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Review Article

A Review on *Kukkutanda Twak Bhasma*

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ABSTRACT

Kukkutanda (Hen's egg shell) is a commonly used food material. *Kukkutanda twak* (egg shell of hen) has been used for therapeutic purposes in the form of *bhasma* known as *Kukkutanda Twak Bhasma*. *Kukkutanda* is a *jangama dravya*. It is included under *Sudha Varga* as it contains Calcium compound. In initial texts *Shukla varga* was the name used to include Calcium containing drugs like *Sudha, Kurma prishta, Varatika*, etc. Later texts especially the books of 19th and 20th century have used the term *Sudha Varga* to include calcium containing drugs.
Kukkutanda Twak is an excellent source of organic form of Calcium and has more bioavailability than that of inorganic form. In this article, details regarding its composition, usage, *Shodhana* (purification), *Marana* (Incineration), dose, *anupana* (adjuvant) and indications are discussed.

Keywords: *Kukkutanda twak, bhasma, sudha varga*, calcium compound

INTRODUCTION

Rasashastra is the science which deals with the study of metals, minerals, *Sudha varga* and *Visha* (poison) *dravyas*, etc. It describes the identification, purification, incineration and the properties of these dravyas along with their medicinal preparations. In *Sudha varga*, *dravyas* having Calcium as the main constituent have been described. [1]

As per *Sudha varga* is concerned, in ancient texts like *Rasarnava* and *Rasaratnakara*, the term *Shukla varga* is found to be used for it. In *Shukla varga*, [2] the drugs like *Sudha* (Lime), *Shankha* (Conch Shell), *Shukti* (Pearl Oyster) and *Varatika* (Cowry) are included. The texts like *Rasamruta* and *Ayurveda Saara Sangraha* may be due to the influence of modern chemistry have developed a separate view of *Sudhavarga* as a group of calcium containing group. Use of *Kukkutanda Twak* (KT) is seen since *Samhitakala* for the external application on the body in *churna* form.

Use of KT in its *bhasma* form is found to have started in *Rasashastra kala* (period of Indian alchemy). For the preparation of *bhasma*, *marana* (incineration) of the *shodhita* (purified) metal or mineral has to be done. *Marana* is the process in which *shodhita* metal or mineral is triturated with specific plant juice and then whole mixture is subjected to *agni samskara*, which yields *bhasma* i.e., very fine incinerated ash.

Classification

In the different drugs of *Sudhavarga*, calcium is found to be present in different forms of its salts e.g. Calcium silicate in *Badarashma*, Calcium sulphate in *Godanti*, Calcium phosphate in *Ajasthi*, Calcium hydroxide in *Sudha*, Calcium carbonate in *Kukkutanda Twak*, etc. In majority of the drugs, Calcium is present in the form of

Calcium carbonate e.g. in *Shankha*, *Shukti*, *Kapardika*, *Pravala*, *Mukta*, etc. Calcium carbonate supplements have the highest percentage of elemental calcium among the calcium salts. [3]

Composition

Kukkutanda Twak contains 95% Calcium carbonate and 5% Calcium phosphate, Magnesium carbonate, proteins, etc. [4] Use of Calcium in the form of Calcium salts may be useful to prevent or to correct Calcium deficiencies, to treat osteoporosis, as an antacid, as a Phosphate binder or for acute treatment of Tetani, Lead colic, etc. [5]

Usage

Kukkutanda twak Bhasma (KTB) is found to be very effective in the conditions like *Shwetapradara* (Leucorrhoea), *Vatavikara* (diseases because of vitiation of *vata*), *Prameha* (Diabetes), etc. [5] It is useful to improve bone density, since it is a good source of calcium hence used in arthritis, osteoporosis, etc. There are no significant side effects reported with the regular use of eggshell calcium (KTB). Therefore it can be considered that it is safe for long-term and regular use. [7] But the scientific validation of KTB found is inadequate. Effective use of KTB also helps to adequate utilization of the egg shells which are otherwise disposed as a waste.

Shodhana (Process of Purification)

Four methods of KT *Shodhana* could be found which are mentioned in the table below. *Nimajjana* is the common method of *shodhana* but the media used and time of *nimajjana* is different according to the different *acharyas.*

Table 1: *Shodhana*

Reference	Process	Time	Media used
Ayurveda Sara Sangraha [8]	*Nimajjana* (Soaking)	-	*Ushnodaka* (warm water)
Vriddha Vaidya Parampara [9]	*Nimajjana* (Soaking)	24 hours	*Takra* (Buttermilk)
Siddha Bheshaja Sangraha [10]	*Nimajjana* (Soaking)	1 day/24 hours	*Ushnodaka* (warm water)
Rasa Tantra Sara Siddha Prayoga Sangraha [11]	*Nimajjana* (Soaking)	4-6 days	*Saindhava+ Navasadara+ Udaka* (Water mixed with Rock salt and Potash Alum)

Marana (Process of Incineration)

For *Marana* of KT, only two *bhavana dravyas* are mentioned namely *Changeri swarasa* and *Ghritakumari swarasa*. The number of *puta* (quantum of heat) mentioned is four as the drug KT is *mrudu dravya* (soft in nature).

Table 2: No. of *Puta* and *Bhavana dravya* for *Marana*

Reference	*Bhavana dravya*	*Puta*
Rasa Tantra Sara Siddha Prayoga Sangraha [12]	*Changeri swarasa* (juice of Oxalis corniculata)	4 *Gajaputa*
Ayurveda Sara Sangraha [13]	*Changeri* (Oxalis corniculata) *swarasa*	3 *Gajaputa*
Siddha Bheshaja Sangraha [14]	*Changeri* (Oxalis corniculata)/ *Ghritakumari swarasa* (juice of Aloe barbadensis)	4 *Gajaputa*
Vriddha Vaidya Parampara [15]	*Ghritakumari swarasa* (juice of Aloe barbadensis)	2 *puta*

Dose: 1-4 *ratti* (125-500mg)
***Anupana* (Adjuvant):** *Navaneeta* (Butter), *Ksheera* (Milk), *Sita* (Sugar candy), *Dadima swarasa* (Juice of pomegranate fruit), *Amalaki swarasa* (Juice of *amla*), *Chyavanaprasha avaleha*, *Madhu* (Honey)

Indications: [12] *Hridroga* (cardiac disorder), *mastishka roga* (disorders of brain), *bahumutrata*, *prameha* (diabetes), *soma roga*, *raktapitta* (bleeding disorder), *swapnadosha*, *swetapradara* (leucorrhoea), *raktapradara*, *sukravikara*, *sukra nirbalata*, *napumsakatva*

DISCUSSION

Rasashastra has given an immense contribution to the field of Ayurvedic therapeutics. There are a number of drugs mentioned in *rasashastra* that have both therapeutic and nutritional values.

Kukkutanda Twak is one such drug that is popularly used in the form of *bhasma*.

Kukkutanda Twak was included under *shukla varga* as the prepared *bhasma* of this group drugs will be in white colour. Later it was named as *sudha varga*, as the drugs included in this are rich in calcium component. In KT the calcium is in the form of calcium carbonate which has the highest percentage of elemental calcium among the calcium salts.

Nimajjana (Soaking) is the procedure which is followed for the *shodhana* of KT, as the drug is not toxic in nature and the process of *nimajjana* will remove the physical impurities and also makes the drug soft; that in turn will help in the process of incineration. But different *drava dravyas* are said like *ushnodhaka, lavanodaka, saindhava- navasadara jala*, etc. for the process of *shodhana*. This process will remove the external impurities and also the inner membranous layer.

Shodhitha KT is converted into *bhasma* form by *marana* process. *Changeri* or *gritakumari swarasa* are used for *bhavana*. The components of these *bhavana* drugs will be imbibed to the *Kukkutanda twak* that will enhance the therapeutic property *Kukkutanda twak bhasma*. The number of *putas* mentioned is two to five as the KT is not heavy, by giving only two to four *puta* it turns into the form of *bhasma*.

CONCLUSION

Rasashastra is a science that deals with *Ayurveda* pharmaceutics 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 like warm water, buttermilk and water mixed with Rock salt and Potash Alum. This process will remove the unwanted properties from the raw drug and also the process of soaking makes the drug softer thereby aiding for the further process of *marana*. As the drug is not hard only two to four *putas* are sufficient to get the *bhasma*. The *bhasma* is said to be useful in a varied spectra of diseases like *hrudroga, raktapitta*, etc. As the drug is easily available and the processing is very simple it can be prepared easily. The *bhasma* can be tried in various diseases with suitable adjuvant and researched upon.

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