



STANDARDIZATION OF HERBAL AYURVEDIC GHRITA FORMULATION – MASURA GHRITA

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ABSTRACT:

In *Ayurveda*, there is concise explanation about the *ghrita* is given because of the specificity of the *ghrita* in treatment and secondly there is a useful property in fats- Oil and *Ghee* (Indian Purified Butter) which allows them to be choice of different purposes. According to *Ayurveda* classics Herbal *ghritas* work on all the three *Doshas vata, pitta* and *kapha*, as qualities of this herbs poured into these *ghrita*. These Ayurvedic *ghritas* can be taken internally, because of the way these *Ayurvedic ghritas* are prepared. *Masura ghrita* was prepared in-house and was analyzed with available parameters. The parameters which were determined for the evaluation are acid value, saponification value, Iodine value, Ester value, weight per ml, viscosity and refractive index. The parameters were found to be similar and hence it was suggested that these parameters could be used for standardization of *masura ghrita*. So in the process of standardization, we formulate *Masura ghrita* three times and check each sample according to the available parameters.

Keywords : *Masura ghrita, Sneha paka, Ghrita paka, Ghrita Kalpana, Standardization.*

INTRODUCTION

Masura ghrita is generally used by *Ayurvedic* practitioner for years. This popular *ghrita* preparation is a very effective formulation for gastrological disorders like *atisara* (diarrhoea) *pravahika* (dysentery) and even in various anorectal conditions¹. *Masura ghrita* is very useful in pacification of *kapha* and *pitta* and its formulation *Acharya* described in *sharangdhar samhita madhyama khanda* 9th chapter *ghrita taila kalpana adhyaya*, the most ancient and classic of *Ayurvedic* medicine. The ingredients of this preparation are *masura*, *bilva* fruits & *Murchhita cow ghrita*². This *ghrita* is prepared using *Snehapaka kalpana* described in *Ayurvedic* texts and used in various *pitta* and *kapha vyadhi* as well as other conditions like gastric diseases & liver disorders. In today's era of adulteration, standardization of all herbal formulations has become very necessary because the efficacy and quality of well standardized drugs remains same. Standardization is a process in which before formulate any kinds of herbal medicines, is keeping into three stages and at each stages the parameters are set and tested according to them. The three stages are as follows- raw drug standardization, in process standardization and finished product standardization.

MATERIALS AND METHOD

Collection of Plant materials & Selection of Marketed Formulation

All the ingredients of *masura ghrita* were purchased from the Local market. Each ingredient was carefully checked for the presence of any foreign matter. All the ingredients were reduced to a coarse powder in a mortar pestle. Each ingredient was then passed through Sieve No-85.

Formulation composition

Preparation of *Masura ghrita* -

- 1) For *Masura ghrita* firstly we need to make *ghrita Murchhana*, for this Take all the powdered ingredients (*Nagarmotha*, *Haritaki*, *Bibhitaka*, *Amalaki*, *Bijora nimbu swarasa*, *Haridra*,) of equal quantity. Transfer the powdered ingredients to wet grinder and grind with sufficient quantity of water to prepare *Kalka*. Take Cow *ghrita* in a stainless steel vessel and heat it mildly. Add ingredients of *Kalka*. Heat thoroughly while adding water in ratio of 1:4 Starts heating and constantly checks the *Kalka* for formation of *Varti* and observes the boiling mixture for appearance of froth. Stop heating when the *Kalka* forms a *Varti* and the froth emerges. Filter while hot through a muslin cloth and allow cooling³.

**Table no. 1 : Showing The Ingredients For
Goghrita Murchhana :**

Ingredients	Quantity
<i>Goghrita</i>	2 lit.
<i>Haritaki</i>	100gm
<i>Amalaki</i>	100gm
<i>Bibhitaki</i>	100gm
<i>Nagarmotha</i>	100gm
<i>Haridra</i>	100gm
<i>Matulung Swarasa</i>	QS
Water	8 lit.
obtained <i>murchhita ghrita</i>	1.6 lit.

2) The *Murchhita Ghrita* was taken in the mentioned quantity in a wide mouthed vessel and melted over *Mandagni*. The *Masura Kwatha* was added to liquefied *Ghrita* along with *Bilva fruit Kalka*. The *Kalka Dravya* were added little by little with continuous stirring. The *Sneha paka* was carried out in *Mandagni* and *Sneha Siddha Lakshanas* were observed. The *sneha* was taken out from the fire and filtered through a clean cloth. *Kalka Dravya* was put into *nishpeedana Yantra* and *Ghrita* was collected⁴. We do this same procedures in 3 different batches.

Table no. 2: Showing The Ingredients For *Masura Ghrita* and its quantity

	Ingredients	BATCH 1	BATCH 2	BATCH 3
1.	<i>Murchhita Ghrita</i>	500 ml	500 ml	500 ml
2.	<i>Masura Kwatha</i>	2 lit.	2 lit.	2 lit.
	<i>Kalka Dravya</i> :			
3.	<i>Bilva fruits</i>	125gm	125 gm	125 gm
4.	Obtained <i>Masura ghrita</i>	350 ml	365 ml	360 ml

3) The main drug in this formulation- *Masura*, *Bilva fruits* and *murchhita ghrita*, all these drugs were purchased from herbal shop in Bareilly and were identified as genuine samples by the in our analytical lab and department Quality control lab, Gangasheel ayurved college Bareilly U.P.. The *Masura ghrita* was prepared in the

pharmacy of the department of Rasa shastra and Bhaishajya kalpana, Gangasheel ayurved college Bareilly U.P.

4) In the process of standardization, we formulate *Masura ghrita* three times and check each sample according to the available parameters.



Fig. 1 : Murcchana dravya, masura ghrita ingredients and prepared Ghrita

5) Evaluation Parameters

The parameters which were determined for the evaluation are acid value, saponification value, Iodine value, Ester value, weight per ml, viscosity and refractive index. all these parameters are given in API part 2 formulations volume1.

Determination of Acid Value - The acid value of a fat or oil may be defined as the number of milligrams of KOH required to neutralize the

free organic acid present in 1 gm of fat or oil. It is determined by dissolving by weighted quantity of oil and fat in alcohol and titrating against standard alkali, using phenolphthalein as indicator⁵.

$$\text{Acid value} = 5.61 \times a \times N/W$$

Determination of Saponification value

It may be defined as no of milligram of KOH required to saponify 1gm of fat or oil. It is calculated by refluxing a weighed amount (1-

2g) of the fat or oil with known excess of standard alcoholic caustic potash solution and back titrating the excess alkali with a standard acid⁶.

Saponification value = $(b-a) \times 0.02804 \times 100/w$

Determination of Iodine value

It may be defined as the number of grams of iodine taken up by 100gm of fat or oil.

Iodine value of a fat or oil may be regarded as a measure of its degree of unsaturation and gives an idea of its drying character⁷.

Iodine value = $(a-b) \times 1.27/w$ Where

a = reading for the blank experiment. b = reading for actual experiment.

W= weight of oil taken.

Refractive Index

Refractive index of a substance with reference to air is the ratio of the sine of the angle of incidence to the sine of the angle of refraction of a beam of light passing from air into substance⁸.

Refractive index $\mu = \sin i / \sin r$

Determination of weight per ml at 400

The weight per ml of a liquid is the weight, in a gm of 1ml of a liquid when weighed in air at 25 unless otherwise specified.

Determination of viscosity

It is an index of resistance of a liquid to flow, the higher the viscosity of a liquid, the greater is the resistance to flow. viscosity of liquid may be determined by any method that will measure the resistance to shear offered by the liquid⁹.

Determination of Ester value

The Ester value is the no. of milligrams of KOH required saponifying the ester present in 1g of the substance¹⁰.

Ester value= Saponification value –Acid value

RESULT AND DISCUSSION

There are total three different samples of *Masura ghrita* which are analysed for organoleptic parameters and different analytical parameters like Viscosity, Saponification value, Acid value, Iodine value, Ester value the results are tabulated accordingly.

Table no. 3: Organoleptic Parameters of *Masura ghrita*

Organo-leptic characters	BATCH 1	BATCH 2	BATCH 3
Odour	Fragrant like <i>bilva</i> fruit	Fragrant like <i>bilva</i> fruit	Fragrant like <i>bilva</i> fruit
Colour	Yellowish green	Yellowish green	Yellowish green
Taste	Characteristic	Characteristic	Characteristic
Texture	Soft	Soft	Soft

Table No. 4. : Different analytical parameters of *masura ghrita*

no.	Evaluation Parameters	Observation			
		BATCH 1	BATCH 2	BATCH 3	AVARAGE
1	Saponification value	152.24	151.11	153.01	152.12
2	Acid value	12.11	12.78	12.44	12.44
3	Iodine value	32.04	33.14	32.09	32.42
4	Wt/ml at 40 ^o C	0.958	0.989	0.979	0.975
5	Viscosity	65.89	66.70	65.21	65.93
6	Ester Value	146.07	145.11	146.74	145.97

Acid value is defined as the number of milligrams of potassium hydroxide required to neutralize the free acids present in 1g sample of fat or oil. Acid value is an indication of rancid state. More acid value means more free fatty acid. This free fatty acid interferes in trans-esterification with methanol. Lower the acid value higher the yield / quality of oil. Avarage value of Acid value of Masura ghrita was found as 12.44. Saponification values are highly significant in the making of soap. It is important that the saponification value is just right too high and the soap might contain too much alkali even though there is sufficient soapiness that it would react with skin whilst a saponification value too small -the fatty acid salts will not be sufficient enough to remove or saponify the fat or oil and less soapiness. Avarage value of Saponification value of Masura ghrita was found as 152.12. The most important application of the iodine value is to determine the amount of unsaturation contained in fatty acids. This unsaturation is in

the form of double bonds which react with iodine compounds. The higher the iodine value, the more unsaturated fatty acid bonds are present in a fat, here avarage iodine value obtain is 32.42. Wt/ml at 40 °C is calculated for effect of temperature over density and its average found 0.975. Ester number is an amount of mg KOH required to saponificate esters contained in one gram of fat or oil. The greater the value, the higher ester content in the oil sample. While the acid number indicates the number of mg of KOH used to neutralize the free fatty acids in one gram of oil samples and here it avarage value is 145.97.

CONCLUSION

Masura ghrita is one of the great *pitta* and *kaphahara ghrita* mentioned by *Acharya sharangdhara*. Its method of preparation is given by *sharangdhara* at *madhyam khanda* 9th chapter. all these classical references, *Masura ghrita* was prepared and subjected for analysis to check and identify standard

qualitative parameters. Outcome what get after analysis shows the standard qualitative parameters of Classical *ghrita* Preparation.

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