

PHARMACEUTICAL STUDY OF AVARTITA HINGUSAUARCHALADI GHRITA

Roshy Joseph C^{1*}, Ilanchezhian R², Mishra DK³, Damodar Pande⁴

1. Lecturer, Dept. of Rasa Shastra & Bhaishajya Kalpana, Govt. Ayurveda Medical College, Nagercoil, Tamil Nadu, India.
2. Reader, Dept. of Dravyaguna, TMAE's Ayurvedic Medical College, Shimoga, Karnataka, India
3. Head, Dept. of Rasashastra & Bhaishajya Kalpana, A.L.N.Rao Memorial Ayurvedic Medical College & PG Centre, Koppa, Karnataka, India.
4. Ex. Head, Dept. of Rasashastra & Bhaishajya Kalpana, A.L.N.Rao Memorial Ayurvedic Medical College & PG Centre, Koppa, Karnataka, India.

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Abstract

The concept of avarthana (process repeated again and again) has a great role in minimising the dose of sneha (ghee or oil) based formulations internally. Screening of Ayurvedic classics reveals avarthana potentiates the product. Moreover the dose can be minimized and can be encapsulated to meet the trend of the fast moving people of the present era. Hingusauvarchaladi ghruta is a compound formulation indicated for Apasmara (epilepsy). Considering the concept of avarthana, the pharmaceutical procedure of Hingusauvarchaladi ghruta was repeated for 7 times (Saptavartita) and analysed. The pharmaceutical study proves that the peroxide value, acid value, saponification value and ester value of Saptavartita Hingusauvarchaladi ghruta is less when compared to Hingusauvarchaladi ghruta.

Key words: Avarthana; Sneha kalpana; Hingusauvarchaladi ghruta; Saptavartita Hingusauvarchaladi ghruta.

***Address for correspondence:**

Dr. Roshy Joseph C,
Lecturer, Dept. of Rasashastra & Bhaishajya Kalpana,
Govt. Ayurveda Medical College, Nagercoil, Tamil Nadu, India – 629 001
E-mail: ayurilan@yahoo.com

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INTRODUCTION

Epilepsy was found to be the second leading neurological problems in both urban and rural populations.^[1] It is estimated that in India about 6-10 million people are with epilepsy, accounting nearly about one fifth of the global burden.^[2] Hingusauvarchaladi ghrita (HSG)^[3] is a compound formulation indicated for Apasmara (epilepsy), the composition of which is placed at Table 1. Sneha kalpana plays an important role in treatment both internally and externally.^[4] If taken internally, it enters the systemic circulation and thereby strengthens or stimulates the central nervous system. Lipid soluble active principle can easily cross the blood brain barrier.^{[5][6]} Sneha kalpana have been proved the best among all the other dosage forms because of its pharmacodynamics. The efficacy of sneha kalpana proved itself as the best because of the quality of taila (oil) ^[7] and ghrita (ghee).^[8] Ghrita because of its yogavahi guna, it incorporates the qualities of the drugs added to it without losing its own qualities. So it is sure that the fat soluble active principles of the drugs added to ghrita in ghrita kalpana can be easily extracted into the ghrita. When used for topical application it has the potential to diffuse locally into the soft tissues and produce the desired therapeutic action.

The concept of avarthana has a great role in minimising the dose of sneha based formulations.^[9] The taste and odour of 80% ghee based formulations are not palatable. Many sesame oil based formulations like ksheerbala 101 are encapsulated to meet the trend of the fast moving people of the present era.

The trial drug Hingusauvarchaladi ghrita (HSG) is a ghee based formulation widely administered in cases of Apasmara. But it is not palatable because of its odour. It smells like cow's urine. If the dose can be minimized by following the principles of avarthana any sneha based formulation can be encapsulated.

An attempt is made to prepare Saptavartita HSG and compare the profile at pharmaceutical and analytical levels.

MATERIAL AND METHODS

Pharmaceutical study

The raw drugs necessary for the present study were collected from the local market of Udupi and were identified as genuine samples by the Botanist, Department of Dravyaguna; and Sauvarchala lavana was identified as genuine sample by Head, Department of Rasashastra and Bhaishajya Kalpana. The practical was carried out in the pharmacy of the Bhaishajya Kalpana Department, A.L.N. Rao Memorial Ayurvedic Medical College, Koppa. Fresh cow's urine of same cow was collected and used in the practical.

Preparation of churna (Powder)

The ingredients no 1 to 5 were powdered separately with kuttana yantra (pounding machine) and sieved through sieve no. 22. (Table 1)

Hingusauvarchaladi ghrita

Stainless steel vessel of capacity 16.47 L and Stainless steel ladle of Length 68 cm was used for the preparation of Avaleha. Gas burner with L.P.G. cylinder was the fuel used.

Method of preparation

Except sauvarchala lavana all other ingredients (1,3,4,5) was taken and made into kalka (bolus) form. (Table 1) Sauvarchala lavana was dissolved in a little quantity of gomutra. Murchitha ghrita (1200 g) was taken in a wide mouthed big iron vessel and subjected to heat on mild flame. The kalka, gomutra mixed with sauvarchala lavana and the entire quantity of gomutra were added into the sneha at a temperature of 30° C.

Table 1: Formulation composition of HSG

Sl. No.	Ingredients	Botanical / English name	Parts used	Quantity
1	Shoditha Hingu ¹⁰	<i>Ferula asafoetida</i> Linn	Gum resin	1 part
2	Sauvarchalalavana	Black salt	-	1 part
3	Sunti	<i>Zingiber officinale</i> Roxb.	Rhizome	1 part
4	Maricha	<i>Piper nigrum</i> Linn.	Fruit	1 part
5	Pippali	<i>Piper longum</i> Linn.	Fruit	1 part
6	Gomutra	Cow's urine	-	120 parts
7	Ghrita	Cow's ghee	-	30 parts

Table 2: Observation of HSG and SHSG

Practical	HSG	SHSG
Murchitha Ghrita	1200g	2490 g
Drava dravya – Gomutra	4800 ml.	9960 ml.
Kalka dravya	ShodithaHingu	83 g
	Sauvarchalalavana	83 g
	Sunti	83 g
	Maricha	83 g
	Pippali	83 g
Ghrita obtained	1100 g	1740 g
Loss	100 g	750 g
Loss in %	8.3	30.12
Varna (Colour)	Yellowish green	Dark brown
Gandha (Smell)	Hingu smell	Hingu and cow's urine smell
Phena shanthi	Absent	Absent
Phenodgama	Present	Present
Varthivat sneha kalka	Present	Present
Sabdaheena agni nikshiptha	Present	Present
Sneha paka	Madhyama	Madhyama

After adding all the basic ingredients the temperature was slowly increased so as to make the sneha boil and the temperature was maintained between 95°C to 98°C. The paka was carried out for 5 days. It was stirred continuously at the end of the paka. On 6th day, the paka was completed by observing the sneha paka lakshana. After observing madhyama paka, ghrita was immediately filtered through a double layered cotton cloth and the kalka was squeezed when it was hot itself to get the maximum quantity of sneha.

Saptavartita hingsauvarchaladi ghrita (SHSG)

Same ingredients were used and the process was repeated for 7 times following the principles of sneha kalpana.

RESULTS

Pharmaceutical observations of HSG and SHSG are presented in Table 2 and observation of each of SHSG is mentioned in Table 3. Physico-chemical analysis of HSG and SHSG are presented in Table 4.

DISCUSION

Hingsauvarchaladi formulation is a ghee based medicine used in the management of Apasmara. Since the active ingredients are mixed with ghee they easily get digested and absorbed. When gomutra was added to the ghrita which was on the flame, produced more froth. This frothy nature may be due to the kshareeya guna (alkali nature) of Gomutra and sauvarchala lavana.

Table 3: Observation of SHSG

	1	2	3	4	5	6	7
Ghrita	2490 g	2400 g	2300 g	2190 g	2080 g	1970 g	1860 g
Drava dravya – Gomutra	9960 ml	9600 ml	9200 ml	8760 ml	8320 ml	7880 ml	7440 ml
Kalka dravya	Hingu	80 g	76 g	73 g	69 g	65 g	62 g
	Sauvarchala lavna	83 g	80 g	76 g	73 g	69 g	65 g
	Sunti	83 g	80 g	76 g	73 g	69 g	65 g
	Maricha	83 g	80 g	76 g	73 g	69 g	65 g
	Pippali	83 g	80 g	76 g	73 g	69 g	65 g
Ghrita obtained	2400 g	2300 g	2190 g	2080 g	1970 g	1860 g	1740 g
Loss	90 g	100 g	110 g	110 g	110 g	110 g	120 g
Loss in %	3.6	4.1	4.7	5.0	5.2	5.5	6.4
Varna (Colour)	Yellowish green	Yellowish brown tinge	Yellowish brown	Brownish yellow	Brownish	Brown	Dark brown
Gandha (Smell)	Hingu smell	Hingu and cow's urine smell	Hingu and cow's urine smell	Hingu and cow's urine smell	Hingu and cow's urine smell	Hingu and cow's urine smell	Hingu and cow's urine smell
Phena shanthi	absent	absent	Absent	absent	absent	absent	absent
Phenodgama	present	present	Present	present	present	present	present
Varthivat sneha kalka	present	present	Present	present	present	present	present
Sabdaheena agni nikshiptha	present	present	Present	present	present	present	present
Sneha paka				Madhyama			

Table 4: Physico-chemical analysis of HSG and SHSG

Parameters	HSG	SHSG
Description	Yellowish green colour, thin ghritam with charecteristic odour of Hingashtak choorna and Ghee, Separation seen.	Dark brown colour, semi-solid mass with charecteristic odour of Hingashtak choorna and Ghee
Loss on drying	0.26%	0.52%
Refractive index	1.4620*	1.4655*
Peroxide value	13.50	8.20
Acid value	6.28	5.9
Saponification value	219	201.05
Ester value	212.72	195.15
Iodine value	35.81	38.79

(* At 40° C)

For ghrita paka, Phena shanthi is the siddhi lakshana but because of the presence of sauvarchala lavana and gomutra, Phenashanthi (disappearance of froth) was not observed. Analytical study shows that the Loss on drying and Iodine value is less when compared with Saptavartita Hingusauvarchaladi ghrita.

Peroxide value, Acid value, Saponification value and Ester value is more compared to

Saptavartita Hingusauvarchaladi ghrita. (Table 4)

To prepare Saptavartita Hingusauvarchaladi ghrita the pharmaceutical process was repeated for 7 times with the same ingredients of HSG. Each time, the quantity of kalka dravya and drava dravya were calculated based on the quantity of the Avartita ghrita obtained each time. During each avarthana,

phenashanthi was not observed. Froth was increasing in each avarthana instead of phenashanti. The smell of Hingu as well as gomutra was felt. Colour of the ghrita was becoming brownish in each . At the seventh avarthana the colour was brownish and after cooling it appeared dark brown, semi solid mass with the smell of Hingu and Gomutra. The reason for increase of froth at the end of each avarthana may be due to the increase of the kshareeya guna of Gomutra and Sauvarchala lavana in each paka. Phenashanthi was not observed. Kalka was rolled into varti (vick like) form. Agni pariksha did not produce any crackling sound. Total loss during the end of seventh paka was calculated as 30.12 % (Table 2). Reason for high loss may be due to the filtration during each avarthana and a little loss manually. To avoid the spilling of the sneha from the vessel, mild fire was maintained throughout the process. Since the drava dravya is cow's urine, time duration for each paka was 5 nights. Each paka was done for 5 days and on 6th day it was filtered and on the same day the next avarthana was started. Totally it took 31 days to complete the avarthana.

Peroxide value, Acid value, Saponification value, and Ester value of Saptavartita Hingusauvarchaladi ghrita is less compared to Hingusauvarchaladi ghrita. (Table 4) The Iodine value is more when compared to Hingusauvarchaladi ghrita. As the process was repeated for 7 times the organoleptic characters changed to dark brown colour, semi-solid mass with characteristic odour of Hingashtak choorna and Ghee. From the above points it is clear that the concept of has a great role in minimizing the dose of the final product. Hypothetically it can be said when the process is repeated again and again the final product is highly potentiated. A study was carried out to find the effect of Hingusauvarchaladi ghrita and Saptavartitahingusauvarchaladi ghrita experimentally to prove their anti-convulsant activity^[11]. The study concluded that

Hingusauvarchaladi Ghrita and Saptavartita Hingusauvarchaladi Ghrita are having a definite demonstrable Anticonvulsant action as ascribed by experimental study conducted on Albino mice. In comparison Saptavartita Hingusauvarchaladi Ghrita was more effective than Hingusauvarchaladi Ghrita. Further researches should be carried out both experimentally and clinically.

CONCLUSION

The trial drugs were prepared according to Sneha kalpana principles and the base being ghrita (ghee) the sidha lakshna phenashanti was not observed instead phenotgama (appearance of froth) was observed. The reason for phenotgama may be because of the kshareeya guna of the gomutra. When the process was repeated again and again, the nature of the product was changing physically. Hypothetically it can be said that by doing avarthana the final product may be highly potentiated. Thus the dose can be minimized and can be capsulated to meet the trend of the fast moving people of the present era. Researches should be conducted along with animal studies and clinical trials.

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