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ROLE OF NIRMALIKARAN IN TUTTHA SHODHAN W. S. R. TO RASATARANGINI

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ABSTRACT :

Rasashastra is a science which study metals and minerals, their medicinal properties & formulation. It mainly deals with mercury and then other metals & minerals. They helps mercury in formulations. In Rasashastra number of *Samskara* mentioned like *Shodhana, Marana, Amrutikarana* but to know exact effect of *Samskara* on materials before and after analytical tests are necessary. *Shodhana* is very important *Samskara* in *Rasashastra* it helps to remove impurities and add medicinal properties in material. *Tuttha* is very important mineral included in *Maharasa* group. It is copper sulphate chemically. *Tuttha* can make artificially, but the *Tuttha* found in nature is mixed with impurities. To avoid such impurities before *Shodhana* there is one *Samskara* mentioned *Rasatarangini* only, known as *Nirmalikarana* . Physical impurities can washed out with this.There are three type of *Shodhana* mentioned in *Rasatarangini* with *Bhawana,Nimbu Swarasa Raktvarga & Amlavarga.* We have mentioned only one type of *Shodhan* here that is *Nimbu Swaras Bhawana* for 6 hrs.This paper is enlighten on procedure and it's analytical changes from *Ashuddha* to *Shuddha, Nirmalikrut Ashuddha* to *Nirmalikrut Shuddha Tuttha*.

Key words: *Tuttha, Shodhan, Nirmalikaran*

INTRODUCTION:*Shodhan* concept in *ayurveda* is from *charak samhita*, but the importance of *shodhana* got enhanced from 8th cen. A. D. when ayurvedic scholars start using metals and minerals for medicine preparations. The aim of this procedure is to remove toxicity completely or minimize it and also to increase medicinal properties in it. During *shodhana* materials are subjected to various procedures like grinding, heating, fomenting, distilling etc. Besides shodhana procedure with organic materials helps minerals and metals to get absorbed in body tissues. For *shodhan* materials are subjected to liquids either of acidic, alkaline or neutral or oily in nature. Grinding in hot & cold condition also helps in reduction and dispersion particles of materials. Thus, the surface area of the material increase, increasing the contact area with the *shodhan dravya*.There is also one type of *shodhana* known as *nirmalikarana*. Is specifically mentioned for some minerals only in *rastarangini* (like tuttha and tankana). Its helps to remove mainly physical impurities from materials. According to *rasatarangini* this *nirmalikrut tuttha* can use for external application but not for internal. No chemical changes are found in *nirmalikrut tuttha*. Hence it also use as a pre procedure of *shodhana.* After *nirmalikarana* they have said further *shodhana.*

One of the mineral which we have chosen here is *tuttha* having *nirmalikarana* and *shodhana* both. To study. the changes of substance before and after *samskara* analytical study is Necessary. Hence current study is enlightened on importance of nirmalikaran with comparison to *shodhit tuttha.*

Literature Review Of *Tuttha:*

From the *bruhattrayi* we can see use and reference of *tuttha* specifically in *charak* and *sushrut samhita*. One historical story is also mentioned about origin of *tuttha*. Once upon time when *garuda* had taken *visha* and for its antidote he took *amruta* and he emitted on the *marakat* hills. Emesis contains mixture of *visha* and *amruta*. This was the historical story for *tuttha* origin.After *bruhatrayi* the classical texts of rasashastra also mentioned *tuttha* in there literature. Specifically in *rasatarangini tuttha* is mentioned in *maharasa gana. Tuttha* can also prepare artificially that is mentioned first time in rasatangini. The chemical composition of *tuttha* is $CuSO_4$, $7H_2O$ they contain 7 molecules of water. In *sanskrut*, *tuttha* also known as *sasyaka*. Synonyms of *tuttha* are *tutthaka*, *tutthanjana*, *mayuraka*, *tamragarbha* and *shikhigriva*. In hindi *tuttha* known as tutiya & in Marathi it is known as morchud. In English tuttha also known as copper sulfate/ blue vitriol. The hardness of tuttha is 2.5 & sp. Gravity is 2.1 to 2.3. Acceptable *tuttha* for medicine should be like peacock's neck blue, shiny, heavy, slightly oily, this *tuttha* should taken for medicine preparation.

Types of *Tuttha*:*Rasajalnidhi* have mentioned types of *tuttha*

1) According To Colour:-a] *Raktavarna* (red) good

b] *Kalika* (black) not good

2) According To Findings:- a] *Swabhavaj* (get in nature)

b] *Krutrim* (made artificially)

Need of *Shodhana* and *Nirmalikarana* of *Tuttha:-*

Dosha* of *Ashuddha Tuttha:

In *ayurved prakash* they mentioned toxic effect of *ashuddha tuttha*. Consumption of *ashuddha tuttha* can cause nausea, vomiting, giddiness.

***Nirmalikaran* of *Tuttha*:-**This procedure is mentioned only in *rasatarangini* and it may be use to clear physical impurities. *nirmalikrut tuttha* having slightly bitter taste, it's good for skin, *grahi*, produced vomiting, *kapha nashak*, good for eyes & wound. It also purified the wound of *firanga* & *upadansha*. it helps in *vartma* ,act like *kshara.*

According to *rasatanangini nirmalikrut tuttha* is use in formulations which is for external application only. For internal application *shodhana* is necessary.

Shodhana:-

The procedure in which material gets free from impurities & toxicities and get purified with the help of procedures like *mardana, khalana, nirvapana* are known as *shodhana.*

***Shodhan* of *Tuttha*:-** In *rasatarangini* there are total 4 types of *shodhana* mentioned in which three are of *bhavana samskara (mardana)* and one is of *swedana.*

Bhavana (Mardana):-

Any metal or *churna* grind with water, decoction or any other liquid medium is known as *bhavana.* The liquid quantity for *bhavana* should be sufficient that churna get wet. As *bhavana* got complete the *Chuna* forms consistency of pills & when press it between two fingers it get flat. It is very soft in touch. These are signs of *samyak bhavana*. If *bhavana* is not properly given pills consistency will not form & during pressing it they get cracks on corners of pills. And also it is rough in touch. These are signs of *asamyak bhavana*.

Type of *tuthha shodhana* with *bhavana* method according to rasatarangini.

1] lemon juice for 6 hrs.

2] *Raktachandan Manjishtha Qwatha* for 7 times.

3] *Amlavarga Bhavana* for 7 times.

Here we have choosen only one type that is *Bhavana* with lemon juice for 6 hrs.

materials & methods :-

The required quantity of tuttha were procured from dadar pharmacy ,Mumbai

MATERIALS

1] *Khalva Yantra*

2] Hot Water
3] *Ashuddha Tuttha*
4] *Nirmalikrut Ashuddha Tuttha*
5] Glass Funnel
6] Beaker
7] Glass Dish
8]FilterPaper
9] Knife, Gas
10] Lemon Juice (As Per Requirement)

METHODS:-

All procedures were carried out in dept. RSBK YMT ayurvedic medical college kharghar, navi mumbai
Method 1:- niramalikaran of tuttha
Method 2:- shodhana of tuttha
Method 3:- shodhana of nirmalikrut tuttha

Nirmalikaran* Of *Tuttha: 100 gram of *ashuddha tuttha* were taken & powder done. In powdered *tuttha* 50 ml of boiling hot water were poured. Mixture were properly stirred and prepared. Then solution was filtered with the help of filter paper. Filtered solution kept in glass vessels to stabilize it. Crystals were started forming at the bottom of vessel. After evaporating extra water molecules nirmalikrut *tuttha* crystals were collected.

Shodhan Of Tuttha (Nirmalikrut/ Anirmalikrut):

The method of both type of *tuttha* are same i.e. grinding with lemon juice for 6 hrs. first powder of *tuttha* done in *khalva yantra*. Then sufficient amount of lemon juice were added in It. And then grinding were started. Procedure was continued for 6 hrs. after *samyak bhavana shuddha tuttha* were collected. Same procedure were carried out for *nirmalikrut tuttha.*

OBSERVATION:

All this procedures were carried out and observations were noted

Abbreviation:- 1) Sample 1:- *Ashuddha Tuttha*
2) Sample 2:- *Nirmalikrut Tuttha*
3) Sample 3 :- *Anirmalikrut Shuddha Tuttha*
4) Sample 4 :- *Nirmalikrut Shuddha Tuttha*

Table No.1- Organolepic Observation:-

	Sample 1	Sample 2	Sample 3	Sample 4
Shabda	--------	--------	--------	----------
Sparsha	Rough	Rough	Soft	Soft
Roop	Opaque royal blue colour	Crystalline blue colour with green tinge	Powder form with sea green colour	Powder form with sea green colour
Ras	*Tikta*	*Tikta*	*Tikta*	*Tikta*
Gandh	------	Metallic smell	Lemon smell	Lemon smell

Table no. 2- Observation of wt. loss during procedure:-

	Sample 1	Sample 2	Sample 3	Sample 4
Initial wt.	100 gm	100 gm	100 gm	100 gm
Loss wt.	------	2 gm	4 gm	5 gm

The element analysis done with the help of XRF . The XRF method depends on principles involving interaction between electron beam and x ray of sample. The analysis of major and tress elements of materials by XRF is made possible by the behavior of atom when they interact with radiation.

Table no. 3- Elemental analysis of tuttha by XRF

Elements (mass %)	Sample 1	Sample 2	Sample 3	Sample 4
Silicon (si)	0.69	-------	-------	-------
Sulfur (s)	14.70	15.09	14.23	9.46

Potassium (k)	0.17	-------	0.25	0.19
Calcium (ca)	0.72	0.38	3.69	0.18
Iron (Fe)	0.83	0.98	0.57	1.09
Copper (cu)	81.19	81.64	79.89	87.61
Zinc (zn)	1.70	1.91	1.36	0.68

DISCUSSION: During *nirmalikarana* of *tuttha* total 100 gm. Of *ashuddha tuttha* was taken and after *nirmalikaran* we got 98 gm. Of *nirmalikrut tuttha*. Total 2gm. Loss was there. *nirmalikarana* was mainly to remove physical impurities. We have seen that in *ashuddha tuttha* there were silicon was present but in *nirmalikrut tuttha* we didn't get silica as well as potassium was also absent in it but the sulfur and zinc concentration is more in *nirmalikrut tuttha* which is 15.09 and 1.91 orderly. colour of *nirmalikrut tuttha* is blue with green tinge and crystalline structure is there. Silicon were absent in all three other samples except *ashuddha tuttha* and also potassium were absent in only *nirmalikrit tuttha*. After started with *shodhana* of *anirmalikrut tuttha* we loosed 5gram and during *nirmalikrut shodhana* of *tuttha* we loosed 4 gm. But the colour of both *shodhit tuttha* were same that's sea green colour. But the percentage of Cu,Zn,S differs. Copper, iron is more in *nirmalikrut shuddha tuttha* were less in *anirmalikrut shuddha tuttha*. Were as sulfur, potassium, calcium and zinc percentage is more in *anirmalikrut shuddha tuttha* than *nirmalikrut shuddha tuttha.* They both having lemon smell and in soft powder form.

CONCLUSION: From the above results we observed that highest quantity of cu we get from sample 4 but in *nirmalikrut tuttha* we observe that percentage of sulfur & zinc is more than other samples. Sulfur itself acts like an antibacterial and antifungal and therefore help in wound healing. Zinc directly helps in wound healing. In *rasatarangini* they have already mentioned *niramalikrut tuttha* properties that,i it is really good in wound healing of in *firanga, upadansha* & in *netragat clinn vartma* also. and high percentage of sulfur and zinc may help in that. *rasatarangini* had mentioned that without *shodhana*, internal use of *tuttha* is prohibited. In *Nirmalikrut Shuddha Tuttha* we observed that cu is in higher percentage but zinc and sulfur percentage is very less compared to other samples. *tamra* is *vamak* only hence it is beneficial for us. During visha chikitsa where tuttha is taken for vamana. Some of *kalpas* of *tuttha* help in *firanga, upadamsha* by taking this internally. During internal administration may be *sufficient* percentage of zinc and sulfur should be less. That's why may be they mentioned *shodhan* for oral administration. Hence we can state that *nirmalikrut shodhit tuttha* is more beneficial and advantageous over *anirmalikrut shodhit tuttha*.

REFERENCE:

1) Pandit Kashinath Shastri Rasatarangini Motilal Banarasidas 8th Edition 2014.

2) Acharya Siddhinand Mishra Rasaratna Samucchaya Choukhamba oriental,1st edition 2011

3) Dr. Chandrabhushan Jaha Ayurvediya Rasashastra (A Text Book Of Rasashastra) Choukhamba Surbharati Prakashan, Varanasi 2009.

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