

FORMULATION AND EVALUATION OF MOISTURIZING CREAM USING A SHATA DHAUTA GHRITA AS A BASE

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ABSTRACT

Shata Dhauta Ghrita is a traditional Ayurvedic preparation known for its unique cleansing and moisturizing properties. Derived from Sanskrit, "Shata" means hundred, "Dhauta" means washed or cleansed, and "Ghrita" refers to ghee, clarified butter. Essentially, Shata Dhauta Ghrita translates to "ghee washed one hundred times." In its preparation, high-quality cow's milk butter is typically used. The process involves washing the butter repeatedly with water until the final product is free from impurities, milk solids, and lactose, leaving behind pure, clarified butter. This repeated washing is believed to enhance the purity and therapeutic properties of the ghee. The significance of washing the ghee one hundred times lies in the belief that it removes any remaining traces of impurities, making it exceptionally pure and suitable for various therapeutic applications in Ayurveda. Each washing cycle involves melting the butter, mixing it with water, and then allowing it to settle before separating the ghee from the water. This process is repeated meticulously to ensure thorough cleansing.

KEYWORDS: *Moisturizing cream, Shat Ghrita Dhrita, Ayurveda, Formulation, Evaluation*

INTRODUCTION:-

The pursuit of skincare products that are effective, safe, and derived from natural sources has led to a resurgence of interest in traditional herbal formulations, particularly within the realm of Ayurveda. Shat Ghrita Dhrita, a medicated ghee formulation in Ayurveda, is renowned for its moisturizing and nourishing properties. Its therapeutic benefits stem from a combination of herbs processed with ghee, offering a holistic approach to skincare. ^(1,2)

Moisturizing creams are pivotal in skincare routines, serving to replenish the skin's natural moisture barrier, prevent dryness, and enhance overall skin health. However, the prevalence of synthetic ingredients in conventional moisturizers has raised concerns regarding their long-term effects on skin health and the environment. Therefore, there is a growing interest in exploring natural alternatives, such as Ayurvedic formulations, for skincare needs. ^(3,4)

This research aims to formulate a moisturizing cream utilizing Shat Ghrita Dhrita as a base and evaluate its physicochemical properties, stability, and efficacy. By harnessing the inherent benefits of Ayurvedic ingredients, this study seeks to offer a natural and sustainable solution for skincare. ^(4,5)

Shata Dhauta Ghrita, also known as "100 times washed ghee," is a revered preparation in Ayurveda renowned for its purity and therapeutic benefits. It begins with the clarification of cow's milk to produce ghee, which is then subjected to a rigorous washing process with water. This process, repeated up to a hundred times or more, removes impurities and water-soluble components, resulting in a highly purified and potent form of ghee. ^(6,7)



Fig.1 SHATA – DHAUTA-GHRITA

Chemical Constituents:-

Ghee is a complex lipid composed of carbonyls, hydrocarbons, carotenoids, phospholipids, sterols, sterol esters, fat-soluble vitamins, and glycerides (mostly triglycerides) free fatty acids such as oleic, linoleic, linolenic, Lauric, myrestic, palmetic, and stearic acid. ⁽⁸⁾



Fig 2. Chemical Constituent of Ghee

Material

EXPERIMENTAL WORK –

1. Raw material collection

Table no -1- Raw Material

Raw Materials	Uses
ShataDhautaGhrita	Natural Base, Healing of skin

Bees wax	Moisturizer
Starch	Thickening Agent
Aloe vera	Moisturizer, Hydrating Agent
Coconut oil	Opacifying agent
Citric acid	Antioxidant
Acetone	Perservative
Rose water	Perfume
Turmeric	Anticeptic

METHOD OF PREPARATION

Steps carried out in preparation of moisturizing cream were as follows

Preparation of ShataDhautaGhrita as a base :

It is made by placing 100 grams of washed (cow ghee) oil in a mixing bowl and mixing it with filtered water. After 100 washes, pouring water after every ten washes; and it needs to be washed 100 times. Usually these steps are repeated 100 times, the oil smell will disappear. Store in an airtight glass in the refrigerator overnight. This will set the moisturizer and dilute any remaining water in the oil. Ghee can easily last for three months if stored in the refrigerator

Preparation of oil phase:

ShataDhautaGhrita prepared in step -1, bees wax , Aloe vera gel, Coconut oil were taken into one porcelain dish and this mixture was melted at 75°C.

Preparation of aqueous phase:

Starch, Citric acid, Acetone, Rose water was taken into another porcelain dish and heated at 75°C.

Addition of aqueous phase to oil phase:

The aqueous phase was added into the oil phase with continues stirring at 75 °c. Now once the transfer was completed it was allowto cool at room temperature, all the while being stirred. perfume was added at last just before the finished product was transfer to suitable container. Then moisturizing cream was evaluated for various physical parameters.

Formula-

Table no.2:-Ingredients with their prescribed quantity in the formulation of Moisturizing Cream

Sr no.	Ingredient	F1%	F2%	F3%
1.	ShataDhautaGhrita	2 gm	2.5 gm	3 gm
2	Bees Wax	0.7 gm	0.4 gm	1 gm

3	Starch	1.1 gm	1.4gm	0.5 gm
4	Aloe Vera gel	1.4 gm	2 gm	1.5 gm
5	Coconut oil	1.1 gm	0 gm	0 gm
6	Citric acid	0.2 gm	0.1 gm	0.3 gm
7	Acetone	0.2 gm	0.1 gm	0.2 gm
8	Rose Water	q.s	q.s	q.s
9	Turmeric	0.4 gm	0.5 gm	0.3 gm

EVALUATION TEST

The formulated moisturizing cream was evaluated on the various parameters such as follows 3.

1. Physical evaluation:

- colour
- odour
- texture

1. pH (Cream)

The pH meter was calibrated using standard buffer solution. About 0.5 g of the cream was weighed and dissolved in 50.0 ml of distilled water and its pH was measured.

2. Viscosity

Viscosity of the formulation was determined by Brookfield Viscometer at 100 rpm, using spindle no 4.

3. Homogeneity

The formulations were tested for the homogeneity by visual appearance and by touch.

4. Removal

The ease of removal of the cream applied was examined by washing the applied part with tap water.

5. Irritancy test

Place the field on the left side facing up. The oil was used in the designated area and the time was recorded. Irritation, erythema, and edema were assessed at normal intervals for up to 24 hours and reported thereafter.

6. Stability testing

Acceleration of the rapid test was performed at room temperature and ran for 7 days. The formula was then studied at $40^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for 30 days, the products were stored at both room temperature and above and observed for all evaluation parameters on day 1, day 15 and day 30.

7. Spreadability test:

The sample was placed between two glass plates and reduced to a uniform thickness by applying a weight of 100 g for 5 min. The weight was added to the pan. The time it took to separate the two layers, that is, the time the top slide moved over the bottom slide, was taken as a measure of spread.

$$\text{Spreadability} = m \cdot l / t$$

m = Weight tide to upper slide

l = length moved on the glass slide

t = time taken.

8. Microbial growth test

The prepared oil was spread on a plate with Muller Hinton medium using the plate method and a control was prepared by oiling. The plates were placed in the incubator and kept at 37°C for 24 hours. After the extraction period, the plates were removed and microbial growth compared to the control was observed.

9. Bleeding test

Bleeding tests are mostly performed on semisolid preparations. In this, the formula is kept in the refrigerator for 10 minutes and after 10 minutes, this formula is removed from the refrigerator and kept at room temperature for 10 minutes. In this test we can check whether the formula is extracted from water or not. After testing we concluded that the formula is either stable or unstable under atmospheric conditions.

10. Sensitivity Test

Simple tests are popular and easy to test. The general method of this test is to measure and apply approximately 0.1-0.3 grams of the prepared herbal cream to the edge of the fiber (2-3 cm thick). skin of the hand. , object or background. And close the lids. Use multiple units simultaneously. Some of these ingredients should be similar to commercially available cosmetics and other products known to damage the skin. Other things seem to prevail. This patch can stay on the skin for 24-72 hours. If no reaction occurs, the same patch can be replaced in the same place or a new patch made of the same material can be made and used. This may continue until a response occurs among one or more individuals or until the experimenter is confident that no response will occur. Tested by patch testing; if there is no burning or the sores are not considered sensitizing, apply the product to the same area of skin.

RESULT & DISCUSSION:

Physical evaluation:

The physical properties and formulated cream were judged by its colour, odour and appearance

Table no.3:- Physical properties of Moisturizing Cream

Test	F1	F2	F3
Colour	Brownish white	Brownish white	Brownish white
Odour	Characteristics	Characteristics	Characteristics
Appearance	Semi- solid	Semi- solid	Semi- solid

Table no.4:- pH of cream

Sr.no	Formulation	PH
1	F1	5.4
2	F2	5.5
3	F3	5.6

The pH of prepared cream was found to be near approximately 5.5 which was compatible with skin pH (4.5 - 6). Therefore prepared formulation suitable for topical application and cannot produce any side effect on topical application

Table no.5:- Irritation Test

Test	F1	F2	F3
Irritation test	No irritation	No irritation	No irritation

Topical applications of formulated cream on left hand dorsal surface for specific time period (24 hour) do not produce any irritation, edema, and any skin problem

Table no.6:- Sensitivity Test

Test	F1	F2	F3
Sensitivity test	Nil	Nil	Nil

For sensitivity testing patch test was used. several patches were applied at one time in different areas of skin and allow to remain on the skin for 24-72 hours and no any sensitivity reaction was observed (e.g: inflammation or rashes)

Table no.7:- Bleeding Test

Formulation	Freezing (10 min)	Room temperature (10 min)
F1	-	-
F2	-	-
F3	-	-

For F1, F2, F3 formulation bleeding test carried out at different climatic conditions for 10 min and it was observed that all formulations stable at different climatic conditions

Table no.7:- Stability Test (F1)

Day / test	0th day	15th day	30th day
Physical appearance	Semi solid	Semi solid	Semi solid
Texture	Ok	Ok	Ok
Colour	Brownish white	Brownish white	Brownish white
Odour	Characteristic	Characteristic	Characteristic
pH value	5.4	5.5	5.6
Thermal stability	Ok	Ok	Ok
Degradation of product	Nil	Nil	Nil

Table no.8:- Stability Test (F2)

Day / Test	0th day	15th day	30th day
Physical appearance	Semi solid	Semi solid	Semi solid
Texture	Ok	Ok	Ok
Colour	Brownish white	Brownish white	Brownish white
Odour	Characteristic	Characteristic	Characteristic
pH value	5.4	5.5	5.6
Thermal stability	Ok	Ok	Ok
Degradation of product	Nil	Nil	Nil

Table no.9:- Stability Test (F3)

Day / Test	0th day	15th day	30th day
Physical appearance	Semi solid	Semi solid	Semi solid
Texture	Ok	Ok	Ok
Colour	Brownish white	Brownish white	Brownish white
Odour	Characteristic	Characteristic	Characteristic
pH value	5.5	5.6	6
Thermal stability	Ok	Ok	Ok
Degradation of product	Nil	Nil	Nil

Stability testing of prepared formulation was carried out for 30 day period and F1, F2, F3 formulation are stable and does not produce any changes during stability testing therefore these formulation are safe for topical application.

Table no.10:- Removal Test

Test	F1	F2	F3
Removal test	Easily remove	Easily remove	Easily remove

Dorsal surface of skin was selected for application of formulation and it washed out under tap water. Applied formulation was easily removed.

Table no.11:- Viscosity

Test	F1	F2	F3
Viscosity	28001-27025 cps	27150- 26985 cps	27300-26935 cps

The viscosity of cream was in the range of 28001 – 26935 cps which indicates that the cream is easily spreadable by small amounts of shear. The formulation shows viscosity within the range.

Table no.12:- Homogeneity

Test	F1	F2	F3
Homogeneity	Good	Good	Good

The formulation was tested for the homogeneity by visual appearance and by touch. Appearance and touch was good.

Table no.13:- Spreadability test

Test	F1	F2	F3
Spreadability	Good	Good	Good

The Spreadability test showed that formulation has good spreadable property

CONCLUSION:

The use of cosmetic has been increased in many folds in personal care system. The use of bioactive ingredients in cosmetic influence biological functions of skin and provide nutrients necessary for the healthy skin. Thus it is concluded that the prepared formulation showed good spreadability, no evidence of phase separation and good consistency during the study period. The stability parameters like visual appearance, nature, and fragrance of the formulations showed that there was no significant variation during the study period. From the above study it can be concluded that it is possible to develop creams by using ShataDhautaGhrita. The results of different tests of cream showed that the formation could be used topically in order to protect skin against damage and moisturize it.

The formulation and evaluation of a moisturizing cream using ShataGhritaDhrita as a base demonstrate promising results in terms of physicochemical properties, stability, and efficacy. The utilization of Ayurvedic ingredients offers a natural and holistic approach to skincare, addressing concerns related to synthetic additives and environmental sustainability. Further research and clinical studies are warranted to explore the long-term benefits and potential applications of Ayurvedic formulations in skincare.

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