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**ROLE OF MURCHHANA SAMSKARA IN THE PREPARATION OF MEDICATED
GHRITA W.S.R. TO PANCHAGAVYA GHRITA**

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ABSTRACT

Ayurveda encompasses the entire spectrum of human health and contributes to the positive health of an individual. In *Ayurvedic* pharmaceuticals *Snehakalpana* (medicated *ghrita* / oil preparations) is described as an important secondary dosage and has a broad range of medicinal uses in different medical conditions. Cow *ghrita* is usually used for the manufacturing of medicines in medicated *ghrita* preparations. Rancidity factors (*amadosa*) due to watery content in *ghrita* are very important factors in the decomposition of fatty acids of *ghrita* leading to decrease in life span of medicine prepared with *ghrita*. These are very effectively removed and simultaneously therapeutic quality is enhanced by the ancient *Ayurvedic* pharmaceutical techniques called *ghrita murchhana*. In this present study, it is tried to validate the importance of *murchhana* process for preparing medicated *ghrita*, over medicated *ghrita* preparation without following *murchhana* process. The parameters like specific gravity, refractive index, acid value, saponification value are analyzed in both the medicated *ghrita*, i.e. All the analytical values obtained are discussed in this paper.

Keywords: *Sneha kalpana*, *Ghruta murchhana*, Saponification value, Iodine value.

INTRODUCTION:

Ayurvedic Samhita's describe about number of diseases and disorder, line of treatment, herbal formulations, doses etc. The objective of *Ayurveda* is to accomplish the Physical, Mental, Social and Spiritual wellbeing by way of adopting preventive and promotive approaches as well as to treat the diseases with holistic approach.¹ *Acharya Charaka* mentioned *Panchvidha kasaya kalpana* as *Swarasa* (juice), *kalka* (paste), *kwatha* (decoction), *hima* (cold infusion) and *phanta* (hot infusion).² Many preparations have been derived from these five basic preparations eg. *Asavarishta* (fermentation), *lepa* (paste), *churna* (powder), *Sneha kalpana* (fatty preparation), *vati* (pills) etc. *Sneha kalpana* is widely described dosage form in *Ayurvedic* pharmaceuticals under which medicated oil and *ghrita* are prepared. *Ghritha* is obtained from the class mammalian of the animal Kingdom especially cow, buffalo, goat, sheep etc. *Ayurveda* recommends the *Goghrita* as best and the *ghrita* is choice for both food and medicinal purposes.³ *Ghritha* alleviates *pitta* and *vata*, is beneficial for *rasa*, semen and *ojas*, cooling, softening and improves voice and complexion. *Ghritha* preparations manufactured in *Ayurvedic*

pharmaceuticals are used broadly for medicinal purposes.⁴ It is one of the eye catching techniques in *Ayurvedic* drug industry to achieve both fat soluble and water soluble extractives into the *ghrita* media.

Murchhana is an important intermediate process in the preparation of *ghrita kalpana* adopted for enhancing the potency of *ghrita* and to remove the bad odor and *amadosa* (Rancidity). Due to the process of *murchhana ghrita* will get such a capability to receive more active principles while the *veerya* (potency) of *sneha* is enhanced. *Bhaisajjaya Ratnavali* has mentioned about *murchhana* first time.⁵ *Panchagavya Ghrita* is a traditional *Ayurvedic* medicine mentioned in *Ayurvedic* texts and is a peculiar combination of five cow products namely dung, curd, milk, urine and ghee.⁶ *Panchagavya* is indicated in *Ayurvedic* classics in *vishamajwara* and also for detoxification of body.⁷ In recent days, its use in management of cancerous conditions is also a practice in vogue. Use of *Panchagavya Ghrita* has been indicated in *Apasmara*, *Kamala* and *Jwara*.⁸

AIM AND OBJECTIVE:

To demonstrate the importance of *ghrita murchhana* for the preparation of medicated *ghrita*

MATERIALS AND METHODS: Two samples of *Panchagavya ghrita* were prepared one by *murchhit ghrita* and another one without *ghrita murchhana*. *Ghrita murchhana* was done as per reference of *Bhaisajjaya Ratnavali*.

Process of *Ghrita Murchhana*⁹

Ingredients: *Amalki, Haritki, Bibhitaki, Musta, Rajani, Matulunga swarasa*

From *Amalki* to *Matulunga swarasa* each
1 *Pala* = 48 gram

Cow's *Ghrita* 1 *Prastha* (64 *tola*) = 788 grams

Jala (Water) 4 *Prastha* (256 *tola*) = 3.072 liters

► Heat the *Ghrita* till it becomes free from froth. Add 4 part of water along with powder of all the drugs. Boil it on moderate heat till the *Ghrita* is free from water. Filter it and use for the preparation of medicated *ghrita*.

► By this process unpleasant odour of the *Ghrita* is removed. It obtains good colour and fragrance.

Method of Preparation of *Panchagavya ghrita*¹⁰

Ingredients:

- *Gomaya rasa* (cow dung) – 100 gm
- *Godadhi* (cow curd) – 100 gm
- *Godugdha* (cow milk) – 100 gm
- *Gomutra* (cow urine) – 100 gm
- *Goghrita* (cow ghee) – 400 gm

Add *Gomaya rasa, Godadhi, Godugdha, Gomutra* and *Goghrita* in the above mentioned quantity and the combination is heated till *Panchagavya ghrita* is prepared.

Two samples of *Panchagavya ghrita* were prepared one by *murchhit ghrita* and another one without *ghrita murchhana*.

The sample prepared without *ghrita murchhana* was labeled sample1 and with *murchhit ghrita* as sample 2.

Both the samples were subjected for different Physico-chemical analysis like specific gravity, refractive index, saponification value, and acid value.

ANALYTICAL TECHNIQUES:

Measurement of Specific gravity:¹¹

Specific gravity of a substance is the weight of the substance in grams at a specific temperature compared with the weight of the same volume of water in grams at a same temperature.

1. A clean and dried 25 ml capacity of specific gravity bottle kept in hot air oven was taken in desiccator and weighed empty. Then it was filled with water and weighed at room temperature.

2. Again the bottle was cleaned and dried. Keep it in hot air oven and then take in dessicator.

Fill the *Panchagavya ghrita* sample up to the mark and weigh at the same temperature.

Specific gravity of the sample = Weight of Sample / Weight of Water = Weight of (oil) sample in grams / weight of same volume of water at same temperature in grams.

Determination of Refractive index: ¹²

The refractive index (index of refraction) of a medium is a measure for how much the speed of light or other waves such as sound waves is reduced inside the medium. It is the ratio of the velocity of light in a vacuum to its velocity in the substance.

Abbe's Refractometer was used to determine the Refractive Index. First the mirror of the Abbe's Refractometer was adjusted to 45° c; then the sample of *Panchagavya ghrita* was inserted in the prism box by using a pipette. After each sample refractometer was cleaned with petroleum ether followed by the distilled water. Different color bands were observed in the right eye piece. These color bands were removed with the help of compensator knob in such a way that only the black and white portion should be seen in the right eye piece. The black and white portion are accustomed to the cross wire with the help of lever. Finally the result was noted on the scale through left eye piece. Both samples were analyzed by this way.

Measurement of Saponification value: ¹³

Saponification value or "saponification number", also referred to as "sap" in short represents the number of milligrams of potassium hydroxide or sodium hydroxide required to saponify 1g of fat under the conditions specified.

Initially 500ml capacity of round bottom flask is fitted with a reflux condenser. Then 4gms of *Panchagavya ghrita* sample with 50 ml of 0.5 N KOH was taken into the round bottom flask. 2-3 pieces of pumice stones were put into the same flask and the mixture was boiled on water bath at 40°c for 30 min.

Then after it was taken out from water bath and 1 ml of phenolphthalein solution (indicator) was added to it. Titration was done immediately with 0.5 N HCl. The burette reading was noted.

(a) Process was repeated out without taking the *ghrita* sample, i.e. a blank test under same conditions and burette reading was noted.

(b) Both the samples were analyzed by this method.

Saponification value was determined as per following formula.

Saponification value = $\{(b-a) \times 28.05\} / W$.

*W=Weight of the substance in gms.

Determination of Acid value: ¹⁴

Acid value or "neutralization number" or "acid number" or "acidity" is the mass of

potassium hydroxide (KOH) in milligrams that is required to neutralize one gram of chemical substance.

First of all a solvent is prepared by adding 50 ml alcohol and 50 ml ether in a container.

Then 20 grams of *Panchagavya ghrita* sample was mixed in 100ml of solvent which was prepared earlier. Now 2 ml of Phenolphthalien indicator was added to it and titrated with 0.1 N Sodium Hydroxide (NaOH) until the solution remained faintly pink for 30 sec. even after shaking. Finally the reading of the barrette was noted.

Acid value was calculated as per following formula

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

*N= Number of ml of 0.1NaOH required and *W =Weight of sample in gms.

RESULTS:

Observations of both the samples are tabulated in Table No. 1. Analytical findings shows that Specific gravity of *Panchagavya ghrita* prepared with *murchhit ghrita* was increased to 0.9239 in comparison of *Panchagavya ghrita* prepared without *ghrita murchhana* that of 0.9069. Refractive Index, Saponification value and Acid value is simultaneously decreased in the *Panchagavya ghrita* prepared with *murchhit ghrita* than prepared without *ghrita murchhana*.

Table No 1: Showing different observations

Sr . No.	<i>Panchagavya ghrita</i> Sample	Specific Gravity at melted stage	Refractive Index at 40°C	Saponification Value	Acid Value
1.	Sample 1	0.9069	1.4732	217	24.54
2.	Sample 2	0.9239	1.4527	213	24.34

DISCUSSION AND CONCLUSION:

In the results it is observed that there is increase in value of specific gravity of the *Panchagavya ghrita* prepared with *murchhit ghrita* in comparison to *Panchagavya ghrita* prepared without *ghrita murchhana*. But other analytical values like refractive index, saponification values and acid values were found vice-versa of specific gravity i.e. values are decreased. Process of *murchhana* may be a probable reason for this.

Specific gravity of *ghrita* is indication of the solid to liquid ratio in *ghrita*. Specific gravity of sample 2 is increased that may be due to solid extractives comes from the herbs added during the *murchhana* process. Increase in Specific gravity thus reveals that solid content is increased in comparison of liquid in the *Panchagavya*

ghrita prepared from *murchhit ghrita*. Less liquid content in preparation increases the life span of formulations.

Saponification value is a measure of the average molecular weight of all the fatty acids present. Saponification value is directly proportional to the fatty matter content. More the fatty matter content there will be the more chances of rancidity factor and less will be the self life and therapeutic value.

The acid number is a measure of the amount of carboxylic acid groups in a chemical compound, such as a fatty acid or in a mixture of compounds as oil-fats rancidity, triglycerides are converted into fatty acids and glycerol, causing an increase in acid. Less acid value denotes the less chance of decomposition of the composition of *Ghrita* thus increasing both life span and therapeutic value.

Refractive index is the ratio of the velocity of light in a vacuum to its velocity in the substance. It is a fundamental physical property of a substance often used to identify a particular substance, confirm its purity, or measure its concentration. More will be Refractive index, there will be more concentration of light which facilitates rancidification of *ghrita* i.e. decomposition of *ghrita*. During the process of *murchhana* water and fat soluble extractives are added to the initial

ghrita that enhances its medicinal properties. Heating of *ghrita* during *murchhana* process is itself an important factor which causes the evaporation of any moisture contents thus leading to the decreasing of the rancidity factors. From above discussions it may be concluded that *murchhana* process reduces degree of saturation of *ghrita* and enhances degree of unsaturation which is beneficial for human health. Hence the medicated *ghrita* should be prepared by taking the *murchhita ghrita*.

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