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Review Article

AMRUTIKARANA - A CRITICAL REVIEW

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ABSTRACT

The *Bhasmas* are the unique preparations of metals and minerals commonly used in *Ayurveda* for the treatment of various ailments. Marana (incineration) process converts the native form of metal and minerals into stable and assimilable form called *Bhasmas* (calx). *Bhasmas* are said to be the most ancient application of nanomedicine. After the Marana process *Bhasmas* of *Abhraka*, *Louha* and *Tamra* are subjected to a special process called '*Amrutikarana'*. The process is performed to remove the remnant *Doshas* (impurities) which might be present in the *Bhasma* and also claimed that it enhances the therapeutic efficacy. In the present paper, an attempt is made to review and put forth the concept of *Amrutikarana*.

KEY WORDS: *Amrutikarana, Shodhana, Abhraka, Louha, Tamra, Marana.*

INTRODUCTION

Rasashastra is Ayurvedic Pharmaceutics dealing with the *Rasaushadhis* (herbo-mineral-metallic compounds). The master drug of this ancient science is *Parada* (mercury), while the other drugs are used along with *Parada* Bhasmas (calx) are one among such preparations which are prepared after various Samskaras (processing) like *Shodhana* (purification), *Jarana* (digestion), *Marana* (incineration), *Amrutikarana* (nectarization) etc. The metals and minerals used in therapeutics are recognized for possessing impurities which are likely to bring about certain toxic effects.

Samskaras can bring certain changes in properties of the drug[1]. Hence ancient seers developed the procedures like *Shodhana*, *Marana, Amrutikarana* etc., which abolish the toxicity of the drug, bring about the physical and chemical changes in the drug, thus enhance their therapeutic efficiency. *Shodhana* is a process in which different drugs are subjected to various procedures like, *Mardana* (grinding), *Swedana* (vapourising) *Prakshalana* (performing frequent ablutions), *Galana* (straining fluids) etc., by treating them with *Dravyas* (plant juices/decoctions or animal products) those are specifically mentioned for the purpose of eliminating impurities[2]. *Shodhana* does the detoxification of the drugs and makes them brittle thereby helping in the further process like *Marana. Marana* is literally means to kill. It is a process in which the metals and minerals are triturated with the specified drugs and *Svarasa/Kvatha* (juice/decoction), then subjected to Puta (specific quantum of heat) to obtain *Bhasma*.

Sometimes the *Bhasma*, although prepared carefully cannot get rid of properties or ingredients which prove harmful and toxic to the body. In such circumstances the *Bhasma* is subjected to further processing termed as *Amrutikarana*. *Amrutikarana* is claimed to induce nectar like properties in a *Bhasma* by nullifying the trace impurities expected to be present in the *Bhasmas.* This is specifically mentioned only to *Abhraka, Loha and Tamra bhasma.* The references of *Amrutikarana* are available in *Rasatarangini, Rasamrutha, Anandakanda, Rasendra Chintamani, Rasayanasara, Ayurveda Prakasha, Bruhat Rasaraja Sundara, Rasa Jala Nidhi.*

Sri *Sadanand Sharma*, author of *Rasatarangini* defines *Amrutikarana* as a process in which, remove the remnant/traces of impurities present in the *Lohadi bhasmas* after the Marana process[2]. Anandakanda has included this under the 5 *Samskaras of Abhraka*.[7] *Madhava upadhyaya*, author of *Ayurveda Prakasha* opines about *Amrutikarana* in context of A*bhraka bhasma* as, the process by which the *aruna (red coloured) bhasma* loses its colour, but the properties get enhanced.[4] *Yadavaji Trikamaji Acharya*, author of *Rasamruta* opines that it removes the eight bad effects *of Tamra*.[5]

Table 1: Amrutikarana of Abhraka, Tamra and Loha in Different texts.

Text	Abhraka	Tamra	Loha
R.R.S	-	+	-
A.K	+	+	+
R.T	+	+	-
Rsm	-	+	-
R.Chi	+	-	-
B.R.R.Su	+	-	-
R.Sara	-	+	-
A.P	+	-	+
R.J.N	+	-	+

\+ mentioned -not mentioned

Table 2: Amrutikarana of Abhraka mentioned in various texts

Ref.	Ingredients	Procedure
A.K. kriyakarana vishranti 7/91-92	*Abhraka bhasma* - 10 *pala* *Goghrutha* – 8 *pala* *Triphala* decoction (three myrobalams) – 16 parts	Heated in *Lohapatra* (iron vessel) on mild fire.
A.P.2/138	*Abhraka bhasma* – 1 part *Goghruta* (cow's ghee) – 16 part	Heated on mild fire.
R.Chi.4/32-33; A.P.2/139 R.T.10/71	*Abhraka bhasma* - 1part *Goghrutha* – 1 part	Heated in *Lohapatra*.
A.P.2/136-137	*Abhraka bhasma* – 10 parts *Goghrutha* – 6 parts *Triphala* decoction – 16 parts	Heated in *Lohapatra* on mild fire.
R.T .10/68-69	*Abhraka bhasma* – 10 parts *Goghrutha* – 8 parts *Triphala* decoction – 16 parts	Heated in *Lohapatra* till all the *Ghrutha* and *Kashaya* part burnt off.
R.T.10/70	*Abhraka bhasma* – 10 parts *Goghrutha* – 12 parts *Kumari* (*Aloe vera* Linn.) *Svarasa* – 16 parts	Heated on mild fire.

Table 3: Amrutikarana of Tamra mentioned in various texts

Ref.	Ingredients	Procedure
R.R.S.5/54-55	*Tamra bhasma* *Amla*-Q.S *Suranakanda*	Triturated with the *Amla svarasa*, kept in the *Suranakanda* (Rhizome of Amorphophallus campanulatus), wrapped with the mud smeared cloth, dried and subjected to *Gajaputa*.
R.T .17/37-39	*Tamra bhasma* – 1 part *Gandhaka* – ½ part *Panchamruta* – 1 part	Triturated together, *Chakrikas* (pellets) are made, subjected to *puta* for 3 times.
R.T.17/40-42	*Tamra bhasma* – 1 part *Gandhaka* – ½ part *Nimbu* (Citrus lemon) *svarasa* – Q.S *Suranakanda* – 1	Triturated with *Nimbu* rasa- made into bolus – kept inside *Suranakanda*. It is covered with mud smeared cloth and subjected to *Gajaputa*.
R.T.17/43-44	*Tamra bhasma* *Kumari svarasa* – Q.S	*Bhasma* triturated with *Svarasa*, dried in sunlight, kept in *Sharava samputa*, subjected to *Varaha puta*. This process is repeated for 8 times.
Rsm-lohavijnaniyam/45-46	*Tamra bhasma* *Nimbu svarasa*	Triturated, kept in *suranakanda*, subjected to *Gajaputa*.
A.K.kriyakaranavishranti 4/55-56	*Tamra bhasma* – 5 part *Shveta kacha* – 1 part *Shuddha tankana*– 1 part *Abhraka patra*	All ingredients triturated, kept in between *Abhraka patras* (mica sheets) – kept in *musha* and heated.
A.K. kriyakaranavishranti 4/57-58, R.Sara-dhatushodhanamarana prakarana	*Tamra bhasma* *Nimbu svarasa*- Q.S *Suranakanda*	Triturated with *Nimbu* rasa- made into bolus – kept inside *Suranakanda*. It is covered with mud smeared cloth and subjected to *Gajaputa* for 3 times.

Table 4: Amrutikarana of Loha mentioned in various texts

Ref.	Ingredients	Procedure
A.P.3/280	*Loha bhasma* – 1 part *Triphala kvatha* – 2 parts	Together heated on moderate fire till all liquid evaporates.
A.K.amruteekarana vishranti 7/122-124 B.R.R.Su	*Loha bhasma* – 1 part *Goghruta* – 1 part *Triphala kvatha* prepared with 5 *pala Triphala*	Heated in *Tamra patra*, fried using iron ladle on mild flame.
A.K.kriyakarana vishranti 5/56 B.R.R.Su	*Loha bhasma* – 1 part *Goghruta*	Heated in *Lohapatra* (iron vessel)
R.J.N.vol.3- 1, A.K.kriyakarana vishranti 5/61-63	*Loha bhasma* – 5 pala *Triphala* decoction prepared with 5 *pala* of *Triphala churna* *Goghruta* – equal to *Kashaya,* *Sita* (sugar candy) equal to *bhasma*	*Loha bhasma* is heated along with the *kashaya* and *ghruta*. When the liquid exhausts completely, equal quantity of *Sita* is added.

DISCUSSION

The process *Amrutikarana* is explained only by texts written after 13th century. The definition of A*mrutikarana* given by *Ayurveda Prakash* and *Rasatarangini* differ in their meaning but apparently means of enhancing the safety and efficacy of the *Bhasma*. The term '*Amrutikarana*' is used by *Rasatarangini*, *Ayurveda Prakasha* and *Anandakanda* only. Others have mentioned as a procedure in which *Bhasma/mrita loha* is to be taken. *Rasaratna Samucchaya*, though does not mentions the term *Amrutikarana*, in the context of *Tamra Marana*, a process involving the *Mrita tamra* is described which is claimed to remove the eight impurities of *Tamra bhasma*. The author of *Rasatarangini* opines this procedure to be extended for *Lohadi bhasmas,* but explained the procedure for *Abhraka* and *Tamra* only.

AmrutIkarana is a special procedure described only for *Bhasmas of Abhraka, Tamra* and *Loha;* and also described by few authors only. It is evident that the process *Amrutikarana* is described for *Bhasmas* which require more number of *Puta* to attain *Bhasma lakshanas*. This excess *Agnisamskara* might increase the *Ushna* and *Rukshata* in the *Bhasma* which may hamper their *Rasayana* properties. Perhaps to retain the *Rasayana* properties, it is treated with *Triphala* (three myrobalans) *and Goghruta* (cow's ghee). *Triphala kvatha* and *Goghruta* are mentioned in the *Amrutikarana* of *Abhraka and Loha*. It might assist to remove the remnant impurities and enhance the quality of *Bhasma*. *Triphala* is included under *Lohamaraka gana* and also it is used as media for *Shodhana* and *Marana* of both *Abhraka* and *Loha*. *Kumari svarasa* along with *Goghruta* is used in the *Amrutikarana* of *Abhraka* as per *Rasatarangini*. Frying on mild heat is described for *Abhraka* and *Loha bhasma*; whereas for *Tamra bhasma Puta* is described.

In contrary to the opinion of all *Acharyas*, *Bhudeva Mukharji*, the author of *Rasa Jala Nidhi*, has opined that the *Amrutikarana* has to be done to the *Abhraka Bhasma* which is not red in colour; if done to red coloured *Abhraka Bhasma* it hampers the properties of the bhasma.[8]

Suranakanda (elephant foot yam) is used to place the bolus of *Tamra bhasma*. It may be used in place of *Sharava samputa* (earthen vessel) because of its large surface area. *Anandakanda* has described a special method of *Amrutikarana* for *Tamra* using *Shveta Kacha* and *Shuddha Tankana.* Here *Kacha* refers to glass or a type of *Lavana* is not clearly mentioned. The studies conducted on *Amrutikarana of Tamra bhas*ma showed decrease in the percentage of copper, Mercury, Sulphur, Lead etc from raw sample, *Shodita Tamra, Marita Tamra* and *Amrutikrita Tamra.* There was also reduction of particle size and crystalline structure with *Amrutikarana*[11].

Another study reveals that increase in weight of *Tamra bhasma* after *Amrutikarana* may be attributed to inorganic contents (mainly calcium oxalate crystals) of *Suranakanda*. Organic contents of *Surana* act as a source of carbon[12]. An unstable metallic compound (especially oxides) can be reduced to metallic state during this procedure by the carbon reduction process[13].

$$CuO + C \xrightarrow{\Delta} Cu + CO$$

This metallic copper can be further reduced to sulfide in presence of sulfur. However, as metallic compound should not be changed on the particular temperature in which it is formed. Hence it can be inferred that the process of *Amrutikarana* removes any unstable compound (CuO in this case) and makes the product more stable (CuS).

Ayurveda Prakasha has specifically mentioned *Tamra Patra* (copper vessel) for *Amrutikarana* of *Loha*, but heating a *Dravya* in *Tamra* vessel is claimed to be poisonous. Few scholars opine that the *Amrutikarana* process should be carried out to *Svarnamakshika* (chalcopyrites) and *Tuttha* (blue vitriol) also as they are compounds of Copper.

CONCLUSION

Amrutikarana is a special procedure advocated to remove the remnant impurities in the *Bhasma*. It is specifically described for *Abhraka, Tamra* and *Loha bhasmas*. It is claim to removes the toxicity thereby enhances the properties of *Bhasma.* Various

methods of *Amrutikarana* are described for a single *Dravya* by various authors. Few researches have provided evidence about the benefits of *Amrutikarana* with the support of analytical means. Further experimental and clinical studies are desirable for better perceptive of the process.

Abbreviations

RT- Rasatarangini
RRS- Rasaratnasamucchaya
AP- Ayurvedaprakash
AK- Anandakanda
R. chi- Rasendra chintamani
Rsm- Rasamruta
RJN- Rasajalanidhi

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Process of Tamra Amrutikarana

Fig: 1 *Tamra bhasma* made into bolus,

Fig: 2. *Suranakanda* wrapped with mud cloth kept in *Suranakanda*

Fig: 3. Burnt *Suranakanda*

Fig: 4. After *Amrutikarana*