 *tola hingula* each time.

III method

10 *tola* powder which is coarse in nature is taken of *kukkutanda tvak* and *changeri svarasa* is added in such a way that powder gets soaked completely. Later, *bhāvanā* is added and *chakrikās* is prepared. *Mārana* is also done using 5 *vanopalagni*. *Shveta varna bhasma* is prepared.

Rasendra vijnaaneeyam

The preparation of *kukkutanda tvak bhasma* is listed below along with its uses.^[22]

Bhasma vijnaana

The processes of *marana*, *anupana*, uses, *matra* and *shodhana* of *kukkutanda tvak bhasma* are explained.^[23]

Ayurvediya rasa shastra

The *kukkutanda tvak* is added in *sudha varga* / *shukla varga*.^[24]

Dravyaguna vignana

In this book, it is said that the *Kukkutānda tvak* is very analogous to *asthi dhatu* and is also said to be useful in *phakka roga*.^[25]

Chikitsa prabhakar

Kukkutānda tvak has references here which is also useful in blindness.^[26]

Table 1: Shodhana.

Reference	Process	Time	Media used
<i>Ayurveda Sara Sangraha</i> ^[32]	<i>Nimajjana</i> (Soaking)	-	<i>Ushnodaka</i> (warm water)
<i>Vridha Vaidya Parampara</i> ^[33]	<i>Nimajjana</i> (Soaking)	24 hours	<i>Takra</i> (Buttermilk)
<i>Siddha Bhesaja Sangraha</i> ^[34]	<i>Nimajjana</i> (Soaking)	1 day/24 hours	<i>Ushnodaka</i> (warm water)
<i>Rasa Tantra Sara Siddha Prayoga Sangraha</i> ^[35]	<i>Nimajjana</i> (Soaking)	4-6 days	<i>Saindhava</i> + <i>Navasadara</i> + <i>Udaka</i> (water mixed with Rock salt and Potash Alum)

Bharateeya rasashastra

This book lists the *shodhana* and manufacturing process of *Kukkutānda tvak*. The uses are described in detail.^[27]

Classification

Various medications of *Sudha varga*, calcium is present in various forms of its salts e.g. Calcium sulphate in *Godanti*, Calcium hydroxide in *Sudha*, Calcium silicate in *Badarashma*, Calcium phosphate in *Ajasthi*, Calcium carbonate in *Kukkutanda Twak*, etc. In majority of the drugs, Calcium is also there in the form of Calcium carbonate e.g. in *Shankh*, *Mukta*, *Kapardika*, *Pravala*, *Shukti*, etc. Calcium carbonate derivatives have very high percentage of elemental calcium among the calcium salts.^[28]

Composition

Kukkutanda Twak contains 5% Calcium phosphate, 95% Calcium carbonate and small amounts of Magnesium carbonate, proteins, etc.^[29] Use of Calcium salts containing Calcium in various forms may be useful to avoid or to fix Calcium deficiencies, to treat osteoporosis, as an antacid, as a Phosphate binder or for acute treatment of Tetani, Lead colic, etc.^[30]

Usage

Kukkutanda tvak Bhasma (KTB) is discovered as very effective in some of the conditions such as *Shweta pradara* (Leucorrhoea), *Prameha* (Diabetes), *Vatavikara* (diseases because of vitiation of *vata*), etc.^[30] It is found very beneficial in improving bone density, because it is a very brilliant source of calcium and that is one of the reasons why it is used in arthritis, osteoporosis, etc. There are no major side effects mentioned with the normal use of egg shell calcium (KTB). Hence it can also be considered that it is safe for long-term and regular use.^[31] But scientifically speaking the validation of KTB found is very minimal. Effective use of KTB is also beneficial in appropriate utilization of the eggshells which are otherwise disposed as a waste.

Shodhana (Process of Purification)

There are four main methods of *KT Shodhana* which can be found and are also listed in the table below. *Nimajjana* is the most well-known method of *shodhana* but the kind of media used and amount of time of *nimajjana* may vary according various *acharyas*.

Bhavana

Bhavana is a well-known methodology also known as *samskara* that can improve a medicine qualities by varying proportions with its properties and adding new properties. It is a very important procedure which is performed before *amrutikaran*, and *lohitikarana*, *marana*, *satvapatana*, *shodhana* as well as during the preparation of various medicines. It declines the toxic nature of substances and also adds to the creation of organo metallic compounds. The *bhavana* process helps in making the drug particle size small, improving their absorption quality into the ambience. *Swarasa*, *mutra*, *jala*, *dugdha*, *madhu*, *kwatha*, and other fluids are used for *bhavana*. The quantity of *bhavana dravya* which is used is explained as the amount of dry powdered drug that is well soaked. An array of *bhavana dravyas* are used in the preparation of *kukkutanda twaka bhasma*

which are listed in various texts such as *Amladravya / Nimbuswarsa, kumari swarasa, Changeri swarasa, arka ksheera, Adraka swarasa, shataavari kwatha*.^[36-39]

Marana (Process of Incineration)

Marana, commonly called *bhasmi karana*, is an indigenous mechanism of *rasa shastra*.

To know the etymology of the word lets look into the details of the each word. *Marana* means "to kill," and it refers to the death of biotic substances, which results in the loss of their vitality and activity. The word "*marana*" in *rasa shastra* means to the conversion of metals and minerals into *bhasma* form, which is a very powerful type of medicine that easily incorporates in the body and requires only a small dose to achieve desired efficacy.

Table 2: Showing Different methods of *kukkutandatwakabhasmikarana*.^[36-41]

Sr. no.	Name of text	Marana dravya	Bhavanadravya	No. of puta's
1.	<i>Siddha bhesaja manimala</i>		<i>Amla varga – 3 bhavana</i>	3 <i>Gajaputa</i>
2.	<i>Ayurveda sara samgraha</i>		<i>Changeri swarasa</i>	2/3 <i>puta</i>
	<i>Ayurveda sara samgraha</i>	<i>Hingula (4 tola)</i>	<i>Ghritkumari swarasa</i>	5/6 <i>puta</i>
3.	<i>Rasa tantra sara avum siddha prayoga samgraha– 1st</i>	<i>Hingula (1.5 tola)</i>	<i>Changeri swarasa- 2 kumari swarasa – 4</i>	6 <i>puta</i>
4.	<i>Rasa tantra sara avum siddha prayoga samgraha– 2nd</i>	<i>Hingula (1/8 part)</i>	<i>Nimbu swarasa - 3</i>	5 <i>puta</i>
5.	<i>Bhasma vigyaniya</i>			
	Method -1		<i>Kumari/nimbu swarasa</i>	4 <i>puta</i>
	Method -2	<i>Hingula</i>	<i>Kumari/nimbu swarasa</i>	1 <i>puta</i>

Dose

1-4 *ratti* (125-500mg)

Anupana (Adjuvant)

Chyavanaprasha avaleha, Dadima swarasa (Juice of pomegranate fruit), *Madhu* (Honey), *Sita* (Sugar candy), *Ksheera* (Milk), *Amalaki swarasa* (Juice of amla), *Navaneeta* (Butter).

Indications^[42]

Sukra nirbalata, mastishka roga (disorders of brain), *sweta pradara* (leucorrhoea), *somaroga, raktapitta* (bleeding disorder), *swapna dosha, bahu mutrata, prameha* (diabetes), *rakta pradara, sukra vikara, Hridya roga* (cardiac disorder), *napumsakatva*.

DISCUSSION

Rasashastra has given a significant contribution in the broad field of *Ayurvedic* medicines. A huge number of medicines referenced in *Rasashastra* have both medicinal and nutritional values.

Kukkutanda Twak is a main medicine that is widely used in various forms such as *bhasma*. *Kukkutanda Twak* was involve under *shukla varga* & the prepared *bhasma* of this division, drugs will be in white colour. After that it was named as *sudha varga*, as the medicine which

includes and contains important medicines in this are rich in calcium component. In KT the calcium is in the form of calcium carbonate which has a very good percentage of elemental calcium among the calcium salts. *Nimajjana* (Soaking) is the method which is used for the *shodhana* of KT, as the drug is non toxic in nature & the process of *Nimajjana* will eliminate the physical impurities & also makes the drug soft; that in turn will help in the activity of incineration. But different *drava dravyas* are said like *ushnodhaka, lavanodaka, saindhava-navasadarajala*, etc. for the process of *shodhana*. This process will remove the external impurities and also the inner membranous layer. *Shodhitha* KT is changed into *bhasma* form by *marana* process. *Changeri* or *gritakumari swarasa* are used for *bhavana*. The ingredients of these *bhavana* drugs will be consume to the *Kukkutanda twak* that will increase the therapeutic property of *Kukkutanda twak bhasma*. Then number of *puta's* mentioned is 2 to 6 as the *kukkutanda* is not heavy, by giving only 2 to 4 *puta's* it turns into the form of *bhasma*.

CONCLUSION

Rasa shastra is a procedural science that deals with *Ayurveda* pharmaceuticals and the use of mineral, metallic, animal origin drugs, etc. are used in various formulations. *Kukkutanda Twak bhasma* is one such drug

of animal origin that is used as a single *bhasma* with a broad spectrum of indications. The process of purification is simple i.e., soaking in different liquid media lukewarm water, buttermilk and water mixed with Rock salt and Potash Alum. This method will separate the unwanted properties from the raw drug & also the method of soaking makes the drug softer through by the further process of *marana*. As the drug is not hard only 2 to 4 *puta*'s are sufficient to get the *bhasma*. The *bhasma* is said to be useful in a varied spectra of diseases like *hridyoga*, *raktapitta*, etc. As the drug is easily gettable & the methods are very simple for prepared the *bhasma* easily. The *bhasma* can be used in various disorders with suitable adjuvant & researched upon.

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