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FORMULATION OF SHATA DHAUTA GHRITA AS A BASE IN MOISTURIZING CREAM

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ABSTRACT

Traditional system of medicine, evolved over the ages, had been completely looking after the healthcare of the world until the advent of allopathic system of medicine. Formulating a moisturizer using Shata-Dhouta-Ghrita as a base and all natural or synthetic materials is a dreadful task. The purpose of the current work is the formulation of moisturizer by using Shata- Dhouta- Ghrita as a base and their evaluation. Shata- Dhouta- Ghrita (SDG) is an ayurvedic preparation, which is prescribed for treatment of wounds, burns, chicken pox, scars, herpes, leprosy and other skin diseases and as a vehicle for drugs to be applied externally. The formulations were subjected to various evaluation tests like determination of pH, Spreadability, homogeneity, consistency, irritancy test, sensitivity test, bleeding test, removal test, and stability studies. All the Results of evaluating parameters showed that Lab made formulation is comparatively equal and rarely better in terms of results than marketed formulation. Hence the selected lab made formulation was found to be of good quality. Different types of formulations water in oil (W/O) cream namely F1 to F3 were formulated by incorporating different concentrations of ingredients. The evaluations of all formulations (F1 to F3) were done on different parameters and stability was examined. These formulations are safe to use for skin. These studies suggest that composition of ShataDhoutaGhrita as a base in moisturizing cream of F1 are more stable and safe, it may produce synergistic action.

Keywords: Shata Dhauta Ghrita, Formulation, Moisturizer, Synergistic.

INTRODUCTION

Ayurveda system of medicine, evolved over the ages, had been completely looking after the healthcare of the world. Ayurveda system of medicine to healthcare is enormous. Acharyacharaka clearly states the indications for ghee. It promotes memory, intelligence, agni (factor responsible for digestion, metabolism, and biotransformation), semen, ojas (bio- essence of life), kapha(one of the three bio- energies mainly responsible for cohesiveness) and medas (adipose tissue). It alleviates vata (one of the three bio-energies mainly responsible for heat), poison, insanity,phthisis,inauspiciousness and fever. several modern cream bases are available for preparation of topical formulations[1]. Their constituents like beeswax, stearic acid, liquid paraffin are characterized by their inertness, as they do not have any therapeutic activity. However, an Ayurveda base like cow ghee is reported to possess various properties.

The appearance and function of the skin are maintained by an important balance between the water content of the stratum corneum and skin surface lipids. The skin represents the most superficial layer of the body and so it is constantly exposed to different environmental stimuli. Exposure to external factors as well as endogenous factors may disrupt this balance. In addition, frequent use of soaps, detergents and topical irritants such as alcohol and hot water can remove the skin surface lipids. Disruption of skin barrier led to various type of skin problems most common condition is loss of water content which lead to dryness of skin such as roughness, scaling, cracks, redness and an uncomfortable feeling of tightness, sometimes with itching and stinging[2]. Numbers of moisturizers are available under the label of natural, safe, organic, herbal, while the basic properties of humectancy,occlusivity and emolliency are consistent across all moisturizers. Most of the available moisturizers use synthetic adhesives, emulsifiers, perfuming agents, pigments, surfactants and thickeners to form the base. There is extensive need to replace toxic synthetic agent from base using natural agents[8]. Our endeavor has been to formulate moisturizing cream with bare use of synthetic ingredients and to evaluate its efficacy and safety parameters as compare to available commercial moisturizer.

Figure No:-1- SHATA- DHAUTA- GHRITA

Chemical Constituents-

Ghee is a complex lipid of glycerides (majorly triglycerides), phospholipids, sterols, sterol esters, fat soluble vitamins, carbonyls, hydrocarbons, carotenoids. Free fatty acids like butyric,caproic, caprylic,capric, Lauric, myrestic,palmetic,stearic, oleic,linoleic, linolenic acid.

MATERIALS AND METHODS

EXPERIMENTAL WORK -

1. Raw material collection

Table no -1- Raw Material

Raw materials	Uses
ShataDhautaGhrita	Natural Base, healing of skin, astringent.
Bees wax	Thickener, moisturizer.
Sodium phosphate	Emulsifier,thickening agents,leavening agents.
Aloe Vera	Humectant, moisturizer, hydrating agent.
Ceto-stearyl alcohol	Emollient,emulsion stabilizer, opacifying agent, and foam boosting surfactant.
Ascorbic acid	Antioxidant,wounds healing.
Benzoic acid	Preservative,skin irritation and inflammation caused by burns, insect bites, fungal infections, or eczema.
Peppermint water	Flavouring agent, perfume.

2. METHOD OF PREPARATION

Steps carried out in preparation of moisturizing cream were as follows

2.1.Preparation of ShataDhautaGhrita as a base :

100 gm washed ghee(cow ghee) is made by placing ghee in a mixing bowl and then mixing it with cool filtered water. It is then washed 100 times, with the water poured away after each cycle of ten washes; and it is actually washed 100 times. Traditionally, these steps are repeated 100 times, the smell of the ghee goes away. Store in an airtight mason jar in the refrigerator overnight. This will firmly set moisturizer and will also

dry off any residual water still remaining in the ghee. The ghee can easily last for about three months if it is stored in the refrigerator.

Figure No:- 2 ShataDhautaGhrita as a Base

2.2.Preparation of oil phase:

ShataDhautaGhrita prepared in step -1, bees wax , Aloe vera gel, ceto-stearyl alcohol were taken into one porcelain dish and this mixture was melted at 75°c.

Preparation of aqueous phase:

Sodium phosphate, ascorbic acid, Benzoic acid, peppermint 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	Ingredients	F1%	F2%	F3%
1	ShataDhautaGhrita	3 gm	3.5 gm	4 gm
2	Bees wax	0.9 gm	0.5 gm	1.2gm
3	Sodium phosphate	1.5 gm	1.5 gm	1 gm
4	Aloe Vera gel	2.4 gm	3 gm	2.5 gm
5	Ceto-stearyl alcohol	1.2 gm	1 gm	0.5 gm
6	Ascorbic acid	0.3 gm	0.2 gm	0.4 gm
7	Benzoic acid	0.3 gm	0.2 gm	0.3 gm
8	Peppermint water	q.s	q.s	q.s

3. EVALUATION TEST:

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

3.1.Physical evaluation:

- colour
- odour
- texture

1.pH of the 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

Mark area on the left hand dorsal surface. The cream was applied to the specified area and time was noted. Irritancy, erythema, edema, was checked if any for regular intervals up to 24 hrs and reported.

6. Stability testing

Accelerated stability testing of prepared formulation was conducted at room temperature, studied for 7 days. And then the formulation studied at 40ºC ± 1ºC for 30 days. The formulations was kept both at room and elevated temperature and observed on initial day, 15th day and 30th day for the all Evaluation parameters**.**

7. Spreadability test:

Sample was applied between two glass slides and was compressed to uniform thickness by placing 100gm weight for 5minutes. Weight was added to the pan. The time required to separate the two slides, i.e. the time in which the upper glass slide moved over the lower slide was taken as measure of spreadability.

Spreadability =m*l/t

m = Weight tide to upper slide

l = length moved on the glass slide

t = time taken.

8. Microbial growth test

The formulated cream was inoculated on the plates of Muller Hinton agar media by streak plate method and a control was prepared by omitting the cream. The plates were placed in to the incubator and are incubated at 37ºC for 24 hours. After the incubation period, plates were taken out and check the microbial growth by comparing it with the control.

9. Bleeding test

Bleeding test is mainly carried out for semisolid preparation. In these the formulation are place in fridge for up to the 10 min after 10 min these formulation remove from fridge and place at room temperature for 10 min. Then observe the formulation. In this test we can check the formulation is omit out the liquid or not, after testing we conclude that formulation is stable or not stable for climatic condition.

10. Sensitivity Test

Sensitivity test is also known as diagnosis patch test general procedure for this patch test is-place about 0.1-0.3gm of prepared herbal cream can be tested on piece of cotton fiber (2-3cm in size) and apply this to the skin of arms, things or back. And cover the patch. Apply several patch at one time. Out of this several patches some of them should be similar cosmetics of other brand available in market and known not to cause any harm to the skin. Other similar factor act as a control. This patch allow to remaining on the skin for 24-72 hours. If there are no reactions, the same patch may be reapplied to the same place or a fresh patch of the same material may be made and applied. This may be continued till- either a reaction is produced under the one or more patches or – investigator is confirmed that no reaction will occur. It is tested by patch test apply product on one patch of skin, if there is no inflammation or rashes is considered as free from sensitivity.

4. RESULT & DISCUSSION:

4.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	5.5
2	F2	5.6
3	F3	5.8

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	5.5	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	5.6	5.6	5.7
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	5.8	5.8	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.

Microbial growth test

There were no signs of microbial growth after incubation period of 24 hours at 37ºC and it was comparable with the control.

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.

REFERENCES:

1. R.N shah, B.M Methal, A handbook of cosmetics

2. Marvins S. Balsam, Edward Sagarin, " Cosmetics Science and Technology"

3. Raymond C. Rowe, Paul J, Sheskey, and Marinan E, Quinn, " Pharmaceutical Excipients"

4. Akash Mali, Karekar P.D r &YadavA.V.Formulation& Evaluation of Multipurpose Herbal cream. Internation journal Science & Research (IJSR)

5. N.R.patil, H.U.momine, R.L.mohiot. “prearation and evaluation of Multipurpose Herbal cream”

6. P.P. Sharma A, Text Book of Cosmetic page no (635-689)

7. ShatdhautaGhrita - A Evaluation Study in Pediatrics

8. Comparison of Physical Characteristics of Vanishing Cream Base, Cow Ghee and Shata-Dhauta-Ghrita as per Pharmacopoeial Standards Ravindra r.p. and Pata muslim k.

9. A Critical Review on GO-Ghrita, Shata Dhouta Ghrita And Sahasra Dhouta Ghrita Ashok Kumar B.N., Shiv Om Dixit, Sanjaykumar B. Patel Scholar, Department Of Rasashastra and BhaishajyaKalpana, SDM College of Ayurveda, Udupi

10. The Role of Moisturizers in Addressing Various Kinds of Dermatitis: A Review SchandraPurnamawati, MD, NikenIndrastuti, Dr, [...], and TatanSaefudin, MD

11. KottaKranthikumar, K.Sasikanth, M.sabareesh, N.Dorababu, "Formulation and evaluation of Diacerein Cream", volume 4, Issue 2, 2011.

12. V.V. Paithankar, "formulation and evaluation of herbal cosmetic preparation using safedmusli", volume 2, Issue, 2010.

13. FabrizioSpada, Tanya M Barnes, and Kerryn A Greive "Skin hydration is significantly increased by a cream formulated to mimic the skin's own natural moisturizing systems"

14. Ankush Sharma, Bharat prasar, "Formulation and evaluation of herbal cosmetic cream to produce multi-purpose effect on skin" Issue 2013.

15. Mirela Moldovan, AbirLahmar, Catalina Bogdan, SimonaParauan, "formulation and evaluation of water in oil cream containing Herbal active ingredients and ferulic acid".

16. Sujith S Nair, Molly Mathew and Sreena K, "Formulation and evaluation of herbal cream containing Curcuma Longa", Volume 1(4) Oct- Dec 2012.

17. Beneficial use of Cetaphil® Moisturizing Cream as part of a daily skin care regimen for individuals with rosacea,SabineLaquieze, JanuszCzernielewski&EszterBaltas Pages 158-162 | Received 26 Oct 2006, Accepted 29 Oct 2006, Published online: 12 Jul 2009.

18. "Effect of moisturizers on epidermal barrier function" Marie Lodén, MSc Pharmlowasterisk,correspondenceEmail the author MSc Pharm Marie Lodén, Eviderm Institute AB, BergshamraAllé 9, SE-170 77 Solna, Sweden

19. Performance and Tolerability of the Moisturizers Cetaphil® and Excipial® in Atopic Dermatitis: What is the Evidence Based on Randomized Trials Authors Esther J. van ZuurenEmailauthorZbysFedorowiczBernd W. M. Arents

20. Jaya Gade, Snehal more, NavinBhalerao "Formulation and Characterization of Herbal cream containing Fenugreek seed extracts"International journal of Scientific and Research Publications, volume 5, Issue 10, October 2015. ISSN 2250-3153.

21. SupriyaDeshpande, Avinashdeshpande, Suresh tupkari&AnoopAgnihotri" Shata – Dhauta – Ghrita – A case study" Indian Journal of Traditional Knowledge Vol.8(3), July 2009, pp.387-391

22. Mirela Moldovan, LorelaiCiortea" Efficacy Evaluation of Different Cream Formulations on Healthy Skin Properties" FARMACIA, 2010, Vol.58,6

23. KapoorShweta, SarafSwarnlata "Formulation and Evaluation of Moisturizer Containing Herbal Extracts for the Management of Dry Skin" August 2010, Vol 2, Issue 11

24. Fuad Al-Rimawl, HibaJaraiseh "Formulation and Evaluation of a Moisturizing Day Cream Containing Olive Leaves Extract" International Journal of Development Research , October 2014