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A COMPARATIVE PHARMACEUTICO-ANALYTICAL STUDY OF ABHRAKA AMRUTHIKARANA WSR RASATARANGINI

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ABSTRACT

Rasashastra, the Ayurvedic Pharmaceutics dealing with *Rasaushadhis* (herbo-mineral-metallic compounds) also include a special procedure *Marana* (incineration), where metals and minerals are converted into their *Bhasma* (calx)form. But for few minerals such as *Abhraka*, *Tamra and Loha*, after incineration, they are subjected to a special process called *Amruthikarana*. The process is done to remove the remnant *Doshas* (impurities) which might be present in the *Bhasma* and also, they enhance the therapeutic efficacy. The present study is an attempt to carry out the *Abhraka Amruthikarana* in three different methods as per *Rasatarangini* along with its Physicochemical analysis. pH, LOD, alcohol-soluble, Acid-insoluble and water-soluble extractives are analyzed and compared.

KEYWORDS: *Abhraka, Marana, Bhasma, Amruthikarana.*

INTRODUCTION

Rasashastra achieved its pace as an alchemic science in the period of Nagarjuna and a vast variety of metals and minerals were successfully used in transformation and physicochemical processes with *Parada* (mercury) as its prime center. Higher therapeutic efficacy in lower dose and faster therapeutic action of *Bhasma* ignited the avarice of bulk production in short time which leads to serious adverse effects. *Amruthikarana* of *Bhasma* was a major step to remove the remaining blemishes after the incineration process of metals and minerals and increase their efficacy.[1]

AMRUTHIKARANA

Amruthikarana is the special pharmaceutical procedure carried out to eliminate the remaining *doshas* of any *Dathu Bhasma.*[2]

The term '*Amruthikarana*' or '*Amrithikarana*' is seen in *Rasashastra* texts like *Anandakanda, Ayurveda Prakasha, Rasamrutha, Rasendra Chintamani, Rasayanasara, Brihat Rasa Raja Sundara, Rasa Jala Nidhi* and *Rasatarangini.*[3]

It is the bio-enhancing process in the pharmaceutics of *Rasashastra* which helps in retaining the *Rasayana* (rejuvenation) effect with repeated incineration or *Agni samskara* in *Marana.*[4]

Sri Sadananda sharma, author of *Rasatarangini* defines *Amruthikarana* as a process in which, remnant/ traces of impurities present in *Lohadi Bhasmas* after *Marana* process are removed.[5]

Amruthikarana is claimed to induce nectar like properties in a *Bhasma* by nullifying the trace impurities expected to be present in the *Bhasma*. This is specifically mentioned only for *Abhraka, Loha* and *Tamra Bhasma*.

Anandakanda has included this under 5 *samskaras* of *Abhraka.*[6]

Madhava upadhaya, author of *Ayurveda Prakasha* opines about *Amruthikarana* in the context of *Abhraka Bhasma* as, the process by which the *Aruna* (red colour) *Bhasma* loses its colour, but the properties get enhanced.[7]

Yadavji Trikamaji Acharya, author of *Rasamrutha* opines that it removes the 8 bad effects of *Tamra.*[8]

ABHRAKA AMRUTHIKARANA

Table 1: Methods of *Abhraka Amruthikarana* in classical textbooks.

Reference	Ingredients	Procedure
Rasatarangini.10/68-69	*Abhraka Bhasma*-10 parts *Triphala Kashaya* – 16 parts *Gogritha* – 8 parts	Paka till liquid part gets completely evaporated
Rasatarangini.10/70	*Abhraka Bhasma* – 12 parts *Kumari swarasa* – 16 parts *Gogritha* – 12 parts	Heated in iron vessel over mild flame with frequent stirring till liquid part is lost
Rasatarangini.10/71	*Abhraka Bhasma* – 1 part Gogritha -1 part	Heated in iron vessel over mild flame with frequent

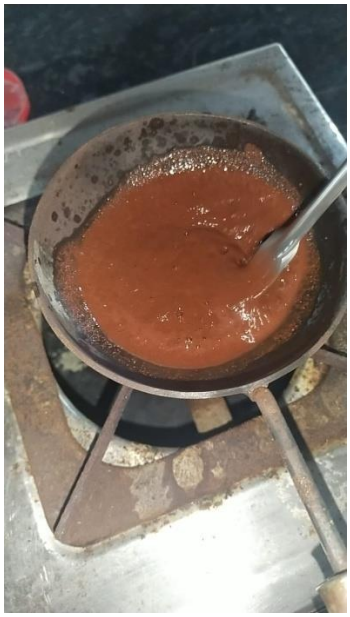
		stirring till liquid part is lost
Ayurveda Prakasha.2/135-137	*Abhraka Bhasma*-10 parts *Triphala Kashaya* – 16 parts *Gogritha* – 8 parts	Paka till liquid part gets completely evaporated
Ayurveda Prakasha.2/138-139	*Abhraka Bhasma* – 1 part *Gogritha* -1 part	Heated in iron vessel over mild flame with frequent stirring till liquid part is lost
Rasendra Chintamani.4 method 1	*Abhraka Bhasma*-10 parts *Triphala Kashaya* – 16 parts *Gogritha* – 8 parts	Paka till liquid part gets completely evaporated
Rasendra Chintamani.4 method 2	*Abhraka Bhasma* – 1 part *Gogritha* -1 part	Heated in iron vessel over mild flame with frequent stirring till liquid part is lost
Rasa Jala Nidhi. Vol 3 chap.1	*Abhraka Bhasma*- 10 parts *Tripahala Kashaya*- 16 parts *Gogritha*- 8parts	Heated in iron pan by mild fire until whole liquid part gets dried
Rasa Jala Nidhi. Vol 3 chap.1	*Abhraka Bhasma*- 1part *Gogritha* – 1 part	Heated in an iron pan till ghee gets dried up
Anandakanda. Kriyakarana vishranti 7/91-92	*Abhraka Bhasma*- 10parts *Triphala Kashaya*- 16 parts *Gogritha*- 8parts	Heated in iron pan on mild fire till liquid part gets evaporated completely

Procedure of Abhraka Amruthikarana in Gogritha

In *Gogritha*	According to *Rasatarangini*, *Abhraka Amruthikarana* in *gogritha* is done by taking equal quantities of *Abhraka Bhasma* with *gogritha* in a *loha darvi* and heated till the ghee completely melts.[9]

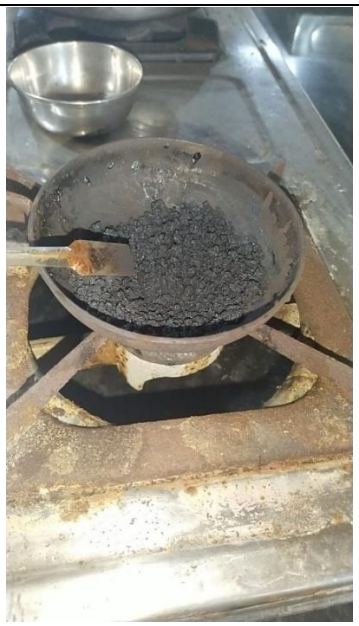
Observations of Abhraka Amruthikarana in Gogritha

The colour of *Abhraka Bhasma* at the beginning was red which gradually changed to black. Throughout the process, the colour changed from red to chocolate colour to coffee brown and then to dark blackish colour was observed. The liquid consistency remained same at the beginning which slowly started to get thicker into a solid powdery mass which is black in colour. Fumes where present throughout the process which finally reduced and was absent at the end. The ghee added was completely absorbed at last and 21gm was obtained. The gain in weight was 1gm.

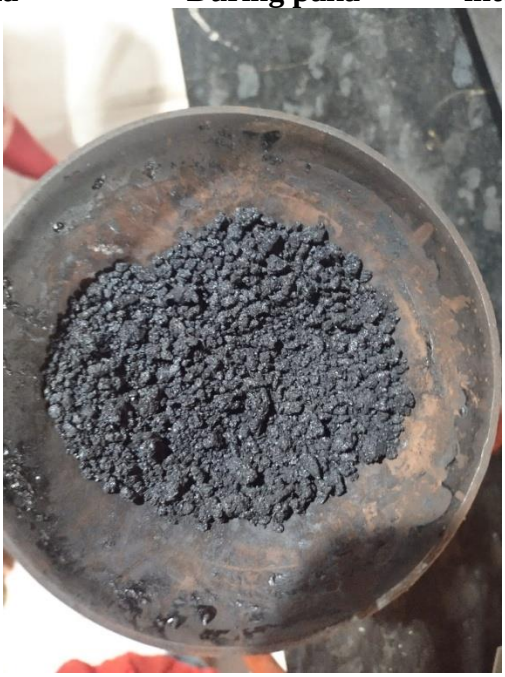


On addition of googritha

During paka



intermediate stage of paka



last stage of paka

Fig 1: Showing different stages of *Abhraka Amruthikarana* in *Gogritha.*

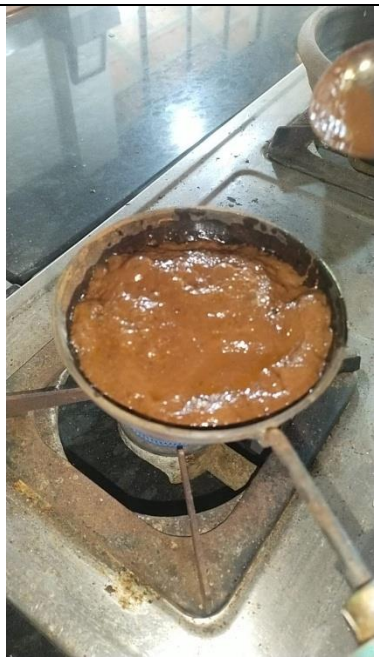
Procedure of Abhraka Amruthikana in Triphala Kwatha

In *Triphala Kwatha*	According to *Rasatarangini*, *Abhraka Bhasma* is taken 8 parts along with 16 parts of *Triphala kwatha* and 8 parts of *gogritha*. Altogether, heated in an iron pan till the water content completely evaporates.[10]

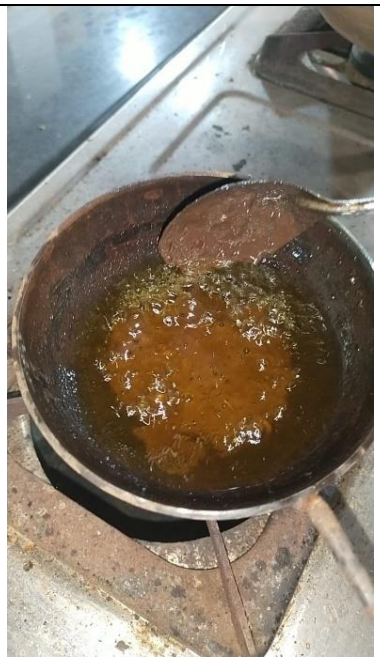
Observations of Abhraka Amruthikarana in Triphala Kwatha

The colour of *Abhraka Bhasma* changed from dark red colour to coffee brown to black at last. The liquid consistency obtained at the beginning of the procedure immediately changed

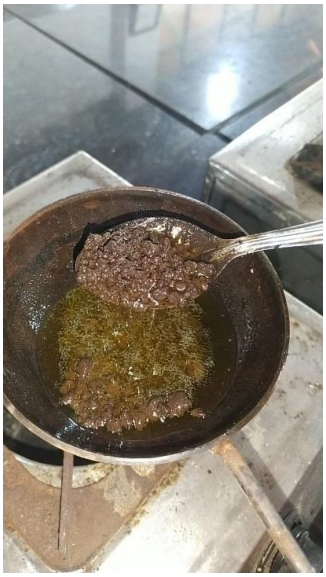
to frothy appearance and then to paste like with bubbles. The content gradually came together to form a clay-like appearance and piled up to form small soft balls. Gradually the mass got thickened and finally dry sand like black powder is obtained. Fumes which was initially present reduced to the end but just before the powdery mass was formed, fumes re-appeared and increased to the end. Finaly 22gm obtained with 2gm gain in weight.



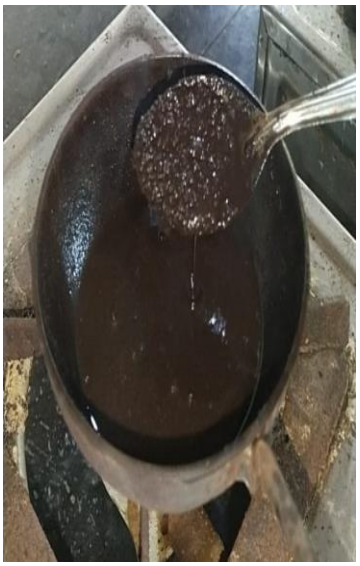
On addition of Kwatha



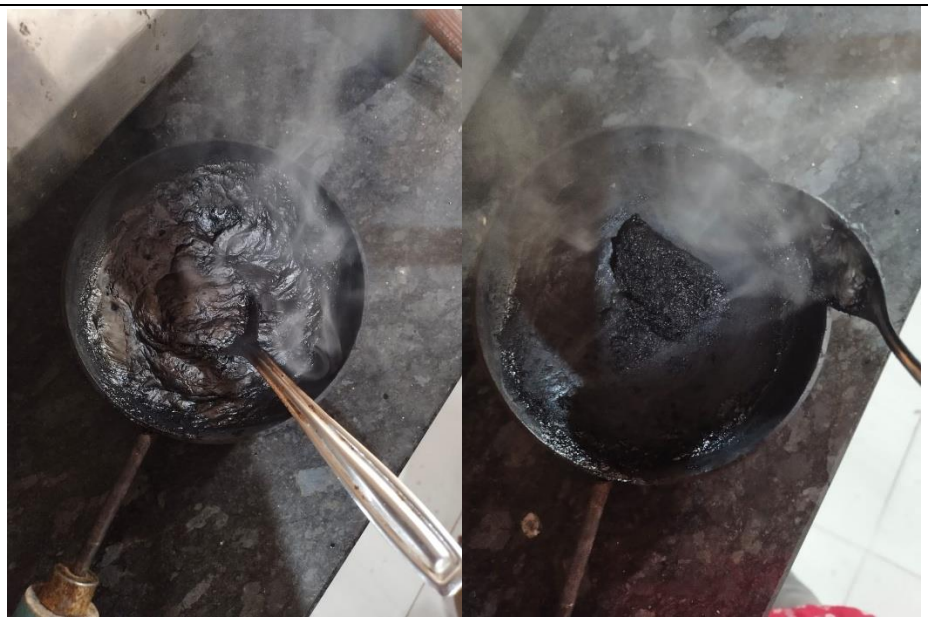
During paka



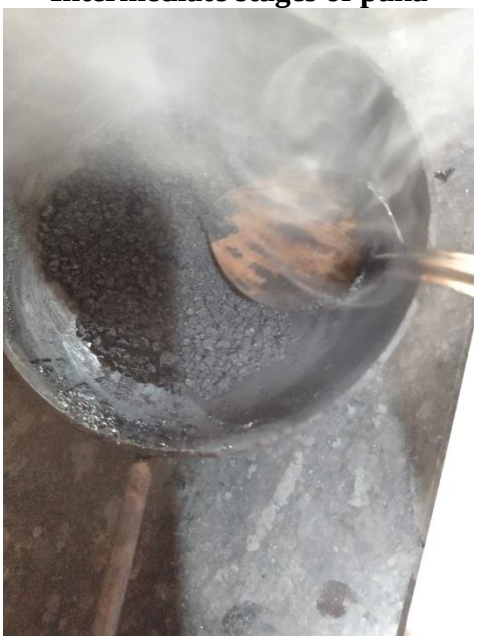
Beginning stages of paka



Intermediate stage of paka



Intermediate stages of paka



Last stage of paka

Fig 2: Showing different stages of *Abhraka Amruthikarana* in *Triphala Swarasa.*

Procedure of Abhraka Amruthikana in Kumari Swarasa

In *Kumari Swarasa*	According to *Rasatarangini*, *Abhraka Amruthikarana* in *Kumari swarasa* is carried out with 12 parts of *Abhraka Bhasma*, 16 parts of *Kumari Swarasa* and 12 parts of *gogritha*. It is together heated in an iron pan till the water content completely evaporates.[11]

Observations of Abhraka Amruthikarana in Kumari Swarasa

The colour remained same but at last it got darkened. The dark red colour remained same and finally turned to black. The liquid consistency immediately changed. The mass came together to thicken to paste like and slowly got thickened and harder. Then it slowly softens and

started to liquify. The liquid consistency remained for a while and slowly gets thickened. The soft mass obtained roll over the pan easily. Gradually the mass started to separate into powdery black mass. Fumes appeared only after a while which further increased to the end. Only 19gm were obtained from 20gm where 1gm loss was observed.

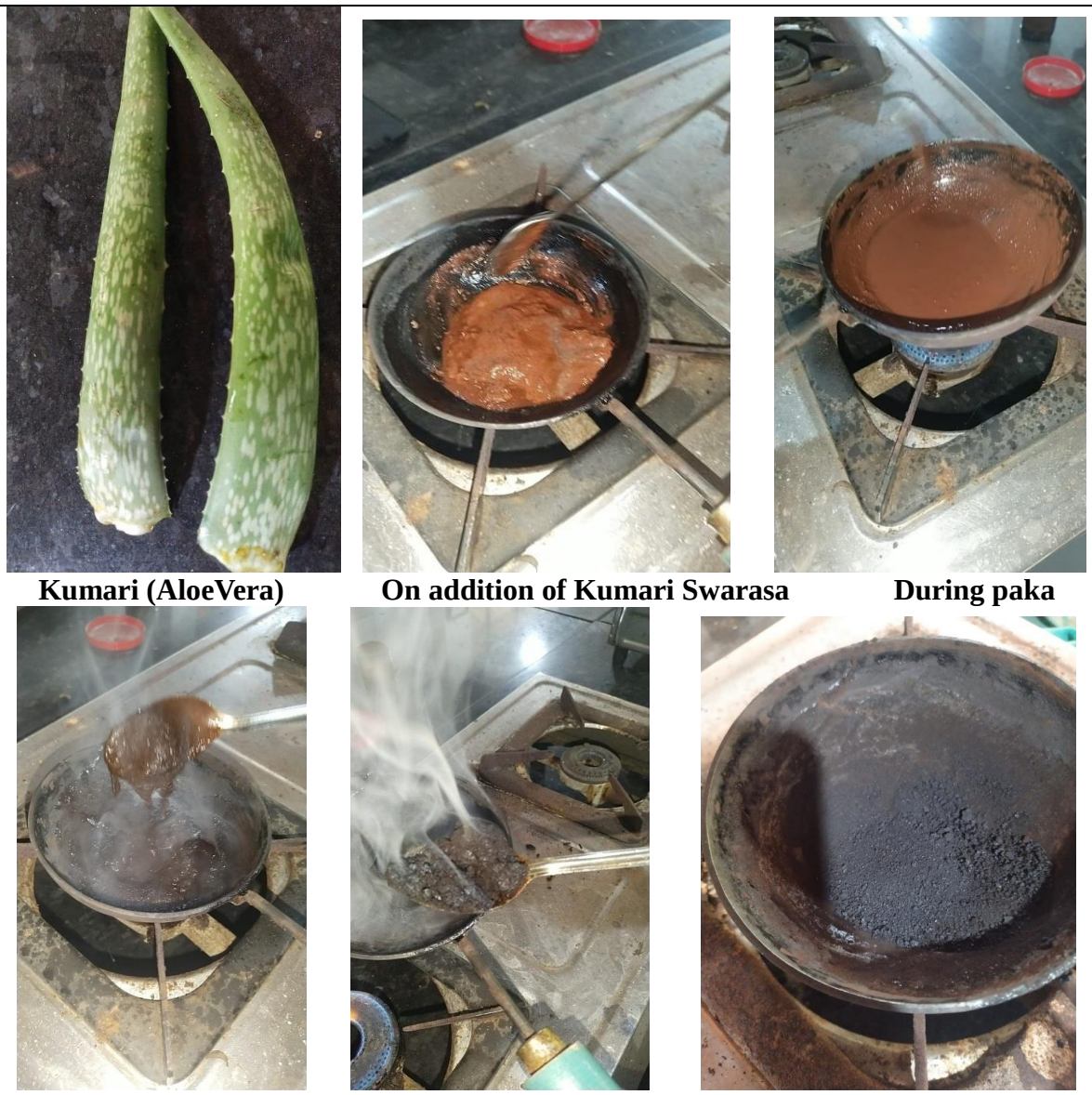


Fig 3: Showing different stages of *Abhraka Amruthikarana* in *Kumari Swarasa.*

Table 3: showing observations of 3 methods.

S.No	observations	in gogritha	in kumari swarasa	in triphala kwatha
1	**ingredients**	*Abhraka Bhasma*- 20g *Gogritha*- 20g	*Abhraka Bhasma*- 20g *Kumari swarasa*- 24g	*Abhraka Bhasma*-20g *Triphala kwatha*- 40g

			Gogritha- 20g	*Gogritha*- 20g
2	**colour**	Black	Black	Black
3	**consistency**	Dry powder	Dry powder	Dry powder
4	**fumes**	Absent	Present	Present in more amount
5	**amount obtained**	21gm Gain of 1g	19gm Loss of 1g	22gm Gain of 2g

PHARMACEUTICO ANALYTICAL PARAMETERS

Analysis of *Amruthikrutha Bhasma* is carried out to assess the quality, purity and safety through various methods as per Ayurveda Pharmacopoeia of India. Here; pH, LOD, Alcohol-soluble, Acid-insoluble and Water-soluble extractives are analyzed and compared.

Table 2: Results of Phamaceutical-analysis.[12]

S.No	analysis	in gritha	in triphala	in kumara swarasa
1	**ph**	6.59	6.5	5.87
2	**loss on drying**	0.9076%	0.7178%	0.4070%
3	**ash value**	17.0602% (w/w)	29.8450%(w/w)	16.8579%(w/w)
4	**alcohol soluble extractive**	4.7531% (w/w)	4.4627%(w/w)	5.4535%(w/w)
5	**acid insoluble extractive**	30.6975%(w/w)	42.4647%(w/w)	31.2435%(w/w)
6	**water soluble extractive**	4.3811%(w/w)	3.8708%(w/w)	4.6051%(w/w)

DISCUSSION

From the above observation, we can conclude that *Abhraka Amruthikarana* done in *Kumari Swarasa* has a low LOD, pH, ash value and acid insoluble extractives and a high level of alcohol soluble extractives and water-soluble extractives. Hence, only a limited number of substances can be easily detected in *Abhraka Bhasma amruthikarana* done in *Kumari Swarasa*. Also, low level of ash value and low acid value indicates low number of inorganic materials and impurities. The *Amruthikritha Bhasma* contains a greater number of organic matters and contain minimal non-combustible residue when burned. The *Bhasma* is highly pure when done *Amruthikarana* in *Kumari Swarasa*. High level of alcohol soluble extractives implies that the *Bhasma* contains high percentage of active compounds which are soluble in water. Also, more percentage of water-soluble extractive also indicates the presence of plant constituents that gets dissolved in water. Thus, *Amruthikarana* when done in *Kumari Swarasa* is found to be analytically purer and more beneficial.

CONCLUSION

Amruthikarana is a special procedure advocated to remove the remnant impurities in the *Bhasma*. It is specifically described for *Abhraka, Tamra* and *Loha Bhasma*. It is claimed to remove the toxicity thereby the properties of *Bhasma*. Various methods of *Amruthikarana* are described by various authors. Few researchers have provided evidence about the benefits of *Amruthikarana* with the support of analytical means. Further, experimental and clinical sudies are desirable for better perceptive of the process. Here in this article, *Amruthikarana* of *Abhraka* is carried out as per *Rasatarangini* reference in 3 different methods. The pharmaceutico-analytical report concludes that *Amruthikarana* of *Abhraka Bhasma* carried out in *Kumari Swarasa* is found to be purer but quantitatively less.

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