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Original Article:

Preliminary Physico-Chemical Evaluation of *Yashthimadhu Ghrita*

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ABSTRACT

The purpose of standardization involves proper selection and handling of crude materials, to ensure the safety, efficacy and stability of finished product. With this aim the present study was designed. *Yashtimadu Ghrita* contains the following drugs: *Madhuka*, *Ghrita*. These drugs are having *madhura* as the predominant *rasa, shita virya and tridoshahar* action .The present study consists of preparation and preliminary analysis of *Yashtimadhu Ghrita* for parameters like physicochemical properties and microbial analysis. These findings will be useful towards establishing pharmacopoeial standards for the formulation which is gaining relevance in research on traditional medicinal system.

Keywords: *Yashtimadhu*, *Ghrita*, Iodine value,

INTRODUCTION

The vital responsibility of herbal medicine in serving the therapeutic requirements of the human populace worldwide has been identified from ancient times to the modern era. However, a key obstacle that has hindered the acceptance of alternative medicines in developed countries is the lack of documentation and rigorous quality control. A need is always felt for the proper documentation of research studies carried out on traditional systems of medicine. Keeping this in mind, it becomes extremely important to develop the standards of plant-based medicines. The use of *Yashtimadhu Ghrita* is mentioned in classics after *shastra kriya* (surgical procedure) for pain management, in which *Acharya Sushruta* explained about the formulation of *Yashtimadhu Ghrita* by simply adding *Yashtimadhu* Powder to lukewarm *Ghrita*.[1] Uncontrolled pain may cause restlessness and thereby delay in wound healing.[2] Few researches on the anti inflammatory effect of *Yashtimadhu* have been reported. For instance The Glycyrrhizin showed anti inflammatory effect (Gujral et al 1961), Glycyrrhetic acid showed anti inflammatory effect (Tangri et al 1964).Saxena et al in 1970 have also reported the anti inflammatory effect of *Yashtimadhu*. But, lack of standardization is a major problem as far as *Ayurvedic* formulations are considered; therefore it is imperative to establish the quality control parameters for herbal *Ayurvedic* formulations which will be in alignment with modern technology.[3] Physicochemical properties, phyto chemical screening and microbial analysis, have not been reported for the above mentioned formulation. With this aim the current study was designed for the physico-chemical evaluation of *Yashtimadhu Ghrita*.

MATERIALS AND METHODS

Collection and Authentication of raw materials:

The raw drugs of *Yashtimadhu Ghrita* were collected from GMP certified Pharmacy and were authenticated by AYUSH approved Central Research Laboratory, Shri B.M.K Ayurveda Mahavidyalaya, Belgaum (authentication nos. CRF/127/13, CRF/140/13, CRF/147/13, CRF/366/13 and CRF/MU/428/13) Powdering of the drug was done in GMP certified K.LE Ayurved pharmacy, Khasbag, Belgaum.

Preparation of *Yashtimadhu Ghrita*:

Ingredients: *Madhuka (Glycyrrhiza glabra Linn) and Ghrita* (Clarified Butter) in equal quantity.

Method of Preparation: [1]

Dry form of *Madhuka* was taken and was powdered in a pulverizer (Clit Mill – 7.5 HP Motor) and sieved with 120 no. mesh. As mentioned in the *Samhita*, *Yashtimadhu Ghrita* was prepared by taking 5gm of luke warm *Ghrita* and 5gm of *Yashtimadhu* powder in a sterile bowl and mixed well instantly.

Physico chemical evaluation: [4]

Yashtimadhu Ghrita was subjected to various analytical parameters like – Organoleptic parameters: *Rupa* (colour), *Rasa* (Taste), *Gandha* (odour), *Sparsha* (Touch),

Physico-chemical parameters like Ash value, Acid insoluble ash, Water soluble extractive, Alcohol soluble extractive.

Microbiological Analysis of *Yashtimadhu Ghrita*[5]

Microbial limit test which is the very basic microbiological analysis that ensures safety of the formulation was carried out in the microbiology lab of K.L.E.s Shri B.M.K. Ayurveda Mahavidyalaya, Belgaum.

Microbial Limit Test: [6]

90 ml Soybean Casein Digest Media was prepared. 10gms of sample was added into 90 ml Soybean Casein Digest Media in the sterile safety cabinet. The sample was mixed homogenously and incubated at 37^0C for 24 hrs. After 24 hrs of incubation, tests for specific microorganisms such as *Escherichia coli, Salmonella abony, Staphylococcus aureus, and Pseudomonas aeruginosa* were conducted.

RESULTS

The comparative organoleptic characters of *Yashtimadhu Ghrita* are summarized in the Table no.1 .The results of physico-chemical analysis are displayed in the Table no.2. Qualitative analysis of organic substance both in aqueous and alcoholic extract has been given in Table no.3 and inorganic elements given in Table no.4. Results of microbiological analysis are tabulated in Table no.5.

DISCUSSION and CONCLUSION

In the Organoleptic analysis, the colour of *Yashtimadhu Ghrita* was Yellowish with sweet taste and characteristic odour. As the powder was sieved through 120 no. sieve the fineness of the powder was appreciated. In the physico-chemical study, total ash value was within limits which suggested that powder was properly prepared. Qualitative analysis of organic elements showed the presence of carbohydrates, reducing sugar, saponin glycosides, steroid, tannins, & flavonoids in both the samples of aqueous and alcoholic extract. Qualitative analysis of inorganic element showed the presence of iron, sodium, potassium, sulphate & chlorides in the combination.

It is the burning need of the hour to ensure the quality control of the Ayurvedic formulation by applying suitable parameters and standards. The value of the total ash indicated that the inorganic content of the formulation was below the limits. Similarly, the acid insoluble ash clearly suggested that the presence of silica was negligible. The moisture content of *Yashtimadhu* powder was also within acceptable range. Water soluble extractive value indicates that water is not a better solvent of extraction for the formulation. The Iodine value of the *Yashtimadhu Ghrita* was slightly higher than *go-ghrita*. This suggests that *Yashtimadhu Ghrita* has higher number of unsaturated bonds in the fat therefore it doesn't produce any adverse effect on the blood lipids. Acid value of *Yashtimadhu Ghrita* was slightly lower than *go-ghrita*. This suggests that *Yashtimadhu Ghrita* has long shelf life. The presence of potassium suggests that Glycyrrhizin is in the form of potassium salt of hydroxy acid. With this, it can be

concluded that the values of the analytical parameters can be used for the quality assessment and standardization of *Yashtimadhu Ghrita*.

Limitation of the Study:

Due to some reason, Saponification value and Refractive index of *Yashtimadhu Ghrita* were not done. These values would have made the topic more clear and standard for the analytical parameters.

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Table1. Organoleptic characters of *Yashtimadhu Ghrita*

Rupa (Colour)	Yellowish
Rasa (Taste)	Sweet
Gandha (Odour)	Characteristic
Sparsha (Texture)	Oily

Table.2. Physico-chemical analysis of *Yashtimadhu Ghrita*

Tests	***Goghrita***	***Yashtimadhu Ghrita***
Iodine Value	28.0%	32.9%
Total Ash value	-	3.6%
Water Soluble Ash	-	3.2%
Acid insoluble Ash	-	0.4%
Acid value	3.0%	2.24%
Water soluble extractive	-	21.6%
Alcohol soluble extractive	-	40.00%

Table 3: Qualitative analysis of inorganic elements in *Yashtimadhu Ghrita*

Test for	**Result**
Calcium	-
Magnesium	-
Iron	+
Sodium	+
Potassium	+
Sulphate	+
Chlorides	+
Nitrates	-
Calcium	-
Magnesium	-

+ Present, - Absent

Table 4: Qualitative analysis of organic substances in *Yashtimadhu Ghrita*

Test For	Result	
	Aq. Extract	Alc. Extract
Carbohydrates	+	+
Reducing sugars	+	+
Monosaccharide	-	-
Pentose sugars	-	-
Proteins	-	-
Amino acids	-	-
Pentose Sugars	-	-
Steroid	+	-
Hexose Sugar	-	-
Cardiac glycosides	-	-
Saponin glycosides	+	-
Flavonoids	+	+
Anthroquinone glycosides	-	-
Tannins	+	+

+ Present, - Absent, Aq – Aqueous, Alc – Alcoholic

Table 5: Microbiological Analysis of *Yashtimadhu Ghrita*

Microorganisms	Limits (As per IP)	Results
E. coli	Absent	Absent
S. aureus	Absent	Absent
P. aeruginose	Absent	Absent
S. abony	Absent	Absent