



Formulation and Evaluation of Herbal Stretch Marks Reduction Cream by Using Shata Dhauta Ghrit as an API

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Abstract

Background: You know those annoying lines on the skin when you've gained or lost weight too quickly? Yeah, those are stretch marks. This study is all about making a cream using Shata Dhauta Ghrit, a fancy Ayurvedic thing, to see if it can actually help get rid of those marks.

Aim: The research endeavors to develop a safe and effective herbal solution for diminishing stretch marks, leveraging the potential of Shata Dhauta Ghrit. This formulation aims to offer a natural alternative to conventional treatments, addressing the need for holistic skincare options.

Material and Method: Shata Dhauta Ghrit was utilized as the active pharmaceutical ingredient (API) in the formulation of a herbal stretch marks reduction cream, alongside complementary base ingredients. The cream formulation was prepared using standardized procedures, incorporating Shata Dhauta Ghrit at optimized concentrations and blending it with other constituents to ensure efficacy and safety.

Result: The formulated herbal stretch marks reduction cream demonstrated promising results in reducing the appearance of stretch marks, suggesting its potential as a natural remedy for this common dermatological concern.

Conclusion: The utilization of Shata Dhauta Ghrit as an active pharmaceutical ingredient (API) in the formulation of the herbal stretch marks reduction cream proved to be effective in reducing the appearance of stretch marks. The results of this study support the feasibility and potential of this herbal formulation as a safe and natural remedy for managing stretch marks, providing a promising avenue for further research and development in the field of herbal skincare products.

Keywords: Herbal Stretch Marks reduction Cream; Stretch Marks; Shata Dhauta Ghrit and Pregnancy

Introduction

Topical products encompass various formulations such as ointments, lotions, gels, and creams, serving cosmetic, protective, or therapeutic purposes. Creams, particularly, are emulsions, typically unstable, consisting of oil and water phases dispersed within

each other, facilitating localized drug delivery to the skin or mucous membranes [1,2]. According to the Drugs and Cosmetics Act of 1940, any substance applied to the human body for cleansing, beautifying, or altering appearance falls under the category of cosmetics [3,4].

Ideal properties of topical drug delivery systems

Effective topical drug delivery systems should adhere well to the skin, ensure easy removal, and maintain intimate contact without leaving unwashable residues [5]. They must also be compatible with both the drug and other components, including permeation enhancers, while not adversely affecting normal skin function [6].

Advantages and disadvantages

Topical drug delivery offers advantages such as bypassing first-pass hepatic metabolism, ease of application, and improved patient compliance. However, it may lead to local irritation, and some products can be expensive. Additionally, drugs requiring high systemic levels cannot be administered topically, and individual variations in skin barrier function pose challenges [7].

History of cream

Early cosmetic practices date back to ancient civilizations like Egypt and India, with records dating to circa 2500 and 1550 B.C. Cosmetic concepts evolved in Europe, giving rise to the term “cosmetics” meaning hygiene and beauty care [8].

Classification of creams

Creams can be classified based on their function (cleansing or foundation), characteristic properties (cold or vanishing), or the type of emulsion they form (oil-in-water or water-in-oil) [9].

Anatomy of skin

The skin, comprising the epidermis, dermis, and subcutaneous tissue, acts as a primary protective barrier against environmental factors. Its functions include temperature regulation, protection against UV light, and immunological surveillance [10].

Skin diseases

Various skin diseases like acne, cellulitis, cold sores, vitiligo, and ringworm pose challenges. Acne, for instance, results from clogged hair follicles, while cellulitis is an inflammatory condition of the dermis and subcutaneous tissue. Cold sores are caused by the herpes simplex virus, while vitiligo results from the lack of melanin. Ringworm, a fungal infection, manifests as red, itchy patches on the skin [11].

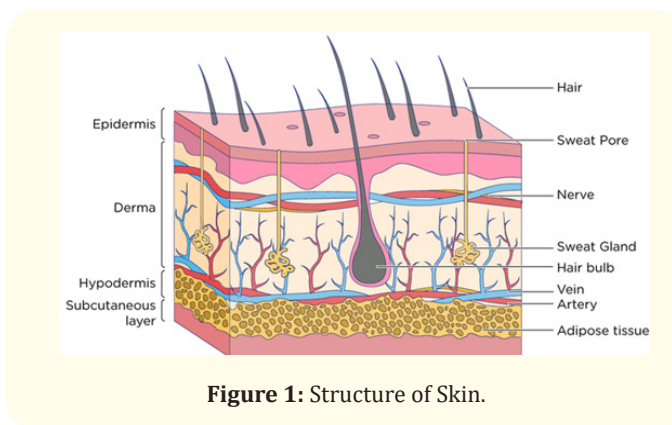


Figure 1: Structure of Skin.

Material

Active pharmaceutical ingredient

Shata dhauta ghrita (SDG)

“Shata Dhauta Ghrita,” an Ayurvedic formulation, derives its name from Sanskrit, where “Shata” signifies “hundred,” “Dhauta” translates to “washed,” and “Ghrita” refers to “Ghee.” This preparation, commonly recommended in Ayurveda, is utilized for treating wounds, burns, chickenpox, scars, herpes, leprosy, and various other skin ailments. It is meticulously prepared by subjecting clarified butterfat (obtained from cow ghee) to a thorough washing process repeated one hundred times with water. The application of Shata Dhauta Ghrita is known to stimulate the regeneration of new skin cells and alleviate sensations of burning. It has been observed to be particularly effective in reducing stretch marks, offering a natural solution for such skin concerns.

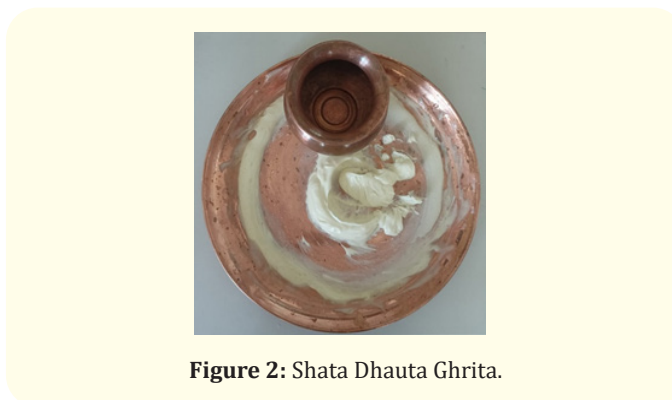


Figure 2: Shata Dhauta Ghrita.

Chemicals

Carbopol 940, Methyl paraben, Triethanolamine, Propylene Glycol, Rose Water and Sodium Lauryl Sulphate was collected from the chemical store room of Lucknow Model College of Pharmacy, Lucknow.

Cetyl alcohol

Cetyl alcohol, typically found in the form of a waxy white powder or flakes at room temperature, exhibits insolubility in water but solubility in alcohols and oils. Widely utilized in cosmetic formulations and food products, cetyl alcohol serves multiple purposes. In personal care items such as skin lotions and creams, it acts as a thickening agent and emulsifier, aiding in preventing the separation of ingredients within the product. Moreover, it is employed to alleviate dryness, roughness, scaliness, itchiness, and minor skin irritations.

Application: Emulsifier.

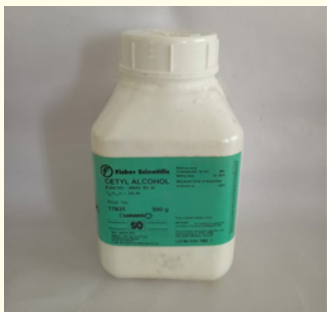


Figure 3: Cetyl Alcohol

Bees wax

A beeswax-based emulsion, serving as a thickening agent and emulsifier, was presented to us, addressing several skin-related concerns. This formulation offers moisturizing properties, aids in clearing acne, promotes healing of dry skin, reduces the appearance of stretch marks, and exhibits anti-inflammatory effects. Additionally, beeswax may contribute to lowering cholesterol levels, preventing infections, and protecting the stomach from ulcers induced by non-steroidal anti-inflammatory drugs (NSAIDs).

Application: Protective barrier across the skin.



Figure 4: Bees wax.

Almond oil

Derived from *Prunus dulcis*, these substances, renowned for their myriad benefits for skin and hair health, provide support for conditions such as acne, eczema, and dermatitis. Rich in oleic and linoleic acids, along with vitamin B and zinc, they offer nourishment to the skin, aiding in its overall health and vitality. Additionally, they serve as antioxidants, anti-inflammatory agents, immune boosters, and possess antibacterial, antifungal, and moisturizing properties, making them versatile and valuable components in skincare and haircare formulations.

Application: Anti-oxidants.



Figure 5: Almond oil.

Liquid paraffin

Liquid Paraffin, a prescribed medication, is utilized to address dry skin issues. It alleviates conditions like eczema, ichthyosis, and elderly pruritus by preventing water loss from the skin's outer layer. This mechanism effectively combats dryness, resulting in softer and well-hydrated skin.

Application: Preservative.

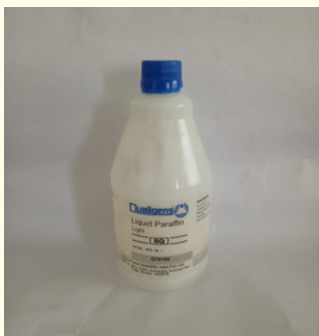


Figure 6: Liquid Paraffin.

Steric acid

Stearic acid, a saturated fatty acid present in both animal and plant fats, serves as a vital component in numerous products. It finds extensive application in the production of detergents, soaps, and cosmetics like shampoos and shaving creams. Additionally, stearic acid contributes to the hardness and texture of items such as soap bars, candles, and oil pastels.

Application: Nourishment.



Figure 7: Steiric acid.

Rose water

Rose water boasts potent antiseptic properties, effectively thwarting and treating infections. Its remarkable anti-inflammatory capabilities stand out as one of its most significant advantages. Acting as an antibacterial agent, rose water combats harmful bacteria, safeguarding against potential infections. Incorporating rose water into skincare routines for both face and body helps prevent infections in wounds like burns and cuts, while its high concentrations can aid in diminishing the visibility of scars.

Application: For mixing.



Figure 8: Rose Water.

Method

Formulations of Herbal Stretch Marks reduction cream was done in three steps, i.e. formulation of Shata Dhauta Ghrit, Formulation of Oily Phase and Formulation of Aqueous Phase.

Formulation of Shata Dhauta Ghrit

Firstly, Shata Dhauta Ghrita is prepared by washing clarified butterfat (cow ghee) one hundred times with distilled water.



Figure 9: Preparation of Shata Dhauta Ghrita.

Formation of oily phase

After the preparation of Shata Dhauta Ghrita all excipients (Cetyl alcohol, Liquid paraffin, Bees wax, Almond oil, Steiric acid) are added in it.



Figure 10: Mixing and Boiling of Oily Phase.

Formation of aqueous phase

Required quantity of Rose water was taken into measuring cylinder.



Figure 11: Rose water in measuring cylinder.

Mixing of oily and aqueous phase

Finally, herbal stretch marks reduction cream was prepared and transfer into the suitable container.

Evaluation parameter of herbal stretch marks reduction cream

Organoleptic evaluation

The cream formulation underwent evaluation for its physical attributes, encompassing appearance, color, fragrance, and texture consistency.

Irritancy test

A cream was administered on a 1 square centimeter area of the dorsal side of the left hand, and its effects were monitored at regular intervals over 24 hours for signs of irritancy, redness, and edema.

Determination of homogeneity

The formulations underwent homogeneity testing by assessing texture through touch and visual appearance.

Determination of pH

A precisely measured 1 gram sample was dispersed in 100 milliliters of water, and the suspension’s pH was adjusted at 27°C using a Benchtop pH meter.

Washability test

The topical product was tested by applying it to the hand and observing its behavior under running water.

Spreadability test

The assessment of spreadability involved measuring the time taken for two slides to separate when a cream sample was placed between them under a specific load. A shorter separation time indicates better spreadability. The procedure included using two sets of standard glass slides. A suitable amount of cream formulation was placed on one slide, and another slide was placed on top, creating a cream layer between them. A uniform load was applied to compress the cream into a thin layer. After removing the load, excess cream was removed from the slides. The upper slide was allowed to slide off freely under the force of gravity, and the time taken for separation was recorded. This method provided a quantitative measure of the cream’s spreadability.

$$\text{Spreadability} = \frac{m.l}{t}$$

where,

m = Standard weight which is tied to or placed over the upper slide.

l = Length of a glass slide

t = Time taken in seconds

Result

The Herbal Stretch Marks Reduction Cream was prepared and evaluated.

S. No.	Phase	Ingredients	Amount in gm, ml
1.	Oil Phase	Shata Dhauta Ghritha	6.75 gm
		Cetyl alcohol	1 gm
		Liquid paraffin	12.5 ml
		Almond oil	6.25 ml
		Steric acid	2.5 gm
2.	Aqueous Phase	Bees wax	3.75 gm
		Rose water	q.s

Table 1: Composition of Herbal Stretch Marks Reduction Cream.

The laboratory-formulated Herbal Stretch Marks Reduction Cream underwent thorough evaluation across multiple parameters including appearance, color, scent, consistency, pH, spreadability, washability, irritancy, and homogeneity. It satisfactorily met all required criteria, indicating its potential as an effective cosmetic formulation for reducing stretch marks and promoting skin health.

S. No.	Parameter	Formulation 1 [F1]	Formulation 2 [F2]
	Color	White	White
	Scent	Ghee	Ghee
	Consistency	Semi solid	Semi solid
	Ph	6	6
	Spreadability	10 g.cm/sec	10.23 g.cm/sec
	Washability	Hardly washable	Easily washable
	Irritability	Non irritant	Non irritant
	Homogeneity	Good	Very good

Table 2: Evaluation of Herbal Stretch Marks Reduction Cream.

Conclusion

The aim of formulating herbal stretch marks reduction cream was found to be successful with good results. Two formulation (F1 & F2) was prepared, followed by the evaluation. F2 formulation showing promising result as compare to F1. Better Spreadability was founded in F2. Also, It shows better result in the pH, Skin Irritation, Washability. In Organoleptic test, F2 has found to be much better formulation. Thus, F2 Can be used for the further studies. This study also suggests researchers and other cosmetic expert to formulate it on the large scale [12-30].

Conflict of Interest

None.

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