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COMPARATIVE PHARMACEUTICO-ANALYTICAL STUDY OF SELF PREPARED *BRAMHI GHRITA* AND MARKET SAMPLE OF *BRAMHI GHRITA*

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ABSTRACT

Introduction: *Bramhi ghrita* is well known for its *medhya* action. It is beneficial in the treatment of *Apasmara, Unmada* and *Grahabadha.* For preparation of *Bramhi ghrita*, firstly *ghrita* is subjected to the *murchana* process due to which it looses *durganadha* and *aamata.* Sometimes the *ghrita* is prepared without performing the *murchana* process. The present study is conducted to study the pharmaceutico-analytical properties of *Bramhi ghrita* prepared from plain *ghrita* and *murchita ghrita* and compare it with the market sample. The present study was conducted to note the difference in properties of *Bramhi ghrita* prepared from plain and *murchit ghrita* but also to detect if the self prepared samples are of standard quality by comparing it with the market sample. **Aim:** To study comparatively, the pharmaceutico-analytical properties of *Bramhi ghrita* prepared from plain and *murchit ghrita* and compare it with the market sample. **Materials and Methods:** *Bramhi Ghrita* was prepared from *murchit ghrita* and plain *ghrita* according to the reference of *Bhavprakasha.* The two samples were then sent to laboratory for further study. The physico-chemical properties were compared with the market sample. **Observations and Results:** The difference in properties of the two self prepared samples of *Bramhi ghrita* and market samples was less significant. **Conclusions:** The self prepared samples were of same standards as market sample. There

was no significant difference in analytical properties of *Bramhi ghrita* prepared from plain *ghrita* and *murchita ghrita*.

KEYWORDS: *Bramhi* ghrita, murchita, analytical.

1. INTRODUCTION

The term *Bhaishajya Kalpana* is composed of two words i.e. *bhaishajya* which means medicines and *kalpana* which means the method of preparation. The history of *bhaishajya kalpana* dates back to the Vedic period. *Bhaishajya kalpana* is the science which deals with the collection, selection, purification, compounding, processing, preservation, packing, dose and mode of administration of formulations.

Sneha kalpana is one of the common formulation in *bhaishajya kalpana.* It is the pharmaceutical process which is prepared from *ghrita* or *taila, kalka and drava dravyas. Ghrita* is considered as the best among all the *snehas* because of its *Sanskarasya Anuvartanat* property i.e. property to adopt to the *samskara* without any disturbance in its original properties.

Bramhi ghrita is well known for its *medhya* action. It is beneficial in the treatment of *Apasmara, Unmada* and *Grahabadha.* For preparation of *Bramhi ghrita,* firstly *ghrita* is subjected to the *murchana* process due to which it looses *durganadha* and *aamata.* Sometimes the *ghrita* is prepared without performing the *murchana* process. The present study is conducted to study the pharmaceutico-analytical properties of *Bramhi ghrita* prepared from plain *ghrita* and *murchita ghrita* and compare it with the market sample. The present study not only points the difference in properties of *Bramhi ghrita* prepared from plain and *murchit ghrita* but also to detect if the self prepared samples are of standard quality by comparing it with the market samples.

2. AIM: To study comparatively, the pharmaceutico-analytical properties of *Bramhi ghrita* prepared from plain and *murchit ghrita* and compare it with the market sample.

3. OBJECTIVES

1) To study the pharmaceutico-analytical properties of *Bramhi ghrita* prepared from plain *ghrita.*

2) To study the pharmaceutico-analytical properties of *Bramhi ghrita* prepared from *murchitghrita.*

3) To compare the two self-prepared samples of *Bramhi ghrita* with the market sample.

4. MATERIALS AND METHODS

1. Preparation of *Bramhi Ghrita* from plain *ghrita*[1] (Sample A)

Ingredients

Vacha churna	8 gm
Kushta churna	8 gm
Shankhapushpi churna	8 gm
Ghrita	100 ml
BRAMHI swarasa	400 ml
Water	400 ml

Apparatus Required

Wide mouth vessels, cloth, *khalva* yantra, gas, ladle.

Procedure

1. *Goghrita* was taken in a vessel and heated slightly over mandagni.
2. *Kalka* was prepared by using *Bramhi swarasa*.
3. On the disappearance of sound coming from *Ghrita, Kalka* was added to it.
4. Then 16 part of *Bramhi swarasa* and water was added to it, the mixture was continuously stirred and heated till the water content was disappeared, *Ghrita* became moisture free.
5. *Ghrita paka* was done till it attained siddhi *Lakshanas*. After that the vessel was taken out from the fire and *ghrita* was filtered.

Confirmatory tests done[2]

Varti Pariksha- Kalka when rolled between fingers it attained *varti* form.

It was soft, Blackish brown colored.

Agni pariksha- No any crackling sound when put on fire.

Reference: *Bhavprakash*[1]

Date of starting: 01.10.2021

Date of completion: 02.10.2021

Duration: 2 days.

Type of Agni: *Mandagni*

2. Preparation of *Bramhi ghrita* from *Murcchit goghrita* (Sample B)

A] Ghrita Murcchana[3]

Ingredients

Haritaki (Terminalia chebula)	5 gm
Bibhitaki (Terminalia belerica)	5 gm
Amalaki (Emblica officinalis)	5 gm
Nagarmotha (Cyperus rotundus Linn.)	5 gm
Haridra (Curcuma longa Linn.)	5 gm
Nimbu swaras (Citrus acida Linn.)	50 ml
Ghrita	100 ml
Water	400 ml

Apparatus Required

Wide mouth vessels, cloth, *khalva* yantra, gas, ladle.

Procedure

1. *Goghrita* was taken in a vessel and heated slightly over mandagni.
2. *Kalka* was prepared with using *Nimbu swaras*.
3. On the disappearance of foam and sound coming from *Ghrita, Kalka* was added to it.
4. Then 16 part of water was added to it, the mixture was continuously stirred and heated till the water content was disappeared, *Ghrita* became moisture free.
5. *Ghrita paka* was done till it get siddhi *Lakshanas*, after that the vessel was taken out from the fire and *ghrita* was filtered.

Confirmatory tests done[2]

Varti Pariksha- Kalka when rolled between fingers it attained *varti* form.

It was soft, Blackish brown colored.

Agni pariksha- No any crackling sound when put on fire.

Reference: *Bhaishajyaratnawali*[3]

Date of starting: 04.10.2021

Date of completion: 05.10.2021

Duration: 2 days.

Type of Agni: *Mandagni*

B] *Bramhi ghrita* preparation[1]

Ingredients

Vacha churna	8 gm
Kushta churna	8 gm
Shankhapushpi churna	8 gm
Murchita Ghrita	100 ml
BRAMHI swarasa	400 ml
Water	400 ml

Apparatus Required

Wide mouth vessels, cloth, *khalva* yantra, gas, ladle.

Procedure

1. *Murchit Goghrita* was taken in a vessel and heated slightly over mandagni.
2. *Kalka* was prepared with using *Bramhi swarasa*.
3. On the disappearance of sound coming from *Ghrita, Kalka* was added to it.
4. Then 16 part of water was added to it, the mixture was continuously stirred and heated till the water content was disappeared, *Ghrita* became moisture free.
5. *Ghrita paka* was done till it attained siddhi *Lakshanas*, after that the vessel was taken out from the fire and *ghrita* was filtered.

Confirmatory tests done[2]

Varti Pariksha- Kalka when rolled between fingers it attained *varti* form.

It was soft, Blackish brown colored.

Agni pariksha- No any crackling sound when put on fire.

Reference: Bhavprakasha[1]

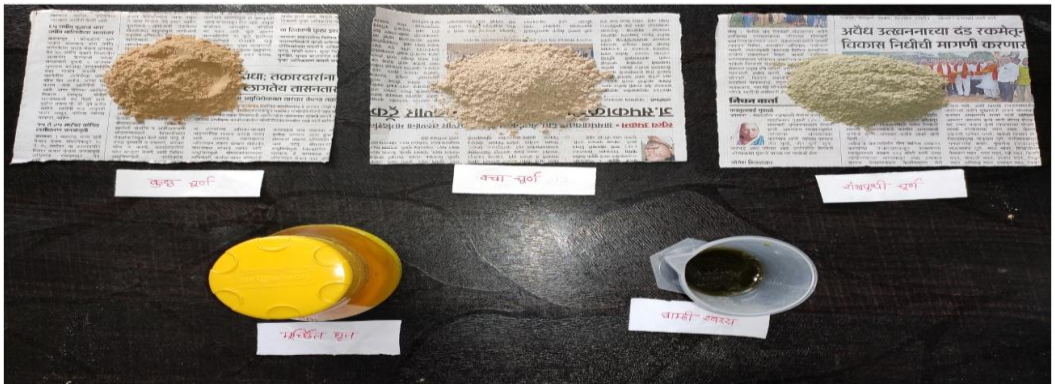
Date of starting: 06.10.2021

Date of completion: 07.10.2021

Duration: 2 days.

Type of Agni: *Mandagni*


गोघृत (200 gm)




kalka nirmana
froth at start of process
in process
Kalka starts separating
complete separation of ghrita and kalka
varti formation

5. OBSERVATIONS

A) PHARMACEUTICAL OBSERVATIONS

Table no. 1

	SAMPLE-A	SAMPLE-B
Initial quantity of Ghrita (ml)	100 ml	100 ml
Quantity of Ghrita obtained (ml)	92 ml	90 ml
Quantity of Ghrita obtained (%)	92%	90 %
Initial quantity of Kalka (gms)	25 gms	25 gms
Obtained quantity of Kalka (gms)	28 gms	30 gms
Loss of Ghrita (ml)	8 ml	10 ml
Loss of Ghrita (%)	8%	10 %

Table no. 2

	SAMPLE-A	SAMPLE-B
Ghrita heated to remove moisture	Time – 7 min. Temp - 96° C	Time – 4 min. Temp - 98° C
Addition of Kalka	Time – 11 min. Temp - 64° C	Time – 8 min. Temp - 62° C
Addition of water	15 mins	13 mins
Fenshanti	Time – 3 hrs 10 min. Temp - 92° C	Time – 2 hrs 55 min. Temp - 94° C
Mridu Paka	Time – 3 hrs 20 min. Temp - 94° C	Time – 3 hrs 10 min. Temp - 96° C
Madhyama Paka	Time – 3 hrs 35 min. Temp - 98° C	Time – 3 hrs 25 min. Temp - 98° C
Total time required (days)	2 days	3 days

B) ANALYTICAL OBSERVATIONS

Table no. 3

I. ORGANOLEPTIC TESTS	SAMPLE-A	SAMPLE-B	SAMPLE-C
Colour	Pale Yellow	Yellowish	Yellowish
Taste	Bitter	Bitter	Bitter
Odour	Faint	Pungent	Pungent
Touch	Oily	Oily	Oily
Consistency	Semisolid liquid	Semisolid liquid	Semisolid liquid

Table no. 4

II. PHYSICO-CHEMICAL TESTS	SAMPLE-A	SAMPLE-B	SAMPLE-C
Moisture Content at 110°C	Nil	0.015 %	0.14 %
Specific gravity	0.901 gm/ml	0.906 gm/ml	0.9028 gm/ml
Saponification value	198.2	191.2	205.8
Refractive index	1.4631	1.4634	1.4632
Iodine value	10.6	9.28	10.05
Acid value	0.36	0.17	0.86

6. DISCUSSION

A] PHARMACEUTICAL STUDY

Comparison of *Bramhi ghrita* were done with the three different samples as follows-

1. Preparation of *Bramhi ghrita* prepared with plain *ghrita*.
2. Preparation of *Bramhi ghrita* prepared with *Murcchit ghrita*.
3. Market sample of *Bramhi ghrita*

1. Preparation of *Bramhi Ghrita* prepared with plain ghrita(Sample A)

- *Bramhi Ghrita* was prepared with plain ghrita according to classical Snehapaka vidhi and following changes occurred during snehapaka vidhi.
- After adding kalka dravya and water to plain ghrita, during heating less froth appeared as compared to murcchit Bramhi ghrita.
- During heating, ghrita attained pale yellow color and had less odour as compared to murcchit ghrita
- *Bramhi ghrita* prepared with plain ghrita took less time as compared to *murcchit Bramhi ghrita* for the completion of process.

2. Preparation of *Bramhi ghrita* prepared with *Murcchit ghrita* (Sample B)

- After adding of kalka dravya to murcchita ghrita, mixture of ghrita got more froth as compared to plain ghrita.
- During heating ghrita attained dark yellow colour and became thick as compared to plain ghrita.
- For the preparation of *murchit Bramhi ghrita*, it took more time as compared to plain *Bramhi ghrita*.
- Kalka became stickier after completion of ghrita paka as compared to plain *Bramhi ghrita*.

3. Market sample of *Bramhi ghrita* (Sample C)

For the comparison of pharmaceutico-analytical properties of *Bramhi ghrita* market sample also taken. Colour of *Bramhi ghrita* was dark green color as compared to above both samples *Bramhi ghrita* prepared by two different methods.

B] ANALYTICAL STUDY[4]

1. Moisture Content

- The loss on drying signifies the moisture content of the substance i.e. it shows presence of water content in the sample.
- The residual water molecules in the substrate are lost, when the substrate is heated at the temperature where the boiling point of water is attained in order to ensure the complete loss of water molecules, the temperature is kept slight elevated during the procedure.
- In present study Moisture content of

Sample A = Nil

Sample A = 0.015%

Sample A = 0.14%

Here moisture content in market sample is more. It may be oxidized earlier compare to other two samples. However, there was no significant difference in all three samples in moisture content.

2. Specific Gravity

- The specific gravity indicates the presence of solutes (soluble or insoluble) content in a solvent.
- Specific gravity of liquid is the ratio of the wt in grams of 1ml of the liquid with that of 1ml of distilled water at the same temperature.

Specific gravity varies with change in temperature and pressure. When the solvent i.e. the *Ghrita* is subjected to heating process, the longer the contact time, the more extraction of solute occurs into the solvents.

- Specific Gravity of

Sample A = 0.901 gm/ml,

Sample B = 0.906 gm/ml,

Sample C = 0.9028 gm/ml,

- This shows that all 3 samples have almost same specific gravity. The minimal difference in them was due to variation in temperature and pressure during measurement.

3. Acid value

- Acid value is the common parameter in the specification of fats and oil .It is defined as the wt. of KOH in mg needed to neutralize the organic acid present in 1gm of fat and it is measured of the free fatty acids (FFA) present in the fat or oil.
- Acid value indicates the presence of free fatty acids in the *Ghrita* sample. The free fatty acids are responsible for the rancidification of *Ghrita*. Higher the fatty acids content of *Ghrita* makes it faster rancid.
- The value is a measure of the amount of fatty acids which have been liberated by hydrolysis from the glycerides due to the action of moisture, temperature or lypolytic enzyme lipase.[7]
- So higher the acid value earlier the sample will turn rancid.
- Acid value of Sample A = 0.36, Sample B = 0.17, Sample C = 0.86
- Here all 3 samples were in same range. Sample C has slight higher value so we may say that it will turn rancid a bit earlier.

4. Saponification value

- It is also known as saponification number. It represents no of milligrams of potassium hydroxide required to saponify 1gm of fat under the condition specified.
- The saponification value indicates the average molecular weight/chain length of all fatty acids present.
- The longer chain fatty acids have a low saponification value and the shorter chain fatty acids have high saponification value. Shorter chain fatty acids have faster rate of absorption than longer chain fatty acids.
- Saponification value of

Sample A = 198.2

Sample B = 191.2

Sample C = 205.8

- Sample C shows highest saponification value that means it will have faster rate of absorption, but there is no significant difference in all 3 samples.

5. Iodine value

- The iodine value or iodine number in chemistry is the mass of iodine in grams that is consumed by 100 grams of chemical substance.
- The iodine numbers are often used to determine the amount of unsaturation in fatty acids.
- So higher the iodine value higher the number of unsaturated fats that is fewer amounts of saturation and fewer amounts of extractable constituents present in the sample. The iodine value indicates the degree of unsaturation, which inturn denotes the rancidification of sample.
- Iodine value of

Sample A = 10.6

Sample B = 9.28

Sample C = 10.05

- Here Sample B shows the lesser value, compared to other samples. The lesser value shows the degree of unsaturation, that signifies the more extractable constituents present in Sample C, but the difference in value of all 3 samples is less significant.

6. Refractive index

- Refractive index is a fundamental physical property of a substance, the property of refractive index at given temperature can be used to identify purity of the given sample.
- The increase in refractive index value indicates the factor which is responsible for the refraction of light through *Ghrita* sample. Higher the value more is the percentage of dissolved solids in the solution.
- Refractive index of

Sample A = 1.4631

Sample B = 1.4634

Sample C = 1.4632

- This study suggests no variation in refractive index of all the samples. It suggests the material concentration and purity was same in the samples.

C] COMPARATIVE STUDY

It was seen that both the self prepared samples as well as the market samples showed negligible variation in the analytical properties. The findings were suggestive of similar standards of pharmaceutical preparation as well as purity.

D] FURTHER SCOPE OF STUDY

Though the study showed similarity in the pharmaceutico-analytical properties, further study can be conducted to note whether there is a difference in the therapeutic properties.

7. CONCLUSIONS

1) The pharmaceutico-analytical properties of self prepared *Bramhi ghrita* and market sample of *Bramhi ghrita* exhibited very less differences.

2) The self prepared sample of *Bramhi ghrita* was also found to be of same standards as that of market sample.

3) Since all the observations regarding three samples of *Bramhi Ghrita* during manufacturing process shows no more significant variation. Hence the range value of three samples of *Bramhi Ghrita* are to be considered as pharmaceutical standard parameter.

4) This is also supported by further Analytical investigations conducted for all three samples of *Bramhi Ghrita* which shows no more variations in all three samples.

5) Further work should be done to study the therapeutic differences between *Bramhi ghrita* prepared from plain and *murchit ghrita*.

8. REFERENCES

1. Bhavmishra, Bhavaprakasha, uttarardha 23/18 Varanasi: Choukhamba sanskruta sansthana, 2005; 225.
2. Acharya Sharangdhar, Sharangadhar Samhita by Dr. Brahmanand Tripathi, Madhyam khanda 9/12, Choukhamba Surbharati Prakashan, 2021; 145.
3. Shri. Ambikadatta Shastri Vidyotini hindi commentary of Bhaishjyaratnavali, Jwarachikitsa prakarana, 5/1285, p.185 chaoukhamba Prakashana, Varanasi.
4. Lohar, Protocol for Testing of Ayurveda, Siddha and Unani medicine, p124-126, Department of Ayush, Ministry of health and family welfare, pharmacopoeial laboratory for Indian medicines, Ghaziabad.
5. Anonymous, Ayurvedic Pharmacopia of India, part 2, volume 1monography 3.2, p.190.
6. Pritchard Jl. Analysis and properties of oil seeds. In: Rossel JB, 5. Pritchard Jl., editors. Analysis of oil seeds, fats and foods. Oxford: Elsevier, Science, 1991; 305-308.
7. Kapil d Yadav, konduru R.C. Reddy, Alka Agrawal, preliminary physico- chemical profile of BRAMHI ghrita, AYU journal, July-sept 2013; 34(3): 295.
8. Kapil d Yadav, konduru R.C. Reddy, Alka Agrawal, preliminary physico- chemical profile of BRAMHI ghrita, AYU journal, July-sept 2013; 34(3): 295.

9. EwersB, RiserusU, Marckmann P. Effets of unsaturated fat dietary supplements on blood lipids and om markers of alnutrition and inflammation in hemodialysis patients. J Ren Nutr, 2009; 19: 401-411.
10. Anonymous, Ayurvedic Pharmacopia of India, part 2, volume 1monography 3.2, p.190.