

Tradition and Technology with special respect to Dhouta Samskara of Shatadhouta Ghrita

Research Article

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Abstract

Ayurveda the science of health care system of medicine has been considered very important since ages. It has narrated many important principles regarding *svastya* (health), *ahara* (diet), *vyadhi* (disease) and *aoushadha kalpanas* (formulation of medicine). *Ghrita* is one among the *chaturvidha sneha* explained in *Ayurveda* and widely used as *ahara* and *aoushada*. Many *ghrita samskara*'s are explained in classical texts of *Ayurveda*. *Shatadhouta ghrita* is one such unique preparation and an example for *dhouta samskara*. And in laboratory it is evaluated for its pH, organoleptic, properties, moisture content, molecular size, viscosity, copper content, acid value, saponification value, iodine value in JSS Pharmacy College Mysore. Hence an attempt is being made to prepare and analyze the *Shatadhouta ghrita* in laboratory and to emphasize the importance of *samskara* explained in *Ayurveda*.

Keywords: *Shatadhouta Ghrita*, Organoleptic properties, *Sneha*

Introduction

Ayurvedic system of medicine, evolved over the ages, had been completely looking after the healthcare of the world. As contemporary system of medicine used knowledge of modern biology and chemistry, for both discovery and treatment, it found fast acceptability. In spite of this, the contribution of the *Ayurvedic* system of medicine to healthcare is enormous. Acharya Caraka clearly states the indications for ghee. Ghee “promotes *medha*, (intelligence), *smriti* (memory)

agni (factor responsible for digestion, metabolism, and biotransformation), *sukra*, *ojas*, *kapha* and *medas*. It alleviates *vata*, *pitta*, *visha*, *unmada*, *apasmara*, *ashubha* and *jwara*. It is the best among *chaturvidha sneha*. It is of *sheeta veerya*, *madhura rasa*, *madhura vipaka*, has thousand potentialities and so, if used properly according to prescribed methods, exerts thousand types of actions.(1) In the study, the *Ayurvedic* preparation *Shatadhouta ghrita* has been evaluated for its physicochemical parameters and changes occurring during washing were analyzed. An attempt has made to find out answer to *samskara* and *prabhava* through modern technology. An attempt is made to prepare manually and find out the rationale behind washing cow's ghee hundred times with water. Evaluated for its pH, organoleptic properties, Moisture content, Molecular size, Viscosity, Copper content, Acid

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value, Saponification value and Iodine value. It was found that *Shatadhouta ghrita* exhibits a much less degree of unsaturation (suggesting better physico-chemical stability) and better consistency and hence suitability for topical applications. The aim of present study investigation is to prepare and evaluate *Shatadhouta ghrita* in terms of *samskara* and technology.

Review of literature;

Acharya Susruta in *uttaratantra* mentioned *shatadhouta ghrita* in *jwara* for *daha shamana*. The procedure told as to wash ghee for hundred times in cold water. The resultant ghee is known as *Shatadhouta ghrita* and it is of light in consistency. (2)

If there is bleeding during fourth month of pregnancy then below the naval region, the entire body of the pregnant woman should be smeared with *Shatadhouta ghrita* or *sahsra dhouta ghrita*.

In *kusta chikitsa* Acharya Charaka says that if there is *daha* in *kusta*, then for *dahashamanartha* (for pacification of burning sensation) *abhyanga* (massage with ghee) is advised with *tiktaghrita* or *Shatadhouta ghrita*. (3)

This is an effective remedy for *visarpa* (herpis), when applied repeatedly by mixing equal quantity of fine powder of *Pancha Valkala*, It subsides *daha* (burning sensation), *shoola* (pain) in *vrana* (wound) and cures *visarpa* like that of *garuda* killing the *sarpa* (4)

Shatadhouta ghrita used as *pralepa* in the technique of scraping of eye lids and other disorder of the eye lids. (5)

In Sushruta *kalpa sthana shatadhouta ghrita* is indicated in *visha chikitsa*. A poultice prepared from the anti-venomous drugs of cooling potency mixed with *Shatadhouta ghrita* and applied over the *kothayukta vrana* (gangrenous wound). (6)

In pregnant woman, with unexplained bleeding or spotting, traditionally, it is advised to apply this *shatadhouta ghrita* around umbilicus. (7)

Objectives;

- To compile the literature of *Shatadhouta Ghrita*.
- To prepare, analyze the prepared *shatadhouta Ghrita* with the help of laboratory techniques.
- To find an answer to *dhouta samskara* in terms of modern technology.
- To compare properties of Ghrita and Shata dhouta ghrita.

Materials and Methods;

Shatadhouta Ghrita was prepared by the scholar as per the classical method and analysis was done at JSS Pharmacy College, Mysore.

Ingredients in the preparation of *Shatadhouta ghrita*

- Nandini Company Cow's ghee 200gms
- Normal Tap Water
- Plate made out of Copper

Procedure:

Nandini company Cow's ghee of 200 gm is taken in a copper plate. Normal tap cold water is added above the level of ghee. Ghee and water rubbed vigorously for 6-8 minutes till water become slightly warm, and the contents were allowed to settle. Water was decanted carefully, avoiding loss of ghee. Then same cold tap water was added to the previously washed ghee and similar procedure was repeated. This operation was carried out for one hundred times to obtain *Shata dhouta ghrita*. Samples were collected after washing and stored in plastic container at room temperature for analysis. Normal Nandini company Cow's ghee of 200 gm is analysed in laboratory along with the analysis of *shatadhouta ghrita*.

Methodology

1. Organoleptic Tests
2. Laboratory Tests; Acid value, ester value, saponification value, iodine value,

peroxide value of *shatadhouta ghrita* were determined by the methods outlined in pharmacopoeias.(9) All the chemicals are provided from the JSS Pharmacy college Mysore. All the solvents are distilled before use. Nandini cow ghee is purchased from Nandini milk dairy Mysore. Cow ghee was observed for its organoleptic properties and analyzed for various physicochemical parameters (moisture content, viscosity, acid value, saponification value, iodine value, etc) prescribed for lipids in Pharmacopoeas (IP, USP). Particle size was also determined. (The United State Pharmacopoeia 27, The national Formulary 22, United States Pharmacopoeial Convention, INC, Asian Edition 2004, 2389-2401)

Results;

Organoleptic Properties

Organo-leptic properties Parameter	Nandini Cow's Ghee	<i>Shatadhouta ghrita</i> prepared in <i>Tamrapatra</i>
Colour	Golden yellow colour	White
Odour	Typical ghee smell	Odourless
Taste	Characteristic	Tasteless
Texture	Grannular, oily	Smooth, oily, homogenous mass
Weight	200gm	Increased after wash from 200gm to 250gm

Chemical Properties

Chemical properties Parameter	Nandini Ghee	<i>Shatadhouta ghrita</i> prepared in <i>tamrapatra</i>
Acid value	1.79±0.01	0.097 (decreased)

Saponification value	249.4±0.32	9.987 (decreased)
Iodine value	35.49±0.35	31.14 (decreased)

Physical properties

Physical parameters	Nandini Ghee	<i>Shatadhouta ghrita</i> prepared in <i>tamrapatra</i>
Moisture content	0.27	0.8 (increased)
Ph	4.6	5.4 (increased)
Particle size	179.02	51.56µm (decreased)
Viscosity (cp) at 20rpm for 30 seconds	8000	9650 (increased)
Copper content (ppm)	0.13	1.2 (increased)

DISCUSSION

Preparation of *Shatadhouta ghrita* can be illustrated as follows. Initially, the pure lipid phase, i.e. ghee comes in contact with an aqueous phase. Due to rubbing, it results in formation of water in oil type of emulsion as lipid phase (Cow Ghee) is a major phase. As the washing continues, due to pressure applied during rubbing, particle size of fat granules gets reduced. Eventually, successive washings result in oil in water type of emulsion. It is possible that it might lead to formation of a complex system like water oil water emulsion. The characteristic granular, oily consistency and odor present in the ghee is lost, resulting in a homogeneous, smooth, non-oily product, which is easier to apply, thus improving the patient compliance as a base for topical application. pH change from acidic to neutral makes it beneficial to

prevent skin irritation. Hence, the preparation may be applied on open wounds. When comparison is made between *Ghrita* and *Shatadhouta ghrita* the properties of *Ghrita* differs from *Shatadhouta ghrita*.

Reduction in particle size of *Shatadhouta ghrita* makes the product non-granular, non-sticky, homogeneous, with a large surface area, similar to that of modern cream base which makes it easy to apply on skin and may result in increased rate of absorption through skin. Viscosity of *Shatadhouta ghrita* was found to have increased in the conversion from ghee to *Shatadhouta ghrita*, washing results in the formation of a homogenous mass of oil in water emulsion with better consistency and viscosity which helps in its topical application and is beneficial in removal of scars and as anti-inflammatory activity. Because of its lower iodine value of *Shatadhouta ghrita* indicates the decrease in degree of unsaturation, which eventually reduces the chances of rancidity, thus increase stability of the product. Decrease in acid value with repeated washings indicates the reduction in free fatty acids.

The findings are consistent with the following mechanism of formation of *Shatadhouta ghrita* which is also supported in literature. (10) Fat splitting is a process in which, fat is hydrolyzed in the presence of water to yield free fatty acids and glycerols. High temperature and pressure are known to accelerate the process of hydrolysis. In the preparation of *Shatadhouta ghrita* although temperature is kept constant, there is repeated and prolonged washing of the ghee and fat mixture. Thus the pressure factor may contribute to fat splitting. After each washing, aqueous phase is withdrawn and replaced by fresh slot of the same. If the reactants and products are not removed from the sphere of the reaction, equilibrium will eventually be reached, depending upon the concentrations of the former. In practice, by using a large excess of water

and repeatedly withdrawing the glycerol rich aqueous phase and replacing it with fresh water, the process of fat splitting is accelerated. Decrease in the degree of unsaturation can be supported by the absence of unsaturated fatty acids such as oleic acid, palmitic acid and lauric acid in *Shatadhouta ghrita*. (11-12)

Above mentioned analysis can be supported with the textual informations given in Charaka Samhita and thus brief note on that has given below. *Sarpi, Taila, Vasa, Majja. Ghrita* (ghee), *taila* (oil), *vasa* (fat), *majja* (bonemarrow)-these are regarded as the best *sneha dravyas* (oil substaces). Among all the *sneha dravyas Ghrita* (ghee) is the best one because of the continuance of the properties of refinement (13)

Nirvapana means that which pacifies burning sensation. *Sthirakara* is that which provides stability to organs. Acharya Gangadhar explained Nirvapana by saying that it is pacifying heat and burning as if from fire. *Mridukara* is that which produces softness. (14)

Processing is the making or refinement of the natural products which means imparting other properties. These properties are infused by contact of water and fire, Cleansing, churning, place, time, infusing, steeping and also by long duration, utensil etc. (15)

Ghee alleviates pitta and vata it is beneficial for *rasa, sukra* and *ojas, cooling, softening* and improves voice and complexion. (16)

Conclusion

From the present work, it can be concluded that changes taking place in cow ghee while washing it with hundred times to prepare *Shatadhouta ghrita*, makes it an elegant and suitable product for topical application. Ghrita and shatadhouta ghrita differ in their properties. Basic quality of ghee is cooling and softening along with it, it is best in *samskaranuvartana*. With its cooling quality it acquire the cooling effect

of *jala* and *vrana ropana* property by *samskaras* followed during the preparation like cleansing, churning, time and utensil. Increase in moisture content useful for skin hydration and cooling effect, which can justify its use for the treatment of burns pH change from acidic to neutral, makes it beneficial to prevent skin irritation, significant in removal of scars and as an anti-inflammatory agent. Chemical analysis and *Samsakara siddhanta* of Ayurveda prove *Shatadhouta ghrta* is effective and act as good cooling agent, emollient, moisturizer and good scar healer. Samskara of Ayurveda is explained through modern lab techniques.

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