

FORMULATION AND EVALUATION OF HERBAL FACE CREAM

Project Report

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CERTIFICATE

This is to certify that VATIKA CHAUHAN Enrolment no. ASU2018010200160, NIPUN VAID MEHTA Enrolment no. ASU2018010100092 & RISHI Enrolment no. ASU2018010100121 are student of Bachelors of Pharmacy (2018-2022) of School of Pharmaceutical Sciences, Apeejay Styia University have prepared a Report on the Project entitled "**FORMULATION AND EVALUATION OF HERBAL FACE CREAM**" as a part of our course curriculum.



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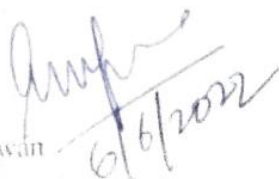
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"It is not possible to prepare a project report without the assistance & encouragement of other people. This one is certainly no exception."

On the very outset of this report, We would like to extend our sincere & heartfelt obligation towards all the personages who have helped us in this endeavour. Without their active guidance, help, cooperation & encouragement, We would not have made headway in the project. We are ineffably indebted to **Prof. Anupama Diwan** (Dean, school of pharmaceutical sciences, ASU) for conscientious guidance and encouragement to accomplish this assignment.

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INDEX

| S.NO | CONTENT | PAGE NO. |
|------|-------------------|----------|
| 1 | Abstract | 1 |
| 2 | Introduction | 1-2 |
| 3 | Cream | 3 |
| 4 | Uses Of Cream | 3 |
| 5 | Ingredients | 4 |
| 6 | About Ingredients | 5-10 |
| 7 | Procedure | 11-18 |
| 8 | Evaluation | 19 |
| 9 | Result | 20 |
| 10 | Conclusion | 20 |
| 11 | References | 21-22 |

ABSTRACT

Aloe vera is a plant that contains aloe vera juice. Therapeutic plants that have been utilised in numerous herbal remedies for thousands of years, including Ayurveda, Siddha, and Homeopathy. Aloe vera gel is a cosmetic and medical product derived from the mucilaginous tissue in the centre of an aloe vera leaf. Anthraquinone is not found in aloe vera gel. Which are responsible for aloes' high laxative properties? Anthraquinone may be present in whole leaf extract. Vitamins, enzymes, minerals, sugars, saponins, and amino acids are among the 75 potentially active ingredients in aloe vera.

Face cream are semi-solid preparation. They are commonly used to hydrate and improve complexion of skin. Main aim of this research project is to prepare a Herbal cream and evaluate its efficacy. Formulation is evaluated for various factors like pH, consistency, stability, appearance, homogeneity and organoleptic properties. Satisfied result was acquired from the formulation.

Keyword – Aloe Vera , Avocado Oil , Cocoa Butter , Face Cream , Evaluation

INTRODUCTION

If anything, we have learned in 2020, take care of yourself. One has to admit, in a fast-paced world, it is difficult to keep up with your health and lifestyle. Although we can manage as much as possible but with increasing competition, meeting the last days, thinking about work can be very stressful at times and a break is really needed.

There are many reasons why a person should decide to make a handmade cream. you may want to do something completely natural or say bye to all those parabens and synthetic perfumes. The best part is that making it yourself gives you complete control over the ingredients you add. You can easily DIY your cream with the same smooth skin and protect qualities like branded products. But on top of that, you get to make it your own to suit your skin needs. And you can make it all natural. Of course, natural does not mean weak. Herbal ingredients can be very strong and easily penetrate the skin. They can help to exfoliate skin tone, hydrate and smooth lines.

Whether you have oily, dry, flaky or sensitive skin, a moisturizer or face cream is essential. The creams are made to be rich in emollient repairs damaged cells in the skin and provide water. If you have oily skin and you think your sebum production is too high and you are not getting the necessary moisturizers, that is a myth. Sebum is a natural skin oil produced to keep us young. However, when the skin is dehydrated, excess sebum is produced and as it is oily, it clogs the pores, thus causing acne and breakouts.

Herbal cosmetics are in high demand due to the availability of novel components and the financial incentives for producing profitable products and maintaining high quality standards. Cosmetics are items that are used to apply to the skin. Face cream is a product that softens and cleanses the skin. The Ayurvedic system of medicine is one of the most prominent systems of medicine that employs herbal plants and extracts to treat and manage a variety of diseases. [1] Synonyms for aloe vera Aloe Barbadensis is a member of the Liliaceae family, which includes 300 species. Aloe vera is a cactus-like plant that grows well in hot, dry conditions, and it is widely grown.

Avocado oil's antioxidants and anti-inflammatory compounds keep your skin smooth, robust, and elastic. Avocado oil may be found at any health or food shop and can be used to:

- ✦ soothe irritated skin
- ✦ skin that has become chapped
- ✦ moisturise dry skin
- ✦ skin hydration and moisturization
- ✦ UV protection is important for the skin.
- ✦ safeguard your skin from harm

Avocado oil is frequently mistakenly referred to it as an essential oil, although this isn't the case. Avocado oil is a carrier oil, that means it is thick and has a green colour.

Cocoa butter is a form of plant fat derived from cocoa beans. By fermenting, drying, roasting, and pressing the beans, manufacturers may obtain luscious cocoa butter. They make cocoa powder out of the remainder.

Lotions, creams, and lip balms all include cocoa butter as an active component. People have been drinking or utilising cocoa in different ways since 460 AD, according to several historical sources. Trusted Source Researchers have recently discovered that cocoa provides a number of health benefits, including anti-inflammatory and antioxidant qualities.

Cream

Cream are a solid preparation for oil and water

O / W Creams are made up of tiny droplets of oil dispersed in a continuous water phase. The O / W type is more comfortable and more acceptable in terms of beauty with less oil, easily washed off using Water.

W / O Creams are made up of tiny droplets of Water dispersed by a continuous Oil Phase. W / O types are more difficult to handle and move higher as they provide an oily barrier that reduces water loss in the stratum corneum.

Face Creams are used as a cosmetic to soften and perform a cleansing action.

Emollient Non-Cosmetic Moisture Arrangements come in the form of Creams, Oils, Lotions and Gels. Emollient helps the skin to feel relaxed.

Refreshing action provides a protective film for a patient with conditions such as eczema or psoriasis. Emollient is an important part of skin care.

Stomach action is applied to skin beauty such as lipsticks, cosmetics, and other cosmetic products.

Uses Of Cream

Medicinal creams have a variety of ingredients from cosmetic purposes such as

- ✦ cleansing
- ✦ beautifying
- ✦ changing the appearance
- ✦ softening
- ✦ to protect the skin against bacteria, fungal infections ✦ to cure cuts, burns, wounds on the skin.

Ingredients

Water Phase

- † 30g Aloe Vera Gel
- † 40g Distilled Water
- † 7.5g Glycerine

Oil Phase

- † 13g Avocado Oil
- † 3.7g Cocoa Butter
- † 5g Emulsifying Wax
- † 3g Cetyl Alcohol

Other functional ingredients, and additives

- † 0.5g Preservative
- † 3 drops Lavender Essential Oil
- † 2 drops Geranium Essential Oil
- † 2 drops Orange Essential Oil

ABOUT INGREDIENTS

ALOE VERA GEL

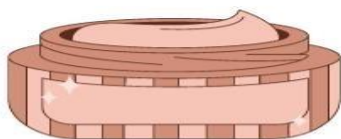
An emollient and film-forming gum resin with hydrating, softening, healing, antimicrobial, and anti-inflammatory properties. It's most well-known for its moisturizing properties. Aloe vera provides moisture to the skin tissue directly. Moisture management and an apparent capacity to absorb UV rays are two further features. It has a modest calming effect on the skin, making it beneficial for sensitive, burnt, and sun-exposed skin. In traditional medicine, aloe vera was used to treat burns. It's popular in sun preparations for cooling and soothing since it's frequently used in gels to refresh and relax inflamed skin. Furthermore, it has been demonstrated to be useful in emulsions designed to control dry skin. When taken in combination with other anti-inflammatory drugs, aloe vera appears to have a synergistic impact. Over 50% concentrations have been demonstrated to increase the blood supply to the area of application. [Figure 1]



Figure 1 Aloe Vera Gel

Avocado Oil

It functions as an emollient and as a carrier oil in a cosmetic preparation, helping transport active substances into the skin. It's antibacterial and relaxing, making it ideal for sensitive skin. Avocado oil has been shown to mobilize and enhance connective tissue collagen in various studies. This will keep the skin moisturized and smooth, as well as aid in the treatment of minor skin problems. Avocado oil has also shown sun-scanning properties, and the Encyclopedia of Chemical Technology has given it the highest score for sunscreen efficacy when compared to other organically produced oils like peanut, olive, and coconut. It can be found in cleaning creams, moisturizers, lipsticks, makeup bases, bath oils, sunscreen, and suntan preparations in cosmetic formulations to assist stabilize oil-in-water emulsions. [Figure 2]



BENEFIT #1: IT'S A SUPER MOISTURIZER

Avocado oil has this luxurious, thick texture. That makes it perfect for moisturizing dry, peeling skin... and hair!

BENEFIT #2: IT'S HEALING

Avocado oil is an effective alternative treatment for wounds, cuts, scratches, abrasion and more because it is anti-inflammatory!



BENEFIT #3: IT'S GREAT FOR SKIN PROBLEMS

A simple vitamin B-12 cream with avocado oil was found to be a great long-term treatment for psoriasis. The oil is also great for wrinkles and stretch marks since it boosts collagen production.

Figure 2 Benefits of Avocado Oil

Cocoa Butter

Chocolate contains cocoa butter, it's a kind of fat. Cocoa butter is a fantastic moisturizer, but it also serves additional purposes in this recipe. It is a powerful antioxidant and is beneficial for sensitive skin. Cocoa butter is a good source of vitamin E, which has several health advantages. Vitamin E is beneficial to vision, reproduction, and the health of the brain, skin, and blood. It has a high fatty acid content, making it ideal for use as a key component in skin creams. Fatty acids aid in skin hydration. The fat in cocoa butter acts as a barrier, keeping moisture in and preventing your skin from getting out. It's also a key ingredient in a lot of topical therapies for eczema and dermatitis. Cocoa butter's phytochemicals may offer protection against some diseases. [Figure 3]



Figure 3 Health Benefits of Cocoa butter

Preservative (Geogard Ultra)

Geogard Ultra is a broad-spectrum preservative with a proprietary formula. It works by gradually releasing gluconic acid, ensuring effective preservation. I've only come across it in powdered form.

Lavender Essential Oils

Anti-allergenic, anti-inflammatory, antiseptic, anti-bacterial, anti-spasmodic, balanced, energising, relaxing, healing, tonic, and stimulating are just a few of the medicinal benefits attributed to lavender oil. It is also supposed to aid in the cleaning of tiny wounds after washing and the regulation of skin functions. It may also act as an insect repellent. Lavender oil is suitable for all skin types and is effective in the treatment of acne, sunburns, and other superficial and non-extensive burns, dermatitis, eczema, and psoriasis. Lavender oil is reported to be able to regulate any skin type while also promoting cellular development and regeneration. Lavender may enhance and balance the impact of other oils when mixed with them. Lavender is also thought to help decrease stress, making it effective in the treatment of skin disorders caused or worsened by stress. [Figure 4]

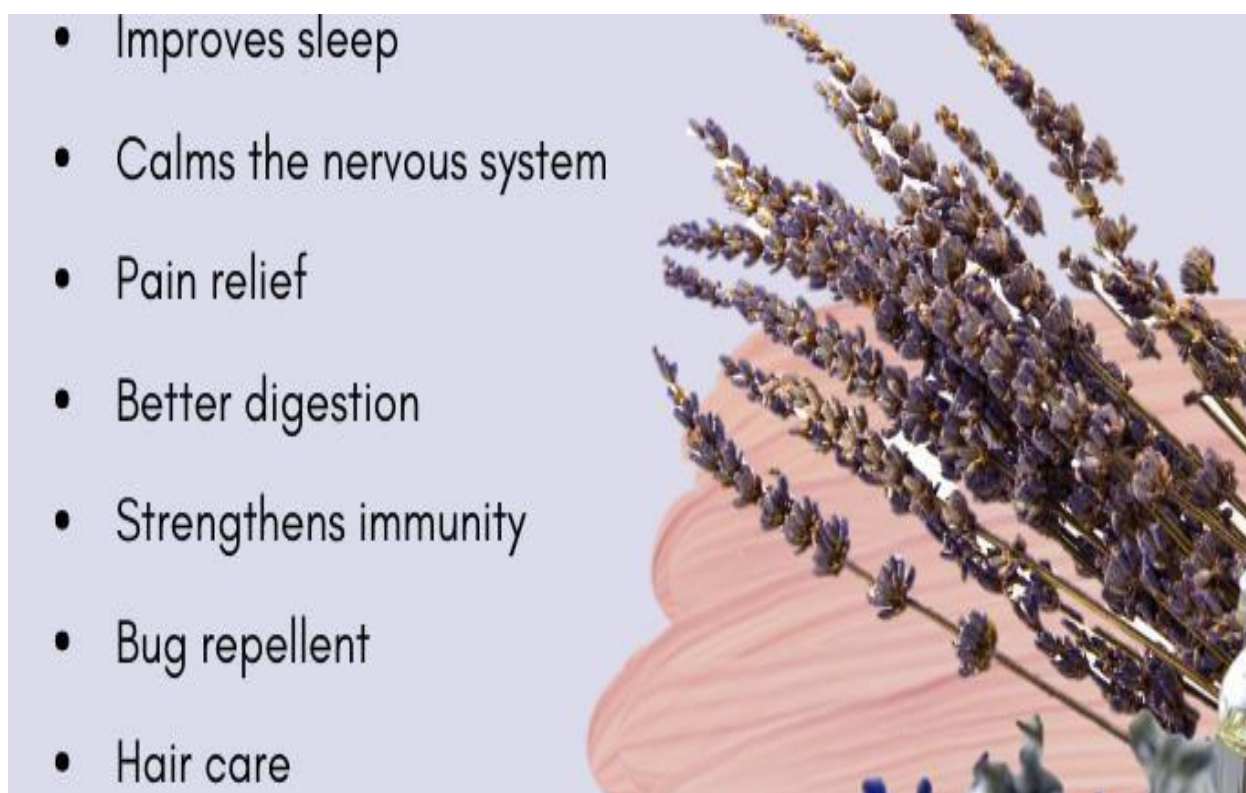


Figure 4 Health Benefit of Lavender Oil

Geranium Essential Oils

The treatment of skin diseases and to the reduction of symptoms of depression, to the development of color-correction and bug prevention, this flower remedy is the ultimate cure for many ailments. Great for treating burns and irritated skin spots. Speeds the healing of bruises Aids blood flow Helps to balance the production (or over-production) of sebum. Geranium essential oil has a lot of benefits for turning back the clock and giving you a youthful, bright appearance. It noticeably reduces wrinkles, fine lines, sagging in the face, cleanses, tones, tightens the pores, and imparts enough moisturization to rejuvenate dull, dry skin, thanks to its astringent characteristics, as well as abundant antioxidant, moisturizing, and cooling benefits. Geranium essential oil is packed with essential anti-inflammatory properties, as well as natural anti-bacterial and antifungal properties. Brushing a thin layer of this repair essence, peeling, rough tissue, quickly removes the conditions of eczema, acne, dermatitis, psoriasis and yeast infections, soothes sores and soothes damaged skin.[Figure 5]



Figure 5 Health Benefit of Geranium Oil

Orange Essential Oils

Primarily used in perfumery. The anti-inflammatory, anti-bacterial, anti-spasmodic, and calming botanical characteristics of orange oil in skin care make it ideal for sensitive, fragile skin. Orange essential oil can be effective in stopping the growth of certain types of bacteria and fungi, very effective in reducing stress and anxiety levels. It can also be beneficial in depression, although more research is needed. Some small studies have shown that applying essential oils of orange in aromatherapy can help with temporary pain. Studies have shown that essential oils of orange or its derivatives can inhibit cell growth and lead to cell death in some enlarged cancer cells.[Figure 6]

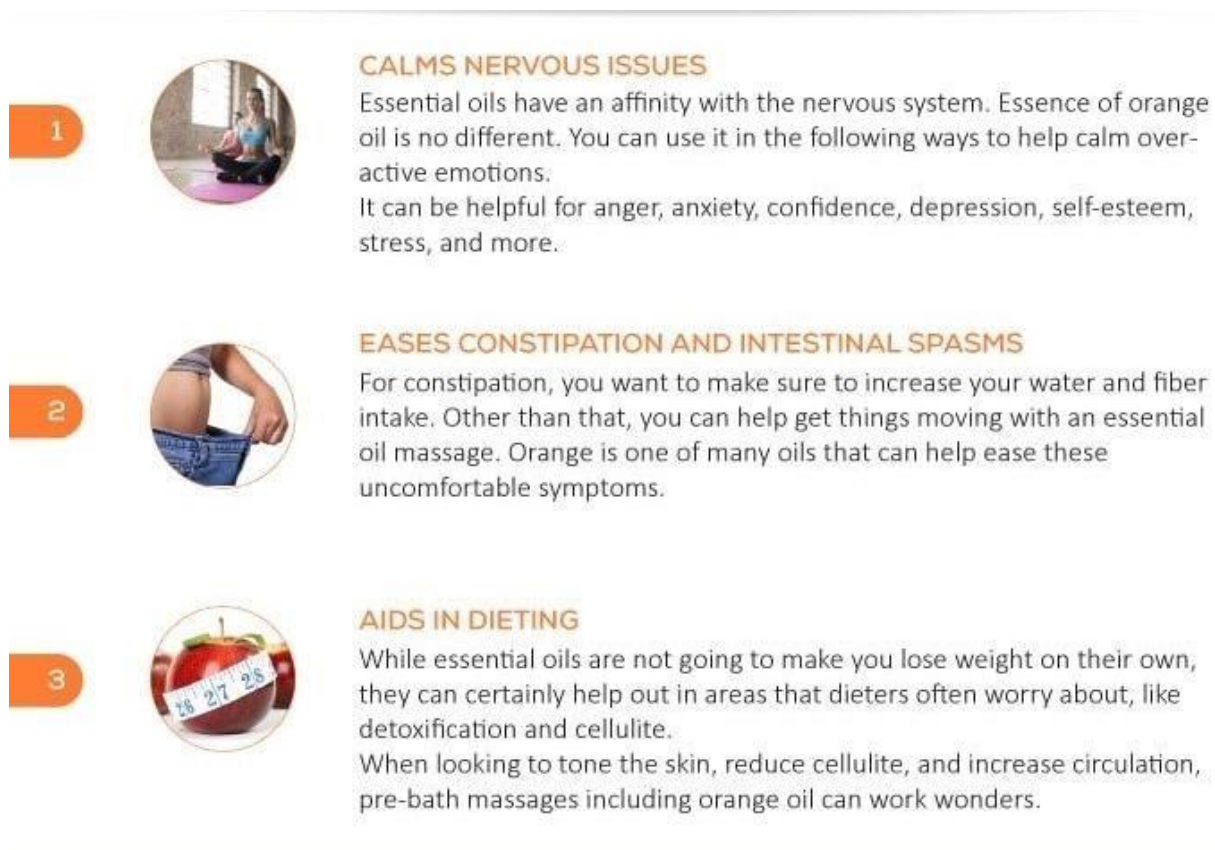


Figure 6 Benefits of orange oil

PROCEDURE

- ✦ Measure water and oil Phases, separately, into heat vessels [Figure 7]



Figure 7 Beaker contains oil & water phase respectively

- ✦ Melt both the oil and the water phases in a water bath. To do so, just fill a saucepan halfway with water & bring to a simmer. Then, reduce the heat to a low setting and submerge the beakers in the water. Do not allow the water to boil at any time while your beakers are in the water bath. Keep it in the cocoa butter & emulsifying wax have melted. This should take roughly 15-20 minutes. [Figure 8]



Figure 8 Cocoa butter and emulsifying wax is added to oil phase

- ✦ Remove the butter and wax from the water bath after they have melted. It's possible to burn yourself on the hot glass, so be cautious. [Figure 9]



Figure 9 Melted oil and water phase

- ✦ Mix your water and oil phases. Simply pour your water into the oil/wax. If you pour into the water, you'll lose too much oil/wax to the sides of the beaker. [Figure 10]



Figure 10 Addition of water phase to the oil phase

- ✦ You'll notice immediately that the mixture becomes creamy and cloudy. This is normal. Whisk your mixture with little hands whisk or an electric milk whisk to blend and emulsify the two major components. This will take a while, and the mixture will also need to cool. Then whisk, leave for 5 minutes and then whisk once more. Repeat this process until emulsion has thickened and no longer separates after leaving to stand for 5 minutes. [Figure 11]



Figure 11 Whisked emulsion

- ✦ It's time to add the last components now that your stages have emulsified, cooled, and thickened. Put this beaker on a digital scale to weigh it. After that, gradually increase the amount of preservative until you reach the required level (1-0.5g depending on your preservative and its guideline). [Figure 12]



Figure 12 Addition of preservative

- ✚ Now, add your final ingredient, the essential oil. The scale is not necessary as we're working in drops. [Figure 13]



Figure 13 Addition of essential oil

- ✦ Last but not least, pour your cream into the container of your choice. Ensure that you are using glass, PET plastic or aluminium, as all other materials are not sufficient. Don't forget to label your formulations. Include the name of the product and the date of manufacture.[Figure 14]



Figure 14 Store the prepared formulation in container with labelling

Evaluation

- † **Homogeneity:** The homogeneity of the prepared creams was confirmed by the visual appearance and touch.
- † **Organoleptic Evaluation:** The resulting Face Cream was therefore tested for its organoleptic properties such as colour, aroma and texture. The appearance of the cream is judged by its colour and hardness and proportions.
- † **Stability:** In a test machine the cream sample is placed in a centrifuge tube at a speed of 3750 RPM for half an hour or 5000 to 10000 RPM 15 minutes and check whether the separation is present or not.
- † **Skin Whitening:** 5 volunteers were selected for the following studies. All of the preparations are put in place and monitored for a month. A one-month skin test revealed that there was no pigmentation. But skin doesn't whiten. It just clears up.
- † **After Feel:** Emolliency, smoothness and the amount of residual residue after the application of the prescribed amount of cream were found to be good.
- † **Irritancy Test:** All formations do not show red edema and inflammation and during irritation studies these structures are found to be safe for use on the skin.
- † **Removal:** All the cream formulations are applied on the skin was easily removed by washing with tap water.
- † **Test for microbial growth in formulated Cream:** The Formulated Cream is inoculated on the plate of agar media by streak plate method and a control was prepared by excluding the cream. The plate is placed into the incubator and is incubated at 37°C for 24 hours. After the incubation period, plate was taken out and checked for the microbial growth by comparing it with the control.

RESULT

| S.No | Parameter | Result |
|------|---|---|
| 1 | Colour | Cream Colour |
| 2 | Odour | Characteristic |
| 3 | Ph | 5.2 |
| 4 | After Feel | Emollient |
| 5 | Irritancy Test | No Irritancy On application, so, safe for skin |
| 6 | Removal | Easily removed by tap water |
| 7 | Test for microbial growth in formulated Cream | Absence |
| 8 | Skin Whitening | Absent |
| 9 | Homogeneity | Satisfied |
| 10 | Stability Test | No separation occurs so it is form to be stable |

Conclusion

From the research of study it can be concluded that the formulated cream was fit to use. The colour of the cream obtained was Cream . The cream showed the quality of softening and soothing the skin . The cream does not show any type of irritancy or allergic or redness on application so , it can be concluded that the cream is safe for human use . It was very easily removed by simple tap water . It does not show any kind of skin whitening property. No separation occurs so it can be concluded that the formulation is in stable form . It has almost no side effects pigmentation has been decreased. Herbal Ingredients present in cream tend to soothe skin and make texture better.

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