



“Formulation And Evaluation Of Herbal Body Lotion”

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Abstract

The beauty and wellness sectors are expanding rapidly in India due to growing affluence, improved lifestyle choices, and more awareness of preventive healthcare. Customers are increasingly looking for conventional medical and cosmetic goods made with natural ingredients that also have some level of medicinal action. Virgin coconut oil (VCO) is becoming more and more well-liked as a medicinal food supplement, nutraceutical, and cosmetic. Currently, using VCO for cosmetic formulation is a topic of intense research and commercial interest... A study was carried out at the Pilicode Regional Agricultural Research Station to develop a body lotion that included cocoa butter, bee wax, aloe vera, and fragrance elements in addition to virgin coconut oil as the base. Based on the findings of the sensory study, the optimal blend of body lotion that may be suggested for commercial manufacturing was determined to be composed of 76% virgin coconut oil, 12% aloe vera, 8% bee wax, 2% cocoa butter, and 2% rose oil. Keywords: body lotion, bee wax, virgin coconut oil, and sensory analysis.

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Introduction:-

India's health, beauty, and wellness sectors are expanding rapidly due to growing incomes and increased public knowledge of preventative healthcare and lifestyle choices. In the coming years, India's wellness sector is expected to surpass that of the United States and Europe in terms of growth, positioning it as the world's second largest consumer market. As per a research by KPMG, the Indian beauty and wellness business had a valuation of approximately Rs 80370 crore by the close of 2018. This sector has seen a compound annual growth rate of about 18.0 percent (Ramaswamy et al., 2018) [28]. To remedy the perceived shortage of Indian brands, numerous foreign cosmetic companies and their goods have been introduced in India in recent years. Such "cosmeceuticals" have huge promise because demand for them is growing quickly. For ages, people in tropical nations have efficiently utilised coconut oil as a traditional moisturiser. The finest type of coconut oil is virgin coconut oil, which has a naturally occurring coconut flavour and aroma. Virgin Coconut Oil (VCO) is made naturally, either with or without the use of heat, from the fresh, mature coconut kernel. Because VCO retains the majority of its essential components, it has a more advantageous effect on nutrition

than copra oil. It has a lot of antioxidants and vitamin E, and the medium chain fatty acids (MCFA) make it easy to digest.

Numerous naturally occurring plant-based fats, oils, and their derivatives have intriguing bioactive qualities that are becoming more widely acknowledged for their impact on skin care and the restoration of cutaneous homeostasis. Depending on their makeup and ingredients, topical preparations that combine plant oils with bioactive substances may complement each other's effects on the skin. Plant oil ingredients such as triglycerides, FFAs, phenolic compounds, and antioxidants can work in concert when applied topically through a variety of processes.

promoting skin barrier homeostasis;

anti-oxidative activities;

anti-inflammatory properties;

anti-microbial properties;

Literature Survey:-

A review of the literature shows that, in addition to VCO, other significant plant-based bioactive chemicals may also be used in topical formulations for protection and healing due to their antibacterial and anti-inflammatory properties. Combining these components from plants high in tocopherols, phytosterols, and triterpenes considerably lessens skin roughness and wrinkles (Mandawgade and Vandana, 2008).

High oxidative resistance is exhibited by moisturising creams and lotions that contain biocompatible chemicals and have VCO as their base. These plant-based chemicals have considerable potential to be used in the development of skin care products for dermatological conditions. Using therapeutic or appealing smells, either by infusing or using essential oils, will increase the product's marketability as a skin conditioner. One of the most abundant natural sources of therapeutic compounds, aloe vera is utilised extensively in the fields of homoeopathic, allopathic, and ayurvedic medicine (Serrano et al., 2006).

Aloe vera gel has historically been used to treat a variety of conditions, including immunological system deficits, constipation, ulcers, coughs, diabetes, arthritis, and urinary problems, both topically as a skin tonic and orally (Pathak and Sharma, 2017). [26]. In addition to steroids, proteins, lignin, polysaccharides, vitamins, minerals, enzymes, amino acids, anthraquinones, and saponins with emollient, anti-inflammatory, antioxidant, antiseptic, and anticancer properties, aloe vera leaf gel contains more than 200 distinct physiologically active compounds (Mahor and Ali, 2016, Pathak and Sharma, 2017).

It is considered a miracle herb for beauty and a key ingredient in cosmetics and skin care products due to its presence of minerals like calcium, magnesium, and zinc, vitamins like A, B12, C, and E, and essential fatty acids. Aloe gel has a cooling impact on the skin in addition to being a moisturising agent. The effectiveness of this plant as a skin tonic and its potential to treat skin conditions are supported by empirical data. Aloe vera gel enhanced skin integrity and reduced the appearance of fine wrinkles and erythema in clinical trials for the treatment of dry skin brought on by occupational contact (West and Zhu, 2003).

The antiinflammatory activity of Aloe vera gel has been revealed in a number of studies

through bradykinase activity (Che et al, 1991)

Because it contains vital fatty acids, vitamins A, B12, C, and E, and minerals like calcium, magnesium, and zinc, it is regarded as a miracle herb for beauty and a major ingredient in cosmetics and skin care products. Aloe gel is not only a moisturising agent but also has a cooling effect on the skin. Empirical evidence supports this plant's efficacy as a skin tonic and its ability to treat skin disorders. In clinical investigations, aloe vera gel improved skin integrity and decreased erythema and small wrinkles associated with dry skin from occupational contact (West and Zhu, 2003).

Aim and objective:-

Aim:-Formulation and Evaluation of Herbal Body Lotion.

Objective

To formulate herbal base product To Compare the efficacy of formulated body lotion with the marketed formulation To Evaluated the various Quality Control parameter like color, spreadability, moisturizing efficacy. To provide the formulation for commercial production of herbal body care product with environmentally friendly attributes.

Profile of Herb:-

(1)Coca butter:-

A review of the literature shows that, in addition to VCO, other significant plant-based bioactive chemicals may also be used in topical formulations for protection and healing due to their antibacterial and anti-inflammatory properties. Combining these components from plants high in tocopherols, phytosterols, and triterpenes considerably lessens skin roughness and wrinkles (Mandawgade and Vandana, 2008)



Cocoa has been used medicinally for approximately 3,000 years due to its moisturising and emollient qualities. Cocoa was highly valuable and used by the ancient Aztecs and Mayans for a number of purposes, such as currency to exchange for food, clothes, and other necessities. Even now, cocoa butter is still a highly sought-after ingredient in a wide variety of meals and cosmetics. Researchers have discovered the beneficial compounds in cocoa thanks to growing knowledge of its health benefits in recent years.

Coconut oil:-

The coconut tree is a member of the Arecaceae family of palm trees, which has a drupe rather than a nut according to botany. Due to its numerous health advantages, coconut oil, an edible oil made from the kernel of mature coconuts, has become extremely popular in recent years.



Numerous research, numbering in the thousands, have demonstrated that coconut oil is among the healthiest foods. Beyond people's expectations, coconut oil has a plethora of applications and health advantages; it is a veritable superfood.

Owing to its numerous applications and advantages, the coconut tree is referred to as the "lifeline of health." It can be difficult to select the best kind of oil from the several coconut oil brands available, though.

There are normally two types of coconut oils: virgin and refined. Virgin Coconut Oil (VCO), which has a milky look, is made by cold-pressing the liquid from the coconut meat and then extracting the oil from milk and water. It is cold-pressed, unbleached, and entirely natural. Virgin coconut oil is well-liked for a variety of reasons, including its delicious flavour, strong antioxidants, beneficial fatty acids, and vital vitamins. The coconut is used to make virgin coconut oil without being heated. Compared to regular coconut oil, it is becoming more and more well-known worldwide because of its invaluable nutrients and advantages.

Heat exposure is used to refine and process coconut oil. Because it is manufactured from dried coconut, or copra, it has very little coconut flavour. RBD stands for refined, bleached, and deodorised coconut oil.

In the RBD process, the oil is bleached and contaminants are removed by filtering it through charcoal after being deodorised under intense heat. To ensure that the finished product has a longer shelf life, sodium hydroxide is added.

Refined coconut oil is less expensive, but because all of its nutrients are lost during processing, it is not generally advised.

Aloe vera:-

is applied as a moisturiser, helps heal burn wounds, and minimises acne and pimples. is used to treat scars, pigmentation, redness, and irritation of the skin in addition to its antifungal and anti-inflammatory properties. Aloe Vera gel not only moisturises the skin but also relieves or calms ailments like. Get frostbite. Your skin can benefit from aloe vera gel in both hot and cold climates. Aloe Vera gel can speed up healing and help your tissues regenerate more quickly if you have mild frostbite-related skin damage.



Beeswax :-

When used topically, beeswax calms, soothes, moisturises, and conditions the skin. In addition to exfoliating and repairing damage, it also encourages skin regeneration, reduces the appearance of ageing indications, eases irritation and itching, and forms a moisturising, long-lasting protective layer against environmental contaminants. Another natural exfoliant that works well for removing dead skin cells is beeswax. Beeswax may serve two purposes by being made into a lotion bar that will keep your skin nourished and silky. treats eczema, psoriasis, and diaper dermatitis. A fantastic option for many skin issues is beeswax.



Moisturizes Skin.

Protects the Liver.

Lowers Cholesterol Levels.

Relieves Pain and Is Anti-Inflammatory.

Clears Acne.

Heals Dry, Cracked Lips

Reduces Stretch Marks

Plane of work:-

(1) Selection of Dosage form

(2) Selection of Herbal drugs

(3) Selection of ingredient

(4) Method of Preparation

(5) Evaluation Parameter

(6) Result & discussion

(7) Conclusion

Experimental Work:-

Collection of material:-

The following raw ingredients were used to create the body lotion: cocoa butter, aloe vera, bee wax, virgin coconut oil, and aroma ingredients. The essential oils of rose, lavender, and peppermint are the scent principles that are tried in the combinations. Aloe vera (garden), virgin coconut oil from the local market, bee wax, cocoa butter, and fragrance principles (college lab)

Composition Table of herbal body lotion:-

Different ratios and combinations of components are mixed to create body lotion. Table 1 lists the different components used in body lotion recipes that have been attempted. Six combinations were made of body lotion. The percentages of VCO levels that were tried were 66, 68, 70, 72, 74, and 76. The study had three fragrances: F1 was lavender oil, F2 was pepper

Table 1 Ingredients used in body lotion blend and formulations

Formulation	Virgin Coconut oil (ml)	Aloe vera (ml)	Beeswax (gm)	Cocca butter (gm)	Fragrance (ml)
F1	6.6	0.2	1.8	1.2	2
F2	6.8	0.4	1.6	1.0	2
F3	7.0	0.6	1.4	0.8	2
F4	7.2	0.8	1.2	0.6	2

Preparation:-

Flow chart for preparation of body lotion is provided in Fig 1. Place bee wax and cocoa butter in a bowl.

Bee wax and coco butter are melt in a stainless-steel vessel adopting double boiling method. When it melts, virgin coconut oil is added to the mixture and melt it further.

This molten mixture is strained using muslin cloth still when it is warm and keep it for cooling for about 15-20 min.

When it is cool, add Aloe vera and whip it well (using electronic hand beater) till it becomes light and fluffy.

Add few drops of essential oil (rose/lavender/peppermint oil) to the resultant lotion. At last give a final mix and body lotion is ready.



- (1) Melt bee wax and cocoa butter in a double boiler
- (2) Add virgin coconut oil and melt it further
- (3) Strain it, using muslin cloth
- (4) Keep it for cooling (15 min)
- (5) After cooling add Aloe vera & whip it well till it becomes light and fluffy
- (6) Add few drops of essential oil (rose/lavender/peppermints)
- (7) Mix well to get the body

Evaluation of Herbal Body Lotion:-

(1) Spreadability:-

is the term expressed to denote the extent of area to which formulation readily spreads on application to skin or affected part. The therapeutic efficacy of a formulation also depends upon its spreading value.

It is calculated by using the formula:

$$S = M \cdot L / T$$

Where, M = weight tied to upper slide

L = length of glass slides

T = time taken to separate

(2) Determination of pH:-

pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter at constant temperature. pH value of the formulation is 5.5.

(3) Homogeneity :-

All developed gels were tested for homogeneity by visual inspection after the gels have been set in the container. They were tested for their appearance and presence of any aggregates.

(4) Smoothness:-

The smoothness of the lotion formulation was tested by rubbing between the fingers and observes whether the gel is smooth, clumped, homogenous or rough.

(5) Absorbency:-

Rated at which product is perceived to be absorbed into skin. Evaluated by noting changes in skin surface. Rated slow-moderated-fast.

(6) Consistency and Gressines:-

They both were checked by applying on skin.

(7) Appearance:-

All the formulations of herbal body lotion were light pink.

(8) Washability:-

The product was applied on hand and was observed under running water.

(9) Irritancy Test:-

The cream was applied on left hand dorsal side surface of 1sq.cm and observed in equal intervals up to 24hrs for irritancy, redness and edema. Lotion did not produce any irritation or redness on skin.

Results and discussion:- Different formulations of the herbal body lotion were prepared as per the procedure laid out in the flow chart and all of them are light pink in colour and their texture differ from thick to soft based on the combination percentages of the ingredients. Their fragrance also varied according to the essential oils added. The overall appearance was homogenous in nature for all formulations with no visible spots. The treatments were subjected to sensory analysis for consumer's acceptance.

Results and discussion:-

Several herbal body lotion formulations were created in accordance with the steps outlined in the flow chart. They are all light pink in colour and have varying textures depending on the proportions of the individual ingredients. The use of essential oils changed their scent as well. All formulas had a uniform overall appearance devoid of any discernible spots. Sensory analysis was done on the treatments to ensure consumer approval.

Table 3 Evaluation Table:-

Evaluation Test	Results
Determination of pH	5.5
Homogeneity	presence of any aggregates
Smoothness	the gel is smooth, clumped, homogenous or rough.
Absorbency	Rated slow-moderated-fast
Consistency and Greasiness	They both was checked by applying on skin.
Appearance	light pink
Washability	observed under running water.
Irritancy Test	Lotion did not produce any irritation or redness on skin.

A group of twelve semi-trained members of the consumer panel assessed the acceptability and quality of herbal body lotion. Based on a nine-point hedonic scale for colour, look, texture, scent, and general acceptability of the created samples, the sensory evaluation of the product was carried out. The outcome showed that the organoleptic properties of the treatment combinations varied significantly. The body lotion's overall acceptance ranged from 6.83 to 7.98.

To improve market acceptability, efforts were undertaken to create a product with the greatest sensory acceptability score possible. In light of these standards, T6 i.e., Unadulterated coconut oil: Aloe vera It was discovered that the ratio of cocoa butter to bee wax to virgin coconut oil to cocoa butter to lavender oil was 76:12:8:6:2. The created lotion formulations had a homogeneous consistency, were light, non-greasy, and liquid in dose form. They adhered to the skin like a film and looked soft and free-flowing. The developed body lotion has good stability and does not show any sedimentation when stored at room temperature for up to three months.

One of the most likely concerns with potentially harmful effects on one's health for those exposed to numerous hazards at work is skin infection. The harsh, unpleasant, and often even dangerous nature of many skin care products with chemical formulations on the market emphasises the necessity of identifying and creating a research strategy for natural goods. The topical body lotion formulation created in this study is significant in lowering the risk to human health and environmental pollution in this setting. The main ingredient in the composition, virgin coconut oil, serves as a preservative by extending the body lotion's shelf

life and guarding against microbiological deterioration. The body lotion that was created has a long self-life, doesn't irritate skin,.

Conclusion :-

In summary, a potential direction for skincare innovation is the development and assessment of herbal body lotion. This approach guarantees the creation of a product that not only nourishes and hydrates the skin but also harnesses the healing qualities of natural herbs through careful ingredient selection and rigorous testing. Herbal body lotions give customers a comprehensive approach to skincare by striking a balance between safety, efficacy, and sensory appeal. This is in line with the beauty industry's growing need for sustainable and plant-based solutions. The development and assessment of herbal body lotions is at the forefront of this exciting field, with the potential to completely alter standards of wellness and beauty as the search for healthier, more ecologically friendly skincare products continues.

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