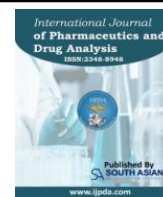




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OPTIMIZATION AND EVALUATION OF THE FORMULATION OF HERBAL INFUSED SHOWER GEL

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Abstract

The use of natural plant -based ingredients in cosmetic formulation including shower gel is a grooving trend driven by consumer demand for more sustainable, eco-friendly product. Cosmetic manufactures increasingly replacing synthetic ingredients with natural alternatives derived from plant sources & byproducts. The main aim of this products is to formulate a herbal shower gel using a combination of natural ingredients which results in not only being effective in anti- inflammatory but also in various benefits producing a more safer eco- friendly & sustainable products. The investigational studies was carried out in clinical trail phase in total on formulation of better herbal shower gel product which concentrates mainly on anti-inflammatory as well as anti-aging activity. The trail results accentuate the herbal shower gel products that shows – pH- 5.5, Surface tension- 40mN/m, Foam stability- 2 mins, Foam Volume - 3 ml, Dirt Dispersion- 1.2 index, Cleansing efficiency - 85%, While formulated in combination of mango butter, coconut oil, stearic acid, with sodium dodecyl sulphate & tragacanth, licorice & other herbal excipients. The test results emphasized that herbal shower gels formulated using in a combination of natural ingredients such as mango butter, coconut oil, licorice, tragacanth, & other herbal excipients can provide various benefits for skin, including cleaning smoothing & nourishing properties.

Keywords: Anti-inflammatory, anti-aging, clinical trials, soothing, nourishment, cleaning.

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INTRODUCTION

The usage of herbal products and the acceptance of a more natural lifestyle are becoming more popular these days across the entire world. For a healthy lifestyle, many prefer organic products, herbal remedies, and alternative treatments [1]. There is a huge demand for herbal cosmetics, and the use of herbal cosmetics in personal care products has increased. All of this resulted from the overuse of synthetic products, chemicals, dyes, and their derivatives during the last century; their manufacturing and use pose a threat to human health and have a number of negative side effects that have led to a wide range of illnesses. Additionally, it significantly contaminated the environment and damaged our ecosystem [2, 3]. Shower gel, also known as body wash, is a liquid cleanser designed for use during showers. Unlike traditional soaps,

shower gels utilize synthetic detergents and have a lower pH, making them less drying on the skin [4]. They consist mainly of water, surfactants, and various additives for fragrance and moisturizing properties. Shower gels can produce a rich lather, enhancing the cleansing experience while often being gentler than bar soaps [5]. They are available in various formulations to cater to different skin types and preferences, making them a popular choice for daily hygiene routines.

Herbal infused shower gels are a type of personal care product formulated using various herbal ingredients as the primary components. The aim of developing herbal infused shower gels is to create a pure, natural formulation with limited synthetic ingredients. The objective of the present study was to develop and evaluate effective, safe, and stable herbal infused shower gels that utilize natural ingredients, provide optimal cleansing and moisturizing properties, and promote skin health.

MATERIALS & METHODS

Materials: Mango Butter (*Mangifera indica* Linn. Family - Anacardiaceae), *Aloe vera* (*Aloe barbadensis* Family – Liliaceae), Lavender Oil, Cinnamon, Peppermint Oil, Liquorice, Tragacanth, Coconut Oil, Shikakai.

Table 1. Composition of the Herbal infused shower gels

S.No	Materials	Properties	Quantity
1.	Mango butter	Anti- inflammatory	7.5gms
2.	Liquorice	Anti-aging agent	1.5gms
3.	Extract of Aloe vera	Moisturizer	7.5gms
4.	Coconut oil	Emollient	3ml
5.	SDS (Sodium Dodecyl sulphate)	Foaming agent	12gms
6.	Shikakai	Foaming, cleaning agent	2 gms
7.	Distilled water	Vehicle	120ml
8.	Stearic acid	Emulsifier	2.25gms
9.	Lavender oil & peppermint blend	Perfuming agent	3:1ml
10.	Citric acid	PH adjuster	0.75gms
11.	Cinnamon	Antiseptic	1gm
12.	Glycerin	Humectant	1ml
13.	Tragacanth	Anti inflammatory	1.5gms
14.	Milk powder	Cleanser	2gms

Methods of formulating Herbal infused shower gels

Formulation 1

1.5 gm of SLS was taken in a mortar and pestle and 10 ml of Glycerin was added to it. It was triturated well until the SLS was dissolved well. 10gm of Stearic acid was taken and added into a mortar and pestle. 5 gm of Cocoa butter was added to it. 1 ml of Peppermint oil and 1 ml of rose oil was added for pleasant odour. Salt was added for the preservative purpose. A sufficient quantity of water was added to it and it is triturated well until the ingredients which was Added in the mortar and pestle get dissolved well [6, 7].

Formulation 2

Fresh Aloe vera gel was taken. 75 ml of Aloe vera gel was triturated until it has good consistency. 2.5 gm of SLS was added into the mortar and pestle. Then 10 gm of Stearic acid was added into the mortar and pestle 0.5 g of cinnamon was added. 5 gm of Cocoa butter was added into the mortar and pestle. Then it was triturated well 2 gm of milk powder was added 2 gm of Charcoal was added as a colouring agent. 2 ml of Rose oil was added for preservative purpose. A sufficient quantity of water was

added to it and it was triturated well until the Ingredients which were added in a mortar and pestle get dissolved well [8].

Formulation 3

Fresh Aloe vera gel was prepared. 25 ml of aloe vera gel was triturated until it has a good consistency. 3 gm of Shikakai powder used instead of SLS was added to mortar and pestle and Triturated well. 5 ml of Coconut oil was added into the mortar and pestle. 0.5 gm of cinnamon was added and 5 gm of Cocoa butter was added into mortar and pestle [9].

Formulation 4

Mix the SDS and water in a heat-resistant mixing bowl. Heat the mixture gently (around 40°C to 50°C) until the SDS is fully dissolved. In a separate bowl, mix together the mango butter, coconut oil, and stearic acid. Combine the oil phase with the surfactant blend, mixing well. Add the dissolved agar agar, KOH, and citric acid to the mixture, stirring well. Add the aloe vera gel and Shikakai powder to the mixture, stirring well. Adjust the pH of the mixture to around 5.5 using KOH or citric acid. Mix the formulation well and fill into bottles or containers [10].

RESULTS & DISCUSSION

Herbal infused shower gels can be formulated using a combination of natural ingredients such as mango butter, coconut oil, aloe vera, and herbal powders like shikakai. These ingredients can provide various benefits for the skin, including cleansing, soothing, and nourishing properties. The formulation process typically involves accurately weighing and mixing the ingredients, which may include sodium dodecyl sulfate (SDS) as a surfactant, tragacanth as a thickener, citric acid for pH adjustment, and stearic acid as an emulsifier. The herbal powders, such as shikakai, can be added to provide additional cleansing and conditioning benefited. The resulting shower gel should be smooth, homogeneous, and free of clumps. The formulation can also be evaluated for its user properties, such as lathering, skin feel, and overall effectiveness. Overall, the formulation of a herbal infused shower gel involves carefully selecting and combining natural ingredients to create a product that can provide a range of skin care benefits, while maintaining the desired physical and sensorial properties (Table 2).

Table 2. Results of the Herbal infused shower gels can be formulated using a combination of natural ingredients

No. of Runs/Trails	Acacia	Agar Agar	Tragacanth	Result
1	3	0	0	Slightly gel consistency but no foam, no lather. No skin

				irritation.
2	1.5	0	0	Slightly thick consistency with little lather, no foam. No skin irritation.
3	0	3	0	Slightly gel consistency but no foam and no lather. No skin irritation.
4	0	1	0	Slightly thick consistency with little lather, no foam. No skin irritation.
5	1	0	2	Thick consistency with little lather, no foam. No skin irritation.
6	0	1	2	Thick consistency with no foam and no lather. No skin irritation.
7	0	0	2	Gel consistency with slight lather and foam. No skin irritation.
8	0	0	1.5	Gel with better foam and lather. No skin irritation.

CONCLUSION

For the development of herbal infused shower gels and other sustainable cosmetic products are promising, as the industry continues to embrace more environmentally-friendly and natural-based formulations to cater to the evolving consumer preferences. The formulations were assessed based on various parameters including physical appearance, color, odor, consistency, pH of the formulation, viscosity, and spreadability. After evaluating the results at each stage, F8 was chosen as the optimal formulation. Based on the findings of this study, F8 was selected as the best shower gel formulation due to its excellent properties. It was concluded that this shower gel provides satisfactory cleansing and softening properties, offering a natural alternative to commercially available shower gel that contain higher levels of synthetic ingredients, which may potentially alter the skin's natural tone.

Looking ahead, further studies could explore the long-term effects of using this natural shower gel on various skin types and conditions. Additionally, the formulation can be enhanced by incorporating other natural ingredients to improve its effectiveness or sustainability. Future research might also investigate the environmental impact of the ingredients and packaging to ensure that this product aligns with eco-friendly practices. Future Aspects for this herbal infused shower gel: customization for different skin types, advanced ingredient integration, sustainability and Eco-friendly practices, Nanotechnology for Enhanced Absorption, Dermatological and clinical testing, global expansion and market research.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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