

A PHARMACEUTICAL AND ANALYTICAL STUDY OF TRYAMBAKAABHRAM

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ABSTRACT

Introduction: *Rasoushadhi*, also known as *Rasashastra*, is an ancient branch of *Ayurveda* that deals with the preparation and use of herbal and mineral based medicines. The term a '*Rasoushadhi*' is derived from two words. *Rasa* meaning essence or mercury, and *Oushadhi* meaning medicine. *Rasoushadhi* combines alchemical principles with ayurvedic philosophy to create potent, bioavailable medicines from natural substances. *Tryambakaabhram* is one of the herbo-mineral formulation which is having *Abhraka* as mineral drug along with herbal drugs as *Bhavana Dravyas*. It is mentioned in the *Bhaishajya Ratnavali Swarabhedachikitsa*. A detailed pharmaceutical and analytical study of *Tryambakaabhram* is essential to assess its safety, effectiveness, and acceptability. Therefore, certain physicochemical evaluations were conducted based on the parameters set by API and CCRAS. **Aims & objectives:** To prepare *Tryambakaabhram* as per the reference of *Bhaishajya Ratnavali* and to carry out detailed analytical study. **Materials & Methods:** The raw drugs are procured and subjected for further pharmaceutical process as per *Bhaishajya Ratnavali*. **Observation & results:** In pharmaceutical study the drug has been prepared by adopting *Khalviya Rasayana* method. The final drug prepared in our practical lab at the weight of 43gm. The final product of the drug was analysed with modern analytical methods viz. Physico-chemical standards, HPTLC, Pharmaceutical standards and Preliminary organic analysis. **Discussion:** *Tryambakaabhram*, prepared using the *Kharaleeya Rasayana* method, involved the *Bhavana* process with 11 *Bhavana Dravyas*, enhancing its therapeutic properties by reducing particle size and improving bioavailability. It was presented as a soft, dark brown powder with a characteristic odor and slightly bitter taste. Analytical studies revealed its moisture content (7.61%), total ash (68.92%), and higher water-soluble extractive value (25.71%), indicating good quality and bioavailability, with HPTLC analysis showing key Rf values at 254 nm, 366 nm, and post-derivatization at 620 nm. **Conclusion:** The *Bhavana* procedure in *Tryambakaabhram* transformed the phytoconstituents of *Swarasa* and *Kashaya* into *Abhraka Bhasma*, reducing particle size and improving absorption of therapeutic properties. Smaller particles enhance the absorption of active principles, improving efficacy. Analytical tests confirmed that *Tryambakaabhram* met quality standards, ensuring its intended use.

INTRODUCTION

Tryambakaabhram is mentioned in *Bhaishajya Ratnavali*, which is indicated in *Arbuda, Kasa, Swasa* and *Kshaya*. It is also indicated in *Kamala, Arsha, Grahani, Jwara, Shosha*, in all kinds of *Swarabedha* and also acts as *Rasayana*. The primary ingredient in *Tryambakaabhram* is *Krishnabhraka Bhasma*. The set of *Bhavana Dravyas* are listed in the table below.^[1] Since the selected formulation *Tryambakaabhram* has *Abhraka Bhasma* as the only ingredient with specified *Bhavana Dravyas*, it is taken here in the study to evaluate its pharmaceutical and analytical profiling.

AIMS AND OBJECTIVES

1. To prepare *Tryambakaabhram* as per *Bhaishajya Ratnavali*.

2. To assess the detail analytical study of *Tryambakaabhram*.

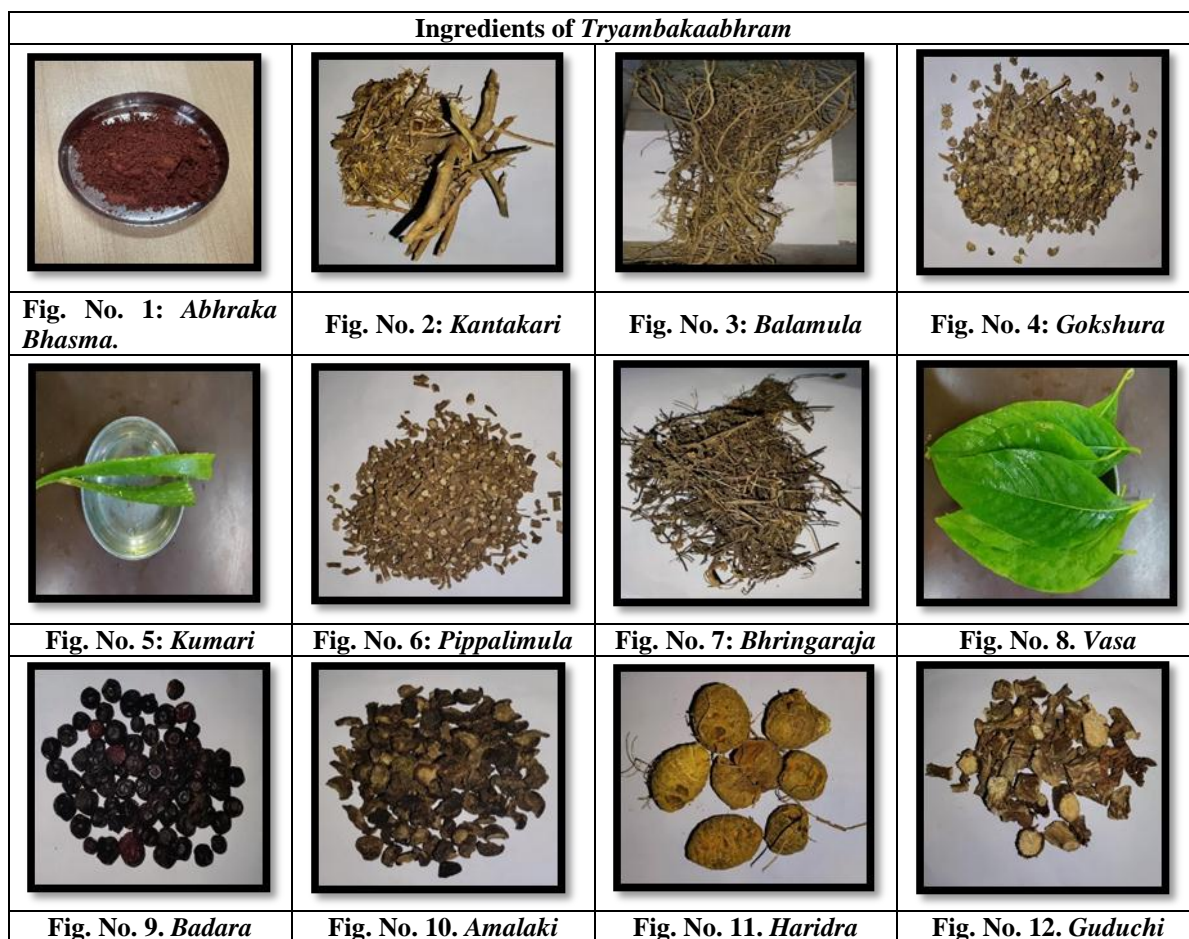
MATERIALS AND METHODS

Pharmaceutical source: Raw drugs required for the preparation of *Tryambakaabhram* were collected from SDM Pharmacy, Udipi and authentication was done by the subject experts at Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital and Research Centre, Kuthpady, Udipi.

The preparation of *Tryambakaabhram* was carried out in practical hall of department of Rasa Shastra & Bhaishajya Kalpana, SDMCA, Hospital and Research Centre, Kuthpady, Udipi.

Table No. 1: List of ingredients of *tryambakaabhram*.

Sl. no.	Drugs	Scientific/ chemical name	Family	Part/Form used	Ratio/ Quantity sufficient for <i>Bhavana</i>
1)	<i>Krishnaabhraka</i>	<i>Mica</i>		<i>Bhasma</i>	1 part
2)	<i>Kantakaari</i>	<i>Solanum surattense</i>	Solanaceae	<i>Panchanga</i>	Q.S.
3)	<i>Bala</i>	<i>Sida acuta</i>	Malvaceae	<i>Mula</i>	Q.S.
4)	<i>Gokshura</i>	<i>Tribulus terrestris</i>	Zygophyllaceae	<i>Beeja</i>	Q.S.
5)	<i>Kumari</i>	<i>Aloe vera</i>	Liliaceae	<i>Saara</i>	Q.S.
6)	<i>Pippalimoola</i>	<i>Piper longum</i>	Piperaceae	<i>Mula</i>	Q.S.
7)	<i>Bhringaraja</i>	<i>Eclipta alba</i>	Asteraceae	<i>Panchanga</i>	Q.S.
8)	<i>Vasa</i>	<i>Adathoda vasica</i>	Acanthaceae	<i>Patra</i>	Q.S.
9)	<i>Badara</i>	<i>Ziziphus mauritiana</i>	Rhamnaceae	<i>Phala</i>	Q.S.
10)	<i>Dhaathri</i>	<i>Emblica officinalis</i>	Euphorbiaceae	<i>Phala</i>	Q.S.
11)	<i>Haridra</i>	<i>Curcuma longa</i>	Zingiberaceae	<i>Kandha</i>	Q.S.
12)	<i>Guduchi</i>	<i>Tinospora cordifolia</i>	Menispermaceae	<i>Kaanda</i>	Q.S.



Pharmaceutical study

Table No. 2: Method of preparation of *tryambakaabhram*.

Reference	Bhaishajya Ratnavali, Swarabhedachikitsa[1]
Ingredient	1. <i>Abhraka Bhasma</i> – 30g
<i>Bhavana Dravyas</i>	2. <i>Kantakari Kashaya</i> – Q.S.
	3. <i>Balamula Kashaya</i> – Q.S.
	4. <i>Gokshura Kashaya</i> – Q.S.
	5. <i>Kumari Swarasa</i> – Q.S.
	6. <i>Pippalimula Kashaya</i> – Q.S.
	7. <i>Bhringaraja Kashaya</i> – Q.S.

	8. <i>Vasa Kashaya</i> – Q.S. 9. <i>Badara Kashaya</i> – Q.S. 10. <i>Amalaki Kashaya</i> – Q.S. 11. <i>Haridra Kashaya</i> – Q.S. 12. <i>Guduchi Kashaya</i> – Q.S.
Apparatus	<i>Khalva Yantra</i> , Spoon
Method	<i>Bhavana</i>

Fig. No. 13. *Abhraka Bhasma*.Fig. No. 14. *Bhavana with each Bhavana Dravya*.Fig. No. 15. *Final product Tryambakaabhram*.

Procedure: 30g of fine *Abhraka Bhasma* was taken in clean *Khalva Yantra*. It was then subjected to *Bhavana* with *Kantakari Kashaya*, *Balamula Kashaya*, *Gokshura Kashaya*, *Kumari Swarasa*, *Pippalimula Kashaya*, *Bhringaraja Kashaya*, *Vasa Swarasa*, *Badaramula Kashaya*, *Amalaki Kashaya*, *Haridra Kashaya* and *Guduchi Kashaya* respectively. Once the *Subhavita Lakshanas* were attained, the prepared drug was taken out from the *Khalva Yantra* and dried under sun. The dried drug was then powdered, sieved through a two-folded Kora cloth & taken for study.

OBSERVATION

- ❖ The 1st *Bhavana* with *Kantakari Kashaya* took a long time to achieve *Subhavita Lakshana*.
- ❖ The *Kashayas* of *Kantakari*, *Balamula*, *Gokshura*, *Pippalimula*, *Bhringaraja*, *Badara*, *Amalaki*, *Haridra*, and *Guduchi*, as well as the *Swarasa* of *Kumari* and *Vasa*, were freshly prepared on the day of *Bhavana*.
- ❖ During the 4th *Bhavana* with *Kumari Swarasa*, a very thick and slimy consistency of *Swarasa* was used. The process caused the pestle to slip continuously.

- ❖ The *Pippalimula Kashaya* was very thick, resulting in a shorter time to achieve *Subhavita Lakshana*.
- ❖ During the 6th *Bhavana*, the *Bhasma* changed color to dark brown and developed a slimy consistency.
- ❖ *Subhavita Lakshana* appeared quickly during the 7th, 8th & 9th *Bhavana Dravyas*.
- ❖ After the 10th and 11th *Bhavana Dravya*, the *Bhasma* turned dark brown, became very slimy, and acquired a slightly *Tikta Rasa*. The *Subhavita Lakshanas* appeared in a short period of time.
- ❖ After drying, the *Tryambakaabhram* was finely powdered.
- ❖ Final output of *Tryambakaabhram* was 43g.

Precautions: After each *Bhavana*, the *Bhasma* was dried, powdered, and then subjected to *Bhavana* again with the specified *Bhavana Dravya*.

Indications

The Herbo-mineral formulation *Tryambakaabhram*, used for *Arbuda*, *Swasa*, *Kasa* and *Kshaya* as described in *Bhaishajya Ratnavali Swarabheda Chikitsa Adhyaya*. The drugs present in *Tryambakaabhram* were reviewed from relevant classical texts.

Table No. 3: Properties and Actions of ingredients of tryambakaabhram.

Drugs	Rasa	Guna	Veerya	Vipaka	Doshagnata	Karma
<i>Abhraka</i>	<i>Madhura Kashaya</i>	<i>Sheeta</i>	<i>Sheeta</i>	-	<i>Tridosahara</i>	<i>Ayushya, Medhya, Mrutyu nashaka, Rasayana, Veeryavardhaka, Vrushya, Sarvarogahara</i>
<i>Kantakari</i>	<i>Katu, Tikta</i>	<i>Laghu Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavatahara</i>	<i>Kasaghna, Swasaghna, Jwaraghna, KaphanisarakaVe danasthapana</i>
<i>Bala</i>	<i>Madhura</i>	<i>Snigdha, Guru</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Tridosahara</i>	<i>Balya, Grahi, Ayu vardhaka,</i>

						Stambhana, Sothahara, Rasayana
Gokshura	Madhura	Guru, Snigdha	Sheeta	Madhura	Vatapittahara	Sothahara, Bastishodhaka, Balya, Dipana, Asmarihara, Swasahara, Kasahara
Kumari	Tikta, Madhura	Snigdha Picchila	Sheeta	Katu	Tridosahara	Bhedana, Rasayana, Balya, Jwarahara
Pippalimula	Katu	Laghu, Ruksha	Ushna	Katu	Vatakaphahara	Dipana, Pachana, Pliharogahara, Gulmaghna, Swasahara
Bhringaraja	Katu, Tikta	Laghu, Ruksha	Usna	Katu	Kaphavatahara	Krmighna, Swasahara, Kasahara, Sothahara, Balya.
Vasa	Tikta, Kashaya	Laghu, Ruksha	Sheeta	Katu	Kaphapittahara	Swasahara, Kasahara, Swarya, Jwarghna.
Badara	Madhura Kashaya	Picchila Snigdha	Sheeta	Madhura	Vatapittahara	Bhedana, Malabhedaka, Agnivardhaka
Amalaki	Pancharasa lavana varjita	Ruksha, Laghu	Sheeta	Madhura	Tridosahara	Sophaighna, Rasayana, Medohara, Bhagna Sandhanakara.
Haridra	Tikta, Katu	Ruksha	Ushna	Katu	Kaphapittahara	Pramehahara, Shothahara, Vranahara, Kandughna, Kusthaghna.
Guduchi	Tikta, Kashaya	Laghu	Ushna	Madhura	Tridosahara	Jwarahara, Sangrahi, Deepana, Amahara, Kasahara.

Tryambakaabhram, which is mainly indicated in *Arbuda*, *Kasa*, *Swasa* and *Kshaya*. It is indicated in *Kamala*, *Arsha*, *Grahani*, *Jwara*, *Shosha*, in all kinds of *Swarabheda* and also acts as *Rasayana*.^[2] Based on the properties of all the above mentioned *Dravyas*, *Tryambakaabhram* may acts as *Deepana* and *Pachana*, *Lekhana*, *Bhedana*, *Srotoshodhana*, *Dhatu Vardhana*, *AayushyaVardhana*, *Tridosahara*, *Rasayana*, *Balya* and *Yogavahi* properties.

Analytical study

To conduct a comprehensive analytical study of *Tryambakaabhram*.

MATERIALS AND METHODS

- The prepared *Tryambakaabhram* was then analyzed at the S.D.M. Center for Research and Allied Sciences, Udupi.

Table No. 4: Analytical study.^{[3][4]}

Organoleptic characters	Physicochemical analysis	Chromatography
Color	Ph	HPTLC
Smell	Loss on drying at 105 ⁰ C	
Consistency	Ash value	
Taste	Water soluble ash	

	Acid insoluble ash	
	Water soluble extractive	
	Alcohol soluble extractive	

RESULTS AND OBSERVATIONS

Pharmaceutical study

Table No. 5: Results of preparation of *tryambakaabhram*.

Sl. No.	Quantity of <i>Abhraka Bhasma</i> in g.	Quantity of liquid media	Time taken	Total obtained drug after <i>Bhavana</i> in g.	
1.	30	<i>Kantakari Kashaya</i>	60ml	3hrs	30
			53ml	2hr 10mins	
			53ml	2hr	
2.	30	<i>Balamula Kashaya</i>	50ml	2hr	32
			50ml	2hr	
			47ml	1hr 50mins	
3.	32	<i>Gokshura Kashaya</i>	45ml	1hr 40mins	34
			43ml	1hr 40mins	
			40ml	1hr 35mins	
4.	34	<i>Kumari Swarasa</i>	40ml	1hr 30mins	34
			40ml	1hr 30mins	
			40ml	1hr 30mins	
5.	34	<i>Pippalimula Kashaya</i>	36ml	1hr 20mins	36
			35ml	1hr 15mins	
			32ml	1hr 15mins	
6.	36	<i>Bhringaraja Kashaya</i>	30ml	1hr 15mins	36
			30ml	1hr 15mins	
			30ml	1hr 15mins	
7.	36	<i>Vasa Swarasa</i>	30ml	1hr	38
			28ml	1hr	
			28ml	1hr	
8.	38	<i>Badara Kashaya</i>	30ml	1hr	40
			30ml	1hr	
			30ml	1hr	
9.	40	<i>Amalaki Kashaya</i>	28ml	1hr	42
			28ml	1hr	
			30ml	1hr	
10.	42	<i>Haridra Kashaya</i>	28ml	50mins	43
			28ml	50mins	
			25ml	46mins	
11.	43	<i>Guduchi Kashaya</i>	25ml	50mins	43
			25ml	40mins	
			25ml	45mins	
Final weight after <i>Bhavana</i>				43	

Table No. 6: Observation of *tryambakaabhram*.

Parameters	Before <i>Bhavana</i>	After <i>Bhavana</i>
Color	Brick red color	Dark brick red color
Touch	Amorphous smooth	Soft
Smell	Odorless	Characteristic odor

Analytical study

Table No. 7: Organoleptic characteristics of *tryambakaabhram*.

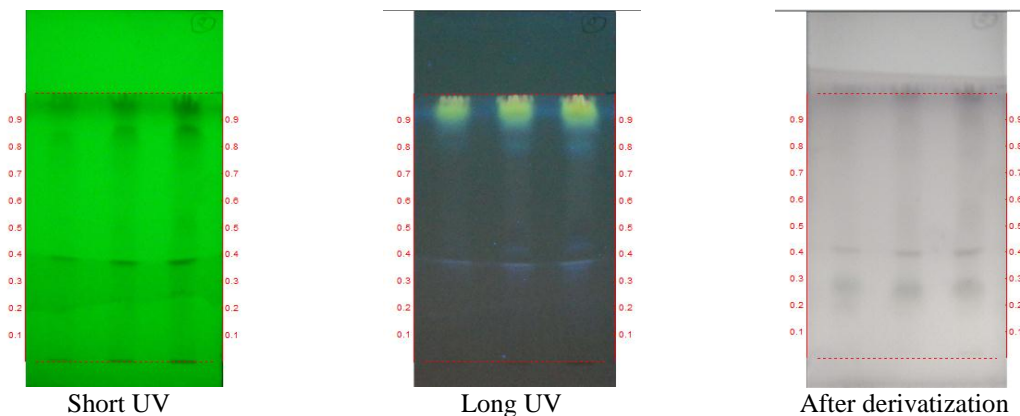
Appearance	Powder form
Color	Dark brick red
Odor	Characteristic smell
Taste	Bitter
Consistency	Fine powder

Table No. 8: Results of physico-chemical standardization of *tryambakaabhram*.

Parameter	<i>Tryambakaabhram</i>
Loss on drying	7.61±0.01
Total Ash	68.92±0.43
Acid Insoluble Ash	54.79±0.01
Water soluble Ash	4.88±0.02
Alcohol soluble extractive value	14.92±0.10
Water soluble extractive value	25.71±0.00
Ph	5.91

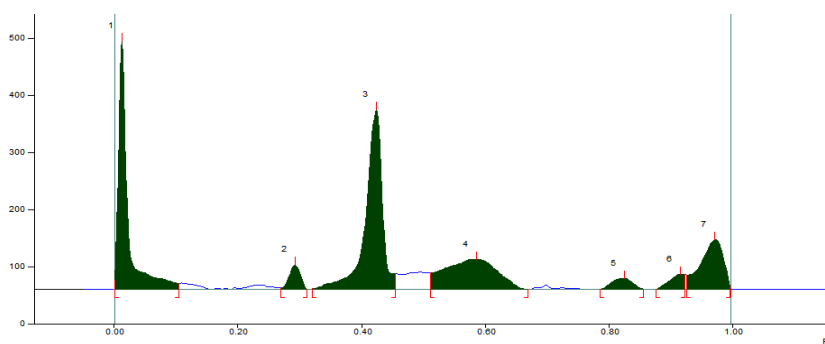
Table No. 9: R_f values of sample of *tryambakaabhram*.

Short UV	Long UV	After derivatization
-	-	0.25 (Purple)
0.37 (Green)	-	0.37 (Purple)
-	0.43 (F. blue)	-
-	0.81 (F. blue)	-
0.86 (Green)	-	-
-	0.93 (F. yellow)	-

Fig. No. 15: HPTLC photo documentation of Methanolic extract of *Tryambakaabhram*.

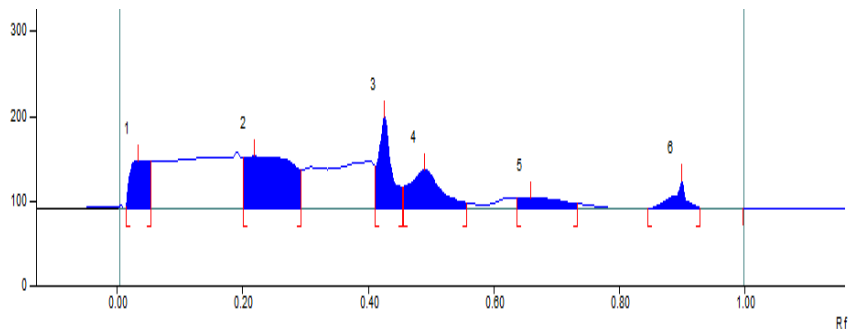
Track 1- *Tryambakabhram* – 3µl
 Track 2- *Tryambakabhram* – 6µl
 Track 3- *Tryambakabhram* – 9µl

Solvent system – Butanol: Acetic acid: Water: Ammonia
 (3.0: 1.0: 1.0: 1.0)
 R_f 0.55±0.04 – Rutin

Track 3, ID: *Tryambakabhram*

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.00 Rf	15.9 AU	0.01 Rf	434.0 AU	44.52 %	0.10 Rf	10.0 AU	4651.3 AU	26.37 %
2	0.27 Rf	2.2 AU	0.29 Rf	42.7 AU	4.38 %	0.31 Rf	0.1 AU	545.5 AU	3.09 %
3	0.32 Rf	0.8 AU	0.42 Rf	313.2 AU	32.13 %	0.45 Rf	26.8 AU	6014.0 AU	34.10 %
4	0.51 Rf	28.7 AU	0.59 Rf	52.5 AU	5.39 %	0.67 Rf	0.0 AU	3232.0 AU	18.33 %
5	0.79 Rf	0.0 AU	0.83 Rf	19.5 AU	2.00 %	0.86 Rf	0.7 AU	467.0 AU	2.65 %
6	0.88 Rf	0.1 AU	0.92 Rf	26.1 AU	2.68 %	0.92 Rf	25.5 AU	464.8 AU	2.64 %
7	0.93 Rf	25.2 AU	0.97 Rf	86.7 AU	8.90 %	1.00 Rf	5.2 AU	2261.5 AU	12.82 %

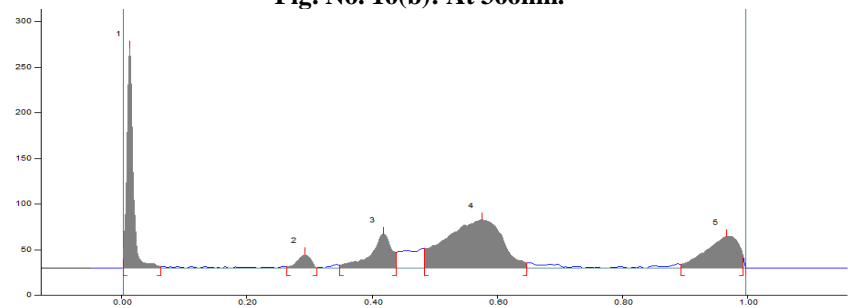
Fig. No. 16(a): At 254nm, R_f - 0.55 ± 0.04 (Rutin).



Track 3, ID: Tryambhakabhram

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.01 Rf	3.0 AU	0.03 Rf	56.0 AU	17.71 %	0.05 Rf	55.1 AU	1223.1 AU	13.74 %
2	0.20 Rf	60.0 AU	0.22 Rf	61.5 AU	19.42 %	0.29 Rf	45.5 AU	3346.2 AU	37.59 %
3	0.41 Rf	50.0 AU	0.43 Rf	108.1 AU	34.16 %	0.45 Rf	25.5 AU	1599.5 AU	17.97 %
4	0.46 Rf	25.7 AU	0.49 Rf	45.9 AU	14.50 %	0.56 Rf	6.6 AU	1626.2 AU	18.27 %
5	0.64 Rf	12.5 AU	0.66 Rf	12.9 AU	4.08 %	0.73 Rf	5.6 AU	643.6 AU	7.23 %
6	0.85 Rf	0.1 AU	0.90 Rf	32.1 AU	10.14 %	0.93 Rf	1.0 AU	462.3 AU	5.19 %

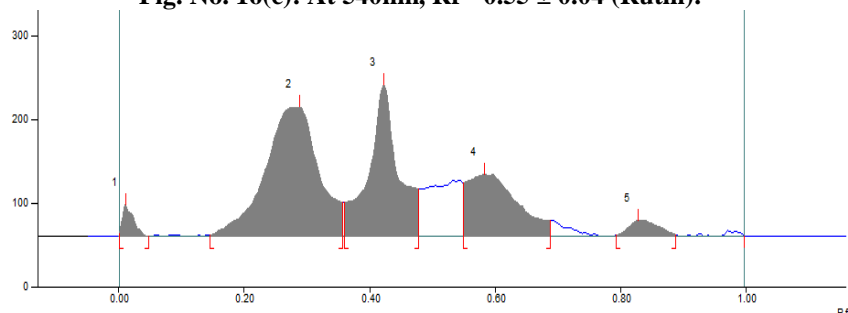
Fig. No. 16(b): At 366nm.



Track 3, ID: Tryambhakabhram

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.00 Rf	10.1 AU	0.01 Rf	241.4 AU	63.40 %	0.06 Rf	2.0 AU	1723.7 AU	22.70 %
2	0.26 Rf	1.3 AU	0.29 Rf	14.6 AU	3.83 %	0.31 Rf	0.2 AU	227.6 AU	3.00 %
3	0.35 Rf	3.3 AU	0.42 Rf	37.5 AU	9.84 %	0.44 Rf	17.4 AU	893.9 AU	11.77 %
4	0.48 Rf	21.1 AU	0.58 Rf	52.7 AU	13.84 %	0.65 Rf	5.6 AU	3438.7 AU	45.27 %
5	0.90 Rf	4.2 AU	0.97 Rf	34.6 AU	9.09 %	0.99 Rf	13.4 AU	1311.3 AU	17.27 %

Fig. No. 16(c): At 540nm, Rf - 0.55 ± 0.04 (Rutin).



Track 3, ID: Tryambhakabhram

Peak	Start Position	Start Height	Max Position	Max Height	Max %	End Position	End Height	Area	Area %
1	0.00 Rf	3.3 AU	0.01 Rf	37.1 AU	7.99 %	0.05 Rf	0.1 AU	468.7 AU	2.23 %
2	0.15 Rf	1.6 AU	0.29 Rf	154.1 AU	33.18 %	0.36 Rf	40.3 AU	9485.6 AU	45.04 %
3	0.36 Rf	40.4 AU	0.42 Rf	180.3 AU	38.84 %	0.48 Rf	56.9 AU	6151.4 AU	29.21 %
4	0.55 Rf	63.8 AU	0.58 Rf	73.8 AU	15.89 %	0.69 Rf	18.3 AU	4303.0 AU	20.43 %
5	0.79 Rf	1.2 AU	0.83 Rf	19.0 AU	4.10 %	0.89 Rf	1.9 AU	649.8 AU	3.09 %

Fig. No. 16(d): At 620nm, Rf - 0.55 ± 0.04 (Rutin).

Fig. No. 16: Densitometric scan of tryambakabhram.

The provided sample of *Tryambakaabhram* has undergone standardization following the protocol outlined in the Ayurvedic Pharmacopeia of India.

DISCUSSION

Preparation of *Tryambakaabhram*: It was prepared using the *Kharaleeya Rasayana* method and presented in powder form. The ingredients of *Tryambakaabhram* were a combination of herbo-mineral drugs. The preparation involved the *Bhavana* process, using 11 different *Bhavana Dravyas*.

After *Lohitakarana* of *Abhraka Bhasma*, 30 g of *Abhraka Bhasma* was sifted through a double-folded cloth and then used for *Bhavana*. The *Kashaya Dravyas* for *Bhavana* were *Kantakari*, *Balamula*, *Gokshura*, *Pippalimula*, *Bhringaraja*, *Badara*, *Amalaki*, *Haridra*, and *Guduchi*. These herbs were taken in *Yavakuta Churna* to extract their active ingredients. Water was added in a ratio of 16 parts water to 1 part drug, then boiled down to 1/8th of its volume. The *Kashaya* was then filtered and used for *Bhavana*.

The *Swarasa Dravyas* for *Bhavana* were *Vasa* and *Kumari*. *Kumari Swarasa* was prepared by grinding the pulp of *Kumari* without adding water and filtering it through cloth. *Vasa Swarasa* was extracted using the *Swedana* method, followed by grinding and filtering through cloth.

Bhavana was performed on *Abhraka Bhasma* with 11 *Bhavana Dravyas*, with 3 *Bhavana* for each *Dravya*, for a total of 33 *Bhavana* using various *Kashaya* and *Swarasa* to enhance its therapeutic properties. *Bhavana* helped in reducing particle size, which improved bioavailability and enhanced the therapeutic properties of the drug.

The color of the *Bhasma* gradually changed from brick red color to dark brown, its smell became pleasant, and the *Abhraka Bhasma* became very soft in consistency.

After the final *Bhavana*, the drug was dried in tray dryer, powdered and sieved through a double-folded cloth.

The prepared *Tryambakaabhram* used for analytical study.

Analytical study: The analytical standards for *Tryambakaabhram* are not mentioned in any analytical standard books like API or AFI. Therefore, the values obtained from the analytical study in the present research are considered as the standard one.

Organoleptic properties

The *Tryambakaabhram* was in fine powder form with little bitter taste. It was soft to touch and having dark brick red color with characteristic odor of *Bhavana Dravyas*.

Physico-chemical properties

Loss on drying (%w/w): The *Tryambakaabhram* showed 7.61 ± 0.01 %w/w of moisture content. Loss on drying indicates the moisture and volatile contents of the formulation. Higher the moisture content susceptibility of the drug to microbial contamination and spoilage will be more.

Total ash, acid insoluble ash and water-soluble ash:

These values help in determining the purity and quality of the drugs. It also determines the thermos-stable inorganic constituents. The drugs, on incineration normally leaves an ash usually consisting of phosphates, carbonates, and silicates of sodium, potassium, magnesium and calcium. The part of the total ash value which is insoluble in diluted hydrochloric acid forms the acid insoluble ash. This indicates the insoluble inorganic contents in the sample. *Tryambakaabhram* contains total ash value was 68.92 ± 0.43 indicative of inorganic matter. The acid insoluble ash was 54.79 ± 0.01 indicating that the raw drugs were of good quality. The water-soluble ash was 4.88 ± 0.02 . It represents the water-soluble percentage of the sample i.e., nothing but alkaline material of the given sample.

Alcohol soluble and water-soluble extractive:

The alcohol soluble extractive was found to be 14.92 ± 0.10 . It determines the number of chemical constituents extracted using polar solvents. The water-soluble extractives value was more than alcohol soluble extract i.e. 25.71 ± 0.00 . It gives the idea of active chemical constituents present in the drug proposing that absorption is more in aqueous media i.e. water-soluble constituents are more extracted. Hence the bioavailability is also more.

The pH estimation: pH of the test drug *Tryambakaabhram* was carried out using calibrated glass electrode. The pH is 5.91 signifies weak acidic nature of the drug.

HPTLC - Rf Values of Sample

At 254 nm- HPTLC of *Tryambakaabhram* showed spots at the Rf Values 0.37 & 0.86.

At 366 nm- HPTLC of *Tryambakaabhram* showed spots at the Rf Values 0.43, 0.81 & 0.93.

Post derivatization values HPTLC of *Tryambakaabhram* showed spots at the Rf Values 0.25 and 0.37.

HPTLC - Photo Documentation of samples

At 254nm - *Tryambakaabhram* showed maximum area at 0.42 Rf i.e., 32.13%.

At 366nm - *Tryambakaabhram* showed maximum area at 0.43 Rf i.e., 34.16%.

At 540nm - *Tryambakaabhram* showed maximum area at 0.01 Rf i.e., 63.40%.

At 620nm (Post derivatization with VSA) - *Tryambakaabhram* showed maximum area at 0.42 Rf i.e., 38.84%.

CONCLUSION

The preparation of *Tryambakaabhram* involved the *Bhavana* procedure, which played a crucial role in transforming the phytoconstituents of the *Swarasa* and *Kashaya* of the specific drug into *Abhraka Bhasma*. Additionally, *Bhavana* helped to decrease the particle size, facilitating the absorption of the therapeutic properties of the *Bhavana Dravyas* into the *Bhasma*.

The *Tryambakaabhram* was fine in nature, lesser the particle size absorption of active principles will be more which indirectly improve the mode of action.

The analytical study, aimed to evaluate the quality and efficacy of *Tryambakaabhram*. The analytical tests conducted on *Tryambakaabhram* revealed that the sample was within acceptable limits. By confirming that the samples meet the necessary standards, this indicates that *Tryambakaabhram* is of adequate quality and can be used as intended.

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