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Ancient and Modern aspect of Bhasma Parikshas of Maharas, Upras, Sadharan ras accoding to Rasagranthas

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ABSTRACT

There are many bhasma parikshas which can be easily performed on clinical bases, but due to lack of collective information its seems to be hard. Its not easily possible for ayurvedic practioners to review bhasma parikshas from maximum rasagranthas at a time. Also there is confusion about bhasmas colour variations which are mentioned differently in different rasagranthas. By considering all this thing its need of today, a study which include maximum bhasma parikshas from maximum rasagranthas should be collected and represented in easy to understand form. Aim and objectives : 1) To verify the quality and safety of bhasmas by using bhasma parikshas mentioned in ancient rasashastry texts as well as modern available techniques. 2) To create awareness for the use of medicine of good quality in treatment. 3) To overcome the adverse issues related to the use of bhasmas and there worldwide acceptance. Methodology: 1) Review of bhasma parikshas from ancient texts of rasashastra. E.g. Varitaratva, apunarbhavatva etc. 2) Database was prepared for rasadravyas from M-s Excel Sheet 3) Presented as a chart- for specific Bhasma and bhasma parikshas which are mentioned in rasagranthas. Inferences : By such study the classical norms mentioned in the rasashastra texts can be put into the practice. It can impart better quality and safety in practices.

Keywords: Ancient, modern, bhasma parikshas, ras.

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INTRODUCTION

According to various fraudulent national and international studies bhasma of rasadravyas are not good for human bodies. But its applicable only for apakwa bhasmas. Most of pharmacies did not follows all processors of bhasma, so that bhasma remains in apakwawastha. Bhasma which are in apakwastha did not show all bhasma parikshas which are included in rasagranthas. Its not possible for all vaidyas to prepare there bhasmas by own. Many vaidyas preferred various bhasmas in practice, which are prepared by pharma industries.

In various rasagranthas samanya and vishesh bhasma parikshas were explained for various bhasmas. But most of bhasma parikshas are slight by practioners .

Study of bhasma and bhasma parikshas is need of today. In this articles bhasma parikshas of rasadravyas are mentioned from various rasagranthas. Which can be useful for practioners. Here are bhasma parikshas are mentioned which can easily examine on table.

MATERIALS AND METHOD

a) Material for review of literature

b) Material for project work

Materials required for study of bhasma parikshas from rasagranthas to develop a data base and the methodology followed during the work are described in this chapter.

Material for literary work

1. 15 Granthas of Rasashastra, list of them given in 4.2 chart-
2. Dissertations of previous relevant research work from universities like Maharashtra University of Health Sciences, Pune University, Banaras Hindu University and Gujarat Ayurved University.
3. Modern literature from the fields of Physics, Chemistry, and Statistics. Details about texts are mentioned in Bibliography.
4. Modern information sources like Internet i.e relevant websites. Details are mentioned in Bibliography.

Material for project work

After the literary study of Bhasma and Bhasma parikshas it was observed, Incineration process was not applicable for all Rasadravyas. Among all Maharas, Upras, Sadharan ras only 12 dravya had capacity of incineration. Those were mentioned in Table 1

Table 1:

Sr. No.	Name of Dravya	San-skrut Name	English Name	Chemical Formula	Origin
1.	ABHRAK	Abhraka	Mica		Bihar, Tamilnadu, Rajsthan, Andhrapradesh
2.	VAIKRA-NT	Vaikranta	Tourmaline	$K_2O Al_2 O_3 6SiO_2$ Or $KAl Si_3 O_8$	India, Brazil, Russ, Srilanka, California
3.	MAKSHI-K	Makshikam	Copper pyrite or Iron pyrite	$Cu_2S Fe_2S_3$	India, U.S.A., Russ, Burma, Nepal, China.
4.	VIMAL	Vimala	Iron Pyrite	Fe_2S_3	Bihar, Zarkhand, Aasam, Madhypradesh, Odisha Bengol,
5.	SASYAK	Sasyak	Blue Vitrol	$CuSO_4 7H_2O$	Bihar, Surat, kalkutta,
6.	RASAKA	Rasak	Zinc Carbonate	$ZnCO_3$	U.S.A., Burma, Russ, India
7.	KASISA	Kasisam	Green Vitriol	$Fe SO_4 7H_2O$	Bihar, Odisha, Panjab, Zarkhand.
8.	KANKSHI	Sphatika	PotaSh Alum	$K_2 SO_4 AL_2(SO_4)_3 24H_2O$	Gujrat, Panjab, Bihar, U.P., Goa, MaharaShtra
Sr. No.	Name of Dravya	San-skrut Name	English Name	Chemical Formula	Origin
9.	HARTAL	Hartalam	Yellow Arsenic	$As_2 S_3$	Surat, Kalkatta, Itali, Iran
10.	SOMAL	Gauripa-shan	Arsenio-us Oxide	As_2O_3	Bengol, Bihar, China, Uttar Pradesh, Urope
11.	KAPAR-DIKA	Varatika	Cowries	$CaCO_3$	Sea, River, Big Water Sources
12.	HINGUL	Hingula	Cinne-bar	HgS	Itali, Spen

Information about bhasma parikshas was collected with the help of granthas and texts which were given in Table 4.2

Table 2: Information about bhasma parikshas

Sr. No.	Grantha or Text	Author	Period
1.	Rasarnava Nam Rasatantram	Bhairavanath Yogi	10 th Century
2.	Rasahrudayantra (R. Ru. T.)	Bhagawat Govinda Padcharya	10 th Century
3.	Rasendrachudamani (R. Chu.)	Acharya Somadev	12 th Century
4.	Rasaratnasamucchaya (R. R. S.)	Vagbhata	13 th Century
5.	Rasendrachintamani (R. Chi.)	Acharya Dhundhukanath	15 th Century
6.	Rasendrasarasamgraha (R. Sa. S.)	Acharya Krushna Gopal Bhat	15 th Century
Sr. No.	Grantha or Text	Author	Period
7.	Rasamanjari (R. M.)	Shalinath	15 th Century
8.	Anandakanda (A. K.)	Manthan Bhairav	16 th Century
9.	Raskamdheni (R. Ka.)	Chudamani Mishra	17 th Century
10.	Ayurved – Prakash (A. P.)	Acharya Madhav	18 th Century
11.	Yogataragini (Yo. T.)	Acharya Trimallbhat	18 th Century
12.	Rasamrutam (R. Mru.)	Yadavaji trikamaji	19 th Century
13.	Rasayogasagara (R. Yo. Sa.)	Hariprapanna	19 th Century
14.	Rasatarangini (R. T.)	Sadananda Sharmana	20 th Century
15.	Parada Samhita (P. S.)	Niranjan Prasad Gupt	19 th Century

16.	Sarth Rasachandanshu Or Rasaratnasangraha (Sa. R. Ch.)	Vd. Datto Ballal Borkar	19 th Century
17.	Sir Monier Millians	-	19 th Century

Software used to develop the database included-

1. Operating System-Windows7 ultimate.
2. Microsoft Office 2007
3. Microsoft Excel 2007
4. Kiran Font

Hardware used during the project was with,

- a) Processor - AMD C 50 Processor (Dual Core).
- b) RAM - 2.00 GB.

METHODS

All available ancient texts were reviewed and Parikshas of Bhasma were compiled and enlisted systematically. Classification of Rasadravyas was considered according to maharas, uparasa, sadharana Ras, with the help of rasashastra texts. Collected Bhasma names and bhasma parikshas were feed in Sheet of Microsoft excel 2007. Database was prepared for 12 rasadravyas from M-s Excel Sheet. Presented as a chart- for specific Bhasma and bhasma parikshas which are mentioned in rasagranthas. E.g. For Abhraka Bhasma in 15 rasagrantha which Parikshas were mentioned they are collected in one chart.

Table 3: ABHRAK BHASMA ApÉëM pÉxqÉ

Sr. No.	Granth name	Bhasma pariksha
1	A. K.	Nishchandratm Sinduram Kajjalabham
2	A. P.	Arunam Nishchandratam Lochanajanasannibham Padamragavat Susukshmam
3	PA. S.	Nishchandratkam Sindursadrushaprabham Karpuradhavalam Sukshmam
4	R. Chi.	Arun Krushna
5	R.R.S.	Nishchandratkam
6	R. SA. S.	Nishchandratkam Padamragavat
7	R. T.	Nishchandratkam

SR. NO.	GRANTH NAME	BHASMA PARIKSHA
	R. T.	Sindursadrusham Raktotpalasamaprabham Susuksham Sparshkomalam Swachcham
8	R.Chu.	Nishcandratkam Sindursadrusham Jalplaav Raukshyam Shonavarnasamudbhava Saukshmyam
9	R. Mṛu.	Nishcandrakam
10	Rasmanjari	Nishchandrakam Padamragavat
11	SA. R. C.	Arunabham Chandrikayuktam Nishcandrakam Padamragavat
12	R. Y. SA.	Nishcandrakam
13.	Y. T.	Nishcandrakam Padamragavat

Table 4: SWARNAMAKSHIKA BHASMA (xūÉhÉi qÉÉÍṛÉMü pÉxqÉ)

Sr. No.	Granth name	Bhasma pariksha
1	A. P.	Sinduram
2	PA. S.	Dhatusannibham
3	R. CHI.	Sinduram
4	R. T.	Raktotpaldalchchayam
5	R. CHU.	Dhatusannibham
6	R. M.	Sinduram
7	SA. R. C.	Dhatusannibham

Table 5: VIMAL BHASMA (İuÉqÉsÉ pÉxqÉ)

Sr. No.	Granth name	Bhasma pariksha
1	R. Mṛu.	Dhatusannibham

Table 6: RASAKA BHASMA (UxÉMü pÉxqÉ)

Sr. No.	Granth name	Bhasma pariksha
1	A. P.	Shonam
2	R. R. S.	Dhatusannibham
3	R. T.	Peetabham

Table 7: KASĪSA BHASMA (MüÉxÉİxÉ pÉxqÉ)

Sr. No.	Granth name	Bhasma pariksha
1	R. T.	NirmleeBhavparyantam SushalakShnam
2	R. Mṛu.	Arunabham Gairikavarnam Nirmalakam

Table 8: KANSHI BHASMA (MüÉÍ᳚É)

Sr. No.	Granth name	Bhasma pariksha
1	PA. S.	Kundavata

Table 9: HARTAL BHASMA (WûUiÉÉsÉ pÉxqÉ)

Sr. No.	Granth name	Bhasma pariksha
1	A. P.	Vanistham Dhumavarjitam Himkundendusamkasham Krushnavartamani
2	R.R.S.	Vanistham Dhumavarjitam
3	R.T.	Shwetam Nishcandratkam Sharadindunibham
4	SA. R. C.	Churnasannibham Nirdhumam Shuklavarn
SR. NO.	GRANTH NAME	BHASMA PARIKSHA
5	Yo. T.	Himkundendusamkash Nirdhumam Krushnavartmani
6	R. Yo. SA.	Nirghanda Nishchandra Nirdhuma Himkundaprabhakasham Krushnavartamani Shuddhakarपुरasannibham Chandravat Prakashate Dhawala

Table 9: SOMAL BHASMA (xÉÉāqÉsÉ pÉxqÉ) x

Sr. No.	Granth name	Bhasma pariksha
1	SA. R. C.	Aru᳚am Nirdhumam Pitam

Table 11: KAPARDIKA BHASMA (MüMÉİSiMüÉ pÉxqÉ)

Sr. No.	Granth name	Bhasma pariksha
1	R. T.	Sharadindunibham

Information about bhasma pariksha and their corresponding granthas were written in following chart. E. g. Niruttha Pariksha was mentioned for Kansya Bhasma, Naga Bhasma, Ioha Bhasma etc. in R. R. S., R. T., A. P. and so on.

Table 12: Nishchandratva-

Sr. No.	Grantha Name	Bhasma Name
1.	A. P.	Abhrak Bhasma
2.	A. K.	
3.	PA. S.	
4.	R. SA. S.	

5.	R. CU.	
6.	R. R. S	
7.	R. T.	
8.	R. M.	
9.	R. Mṛu.	Abhrak Bhasma
10.	Sa. R. Cha.	
11.	Yo. T.	
12.	R. Y. SA.	
13.	R. T.	Hartal Bhasma
14.	R. Yo. SA.	

Table 13: ADHUMA (NIRDHŪMATVA)

Sr. No.	Grantha Name	Bhasma Name
1.	R. R. S	Hartal Bhasma
2.	A. P.	
3.	Yo.T.	
4.	SA. R. C.	
5.	R. Y. SA.	
6.	SA. R. C.	Somal Bhasma

Table 14: NIRAMLIBHAVA

Sr. No.	Grantha Name	Bhasma Name
1.	R. T.	Kasisa Bhasma
2.	R. Mṛu.	

Table 15: SUSUKSHMA-

Sr. No.	Grantha Name	Bhasma Name
1.	A. P.	Abhraka Bhasma
2.	PA. S.	
3.	R. T.	
4.	R. Chu.	

Table 16: RAUKSHYA

Sr. No.	Grantha Name	Bhasma Name
1.	R. Chu.	Abhraka Bhasma

Table 17: SUSHLAKSHN

Sr. No.	Grantha Name	Bhasma Name
1.	R. T.	Kasisa Bhasma

Table 18: SPARSHAKOMALA

Sr. No.	Grantha Name	Bhasma Name
1.	R. T.	Abhraka Bhasma

Table 19: NIRGANDHA-

Sr. No.	Grantha Name	Bhasma Name
1.	R. Y. SA.	Hartala

Data presentation in a systematic manner according to Rasagranthas - in which how many Bhasma and their Parikshas were mentioned.

E.g. In Rasaratnasamucchay how many bhasma were mentioned with their Parikshas.

Table 20: R. R. S.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishcandratm
2	Hartal Bhasma	Vanhistham Dhumavarjitam
3	Rasak Bhasma	Dhatusannibham

Table 21: R. T.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishchandrikam SindursadruSham Raktotpalasamaprabham SusukSham Sparshkomalam Swaccham
2	Hartal Bhasma	Shwetam Nishchandrikam Sharadindunibham
3	Kapardika Bhasma	Sharadindunibham
4	Kasisa Bhasma	Nirmilibhava Sushalakshnam
5	Rasak Bhasma	Pitabham
6	Shukti Bhasma	Himkundendusamkasham
7	Swarna Makshik Bhasma	Raktotpaldalchayam

Table 22: R. SA. S.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishchandrikam Padamragavat

Table 23:A. P.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Arunam Nishchandratkam Lochanajanasannibham Padamragavat Susukshmam
2	Hartal Bhasma	Vanistham Dhumavarjitam
10	Swarna Makshik Bhasma	Sinduram

Table 24: Yo.T.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishchandratkam Padamragavat
2	Hartal Bhasma	Himkundendusamkash Nirdhumam Krushnavartmani

Table 25: R.Chu

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishchandratkam

		Sindursadrusham Jalplav Roukshyam Shonavarnasamudbhava Saukshmyam
6	Swarna Makshik Bhasma	Dhatusannibham

Table 26:PA. S.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishcandratkam Sindursadrushaprabham Karpuradhavalam Sukshmam
3	Kanshi	Kundavata
4	Swarna Makshika Bhasma	Dhatusannibham

Table 27: A. K.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishcandratm Sinduram Kajjalabham

Table 28: SA. R. C.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	ArunAbham Candrikayuktam Nishcandratkam Padamragavat
2	Hartal Bhasma	Curnasannibham Nirdhumam Shuklavarn
9	Somal Bhasma	Arunam
12	Swarna Makshik Bhasma	Dhatusannibham

Table 29: R. M.

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishchandratkam Padamragavat
5	Swarna Makshik Bhasma	Sindurabham

Table 30: R. Mr.-

Sr. No.	Bhasma Name	Bhasma Pariksha
1	Abhrak Bhasma	Nishcandratkam
3	Vimal Bhasma	Dhatusannibham
4	Kasisa Bhasma	Arunabham Gairikavarnam Nirmalakam

Table 31: R. Yo. SA.

Sr. No.	Bhasma Name	Bhasma Pariksha
1.	Abhrak Bhasma	Nishchandrikam

2.	Haratala	Nirghandha Nirdhuma Nishchandra Himkundaprabhakasham Shuklavarno Candravat prakashate Krushnavartamani Dhawala
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Modern Parameters

Now a day for examination of Bhasma some parameters are also available as mentioned in Table 32

Table 32: Examination of Bhasma some parameters

Sr. No.	Parameters	Purpose
1.	EDX-SEM	Chemical nature, size and morphology of particles
2.	TEM, AFM	Particles size, size distribution
3.	EPMA	Distribution of individual elements
4.	XRD	Phase analysis
5.	XRF, PIXE	Bilk chemical analysis after making pellets, detecting metal as element
6.	ESCA	Electronic nature and oxidation state of metal
7.	Extraction and Chromatography	To extract out organic matter if any
8.	HPLC, NMR, IR, MALDI	Characterization of organic matter

EDX - Energy Dispersive X-ray analysis, TEM - Transverse electron microscopy, AFM - Atomic Force Microscopy, EPMA - Electron Probe Micro Analyzer, XRF - X ray Fluorescence, PIXE - Particle Induced X ray Emission, ESCA - Electron Spectroscopy for Chemical Analysis, NMR - Nuclear Magnetic Resonance, IR - Infrared Spectroscopy, MALDI - Matrix Assisted Laser desorption / Ionization., HPLC - *High performance liquid chromatography*

Physico Chemical Analysis

Colour, Total Ash (% of ash), Acid insoluble ash (% of acid insoluble inorganic content), Water soluble ash, Solubility, Particle size, NPST and Essay of elements

Discussion

Selection of topic

Bhasmas are the fundamental and unique preparations of the Rasashastra. Most of the Bhasmas are widely used in a practice by practitioners. Though many studies had been carried out on any single bhasma and its Pariksha, till date the collective study of all bhasma parikshas for all rasashatriya dravyas from Rasagranthas was not done. Thus, “Ancient and Modern aspect of bhasma parikshas of Maharas, Upras, Sadharan ras accoding to Rasagranthas.”

This research project was specially designed for the Coherent Study of bhasma parikshas from Rasagranths. Efforts were made to collect each and every Pariksha of bhasma from rasagranthas and feed those Parikshas in Microsoft excel Sheet to develop a database and arranged that data in user friendly form. Keeping these objectives in mind, thorough review of literature was done and methodology as per plan of work was completed and practiced meticulously.

Review of literature and conceptual study revealed:

In 15 referred rasagranthas the marana process (incineration) was mentioned for 12 dravyas only. But those bhasma parikshas could be applicable for all bhasma of rasadravyas.

Bhasma parikshas had been classified in Samanya Pariksha and Vishesha Pariksha, in rasashastra texts. That could help us to study Pariksha of bhasma in an easier way. But such categorization was not found in original rasagranthas.

On primary level Shabda, Sparsha, Roopa, Rasa, Gandha these could be helpful for examination of bhasma. Rekhapurnatva, Varitar, Ūnnam, Nirdhuma, Sushukshma, Raukshya, Sushlakshna, Sparshkomalam, Niswaduta, N Kachakacha, Vishada, Varna these Parikshas could be considered as samanya Parikshas and this could be applicable for all bhasmas.

Bhasma parikshas could be classisified in physical and chemical tests-

Physical tests-

Roukshya, Sushlakshna, Sparshkomalam, Aguru, Rekhapurnatva, Varitar, Unnam, Nishchandra, Sushukshma, Akshyitva, Nirlepatva, Achanchalo, Swachcha (Clean), Nirghandha, N Kachakach, Varna of bhasmas

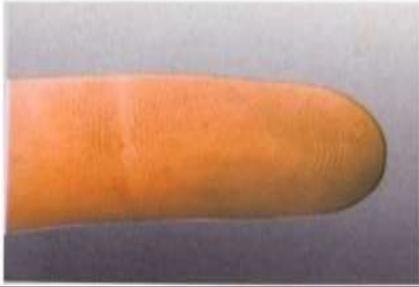
Chemical tests-

Nirdhuma, Niruttha, Apunarbhava, Amla Pariksha

Nirdhuma and Vanhistayi are not exactly same but they correlate with each other. Nirdhuma could be applied for all types of bhasma but Vanhistayi was mentioned only for Parada Bhasma.

Rekhapurnatva, Varitar, Unnam, Sushukshma, Sushlakshna these Parikshas indicate fineness of bhasma and chemical tests denote the fully perfect bhasma.

The images A to G impart better idea of practicing bhasma parikshas as tool for identifying the standard bhasma of any metal or mineral

	
A. A. Rekhapurnatva Pariksha	E. Mitrapanchaka for Apunarbhava Pariksha
	
B. Varitara Pariksha	F. Apunarbhava Pariksha
	
C. Unnam Pariksha	G. Kasisa and Silver for Niruttha Pariksha
	
D. Amla Pariksha	H. Niruttha Pariksha

Due to variations of marketed samples and of dravyas which used in procedure colour of bhasmas are obtained in various Shades. Variations in colours of bhasmas were given in rasagranthas which indicate that due to variations of procedures and maraka or bhavana dravyas one bhasma could be obtained in various Shades of one colour or different colours and even then it is useful in treatment.

For e.g In Rasayosagara for Haratala bhasma two colours are mentioned i.e. Krushna and Shweta. It indicates both colours are authentic and both are useful in treatment. These variations of colours occur due to various processes of maraṇa and dravyas which are used in that procedure.

Materials and methods could be discussed as –

All possible rasagranthas and their commentaries were referred thoroughly and it is made available in database form. Preparation of Excel Sheet was not easy either. Meticulous efforts were taken to collect and feed each and every information regarding bhasma parikshas to form a precise database. Kiran font from Devanagiri lipi was found more useful for Ms- Excel Sheet. With the help of Ms-Office, excel it was possible to draw inferences. Though it was tricky, fruitful results were found and could be further found from that data base.

Thorough study of the database derived from the 15 Rasagranthas discovered that-

Among the all rasadravyas marana process was mentioned for 12 dravyas. They were mentioned for 12 rasadravyas but they could be applied for all others rasadravyas. Out Of those bhasma parikshas, Vanhistayi and Nirdhuma correlate with each other. Some amazing and rare references were found in rasagranthas for e.g. Bhasma of Kanshi was unexpectedly mentioned in Parada Samhita. In 15 rasagranthas so many unheard references were found. for Abhraka Bhasma Rasacandashu allow for nishchandravta after red colour obtained of bhasma, for Hartala Bhasma one unique method mentioned in Rasatarangini.

CONCLUSION

Actual Bhasma process and bhasma parikshas were mentioned in detailed in rasashatra period. Marana process was explained for 12 rasadravyas. These bhasma parikshas could be applicable for all bhasmas of rasadravyas. Samanya Pariksha and Vishesh Pariksha such nomenclature of groups was not observed in rasagranthas. Simple bhasma parikshas which could be done with organoleptic methods were found These methods could be practised routinely in Ayurvedic dispensaries.

Sr. No.	Name of Sense	Name of Bhasma parikṣā
1.	Shabda(Sound)	N Kachakach
2.	Sparsha(Tactile)	Roukshya,SuŚlakśna, Sparshkomalam, Aguru,
3.	Roopa(Visual)	Varna of bhasmas, Rekhapurnatva, Vāritara, Unnam, Nirdhuma, Nishchandra, Sushukshma, Akshyitva, Nirlepatva, Achanchalo, Swachcha (Clean)
4.	Rasa(Taste)	Nirmalibhava,
5.	Gandha(Smell)	Nirghandha

Physical tests could be helpful to examine the bhasma at clinical level. They are very easy to act upon and helpful to identify purity of bhasma.

Along with physical test, chemical tests Should be included in quality assurance for standardization of bhasma in Ayurvedic pharmacies. Need of Quality assessment of Bhasmas could be fulfilled with this database. Any bhasma subjected to such a quality assessment assures better and effective results for the patients.

Scope for further study- i) Colour scale could be developed with the help of this prepared database for guiding Ayurvedic practitioners and *pharmaceutical-technicians*. A standard universal protocol for ayurvedic practioners and pharmacists, specifically related with bhasma parikshas could be established from this database. It could be correlated with modern parameters.

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