

Formulation And Evaluation of Herbal Under Eye Cream

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ABSTRACT

This study is about making and testing a herbal under-eye cream to reduce dark circles and improve skin health. Herbal cosmetics are becoming popular because they are natural, safe, and have fewer side effects compared to chemical products. In this cream, natural ingredients like aloe vera, cucumber extract, rose water, caffeine (from tea), coconut oil, vitamin E, cetostearyl alcohol and glycerine are used. These ingredients are known for their moisturizing, soothing, anti-inflammatory, and antioxidant properties, which help in reducing puffiness, reduce swelling, lighten dark circles, and protect the skin from damage. The cream was prepared using a simple mixing method called oil-in-water emulsion, where oil and water-based ingredients are combined properly. After preparation, the cream was tested for its color, smell, texture, pH, and safety on the skin. The results showed that the cream has a smooth texture, pleasant smell, and a skin-friendly pH of 5.4. It did not cause any irritation, redness, or itching on the skin. The study concludes that the herbal under-eye cream is safe, effective, and suitable for daily use. It helps in reducing dark circles, moisturizing the skin, and making the skin look healthier and fresher. Natural ingredients like caffeine and vitamin E also protect the skin from damage and reduce signs of aging. Overall, the study concludes that the herbal under-eye cream is effective in reducing dark circles, hydrating the skin, and improving skin appearance. It is stable, safe, and suitable for daily use, making it a good natural alternative to synthetic cosmetic products.

KEYWORDS

Antioxidant, Dark circle, Evaluation, Formulation, Herbal cosmetics, Natural ingredients, Under-eye cream.

I. INTRODUCTION

Creams are lozenges of circumfluous conflation. Forms with a water content of more than 20% or unpredictable elements and typically less than 50% of the vehicles are hydrocarbons and waxes. Cream is categorized as water in oil and oil in water. The eye is where the most obvious signs of aging are found. Initially show up [1]. As well as the skin around the eye is incredibly thin and composed of subcutaneous adipose tissues [2]. Aloe vera, with its moisturizing and soothing properties, is essential for hydrating the skin and reducing irritation [3]. Coconut oil deeply hydrates and supports skin barrier function, whereas vitamin E protects against free radicals, improving skin repair and lowering oxidative stress [4]. Our primary goal is to create an herbal cream. Achieve the best possible results. For this purpose, we use in our preparation, we used herbal ingredients like Caffeine, cucumber, aloe vera gel, and almond oil. Due to its high biological activity, the ability to pass through the skin's barrier caffeine is increasingly used in cosmetics more [5]. According to reports, Chemicals extracted from Cucumis Sativus Cucumbers are part of this safety. Assessment of skin conditioning agents in Cosmetics [6]. Caffeine is a natural stimulant most found in coffee, tea, chocolate, and certain soft drinks and energy drinks. It works by stimulating the central nervous system, helping to reduce fatigue, improve alertness, and boost concentration [7]. Rosewater has gentle toning and anti-inflammatory properties, while coconut oil moisturizes and protects the skin barrier [8]. Vitamin E neutralizes free radicals, which increases skin elasticity and reduces pigmentation (as shown in fig.1) [9].



Fig.1: Dark Circle

CAUSES OF DARK CIRCLES

- Poor sleep.
- aversions, including a high fever.
- Hyperactive achromatism occurs when the body produces fresh melanin.
- Lower situations of adipose towel around the eyes.
- Thin skin under the eyes.
- Anemia due to a lack of iron.
- Overexposure to sun.
- constantly rubbing the eyes.
- Aging.[10]

ADVANTAGES OF HERBAL CREAM

- It makes the skin glow.
- The herbal cream contains pure and organic ingredients.
- They have no or minimal side effects.
- Herbal cream is widely available on the market and appropriate for all skin types.
- They also contribute to the complete reduction of skin damage and dryness.
- Herbal cream is very effective in treating skin irritation.

- They contain no synthetic or harmful additives.
- Herbal cream for skin glow is designed to strengthen skin follicles by delivering essential oils.
- They also benefit all skin types.[11]

PLANT MATERIAL USE

Tea extract, aloe vera, cucumber juice, and rose extract are used as plant materials in this formulation. Other ingredients include coconut oil, almond oil, beeswax, liquid paraffin, paraben, vitamin E capsules, methyl paraben, propyl paraben, glycerine, and distilled water.

FORMULATION

1)TEA

Synonym: - Tea leaf, tea plant

Biological source: - Tea leaves are obtained from the plant *Camellia sinensis*.

Family: - Theaceae



Fig. 2 : Dried tea leaf

• Extraction process for Tea/Caffeine

20g tea powder + 250ml distilled water, Boil for 30 minutes(as shown in Fig.3).Filter,add drop lead acetate until precipitation forms.Filter, 1-2 mL diluted H_2SO_4 .Filter,Activated charcoal 0.5 gram.Filter,in a separating funnel treated with chloroform three times.Separate layers,Evaporationwhite residue (caffeine).[12]

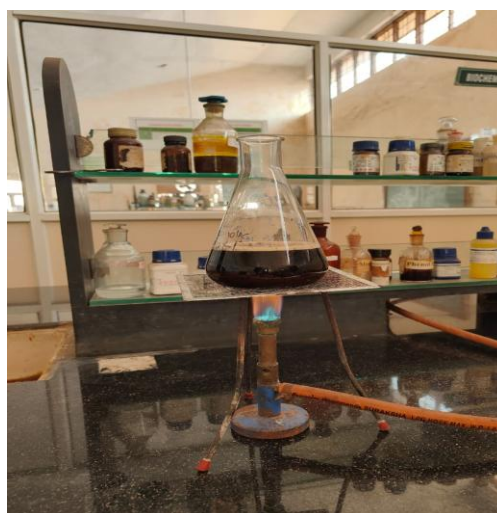


Fig. 3: Extraction process of tea leaf

2) CUCUMBER EXTRACT/JUICE

Synonym: -Cuke

Biological source: - Cucumber is obtained from the fruits of *cucumis sativus*

Family: -Cucurbitaceae

• Extraction of cucumber juice

Fresh cucumbers were mashed, put in a beaker, and then extracted for three hours at 80 °C in a hot water bath. Gelatinized extract was obtained by filtering the extract after it had been cooled to room temperature [7](as shown in fig. 4).



Fig. 4: Extraction process of cucumber

3) ROSE WATER

Synonym: - Rosa water, floral water

Biological source: - Rose water is primarily derived from the petals of the *Rosa rubiginosa*

Family: Roseaceae

• Extraction of Rose water

The process entails immersing petals in water. Heat them, and collecting condensation formed on a lid, or through steam distillation to separate rosewater from oil.(As shown in fig.5).



Fig. 5: Extraction of Rose Water

4) ALOE-VERA

Synonym: - Aloe Vera, burn plant

Biological source: - Dried latex of leaves of it also known as cape aloe.

Family: - Liliaceae



Fig. 6: Aloevera plant

Table 1: Ingredients Used in Herbal Under Eye Cream Formulation

Sr. No.	Ingredient	Quantity Taken	Uses
1	Coconut oil	5.0 ml	Emollient, skin moisturizer
2	Liquid paraffin	4.2 ml	Soothing effect
3	Beeswax	3.4 gm	Thickening of cream
4	Cetostearyl alcohol	2.5 gm	Emulsifier & stabilizer
5	Cucumber extract	4.2 ml	Cooling effect, reduces puffiness
6	Glycerin	3.4 ml	Humectant, skin hydration
7	Caffeine	0.84 gm	Dark circles & swelling reducer
8	Vitamin E	2.2 ml	Antioxidant, skin protection
9	Methyl paraben	0.07 gm	Preservative
10	Rose water	4.2 ml	Soothing & fragrance
11	Distilled water	q.s to 30 gm	Vehicle

Preparation of herbal cream

Phase 1: In oil phase liquid paraffin, coconut oil, beeswax, cetyl alcohol were taken in a beaker, heated at 70°C.

Phase 2:In aq. phase distilled water, aloe vera gel, cucumber extract, glycerine, heated at 70°C, 0.5 gm caffeine dissolved in warm distilled water. The aq. phase adds in oil phase with continuous stirring. (As shown in fig.8)

Phase 3:Oil - in - water emulsion allow to cool with stirring when temp. drop below 40°C. Vitamin E, preservative and rose water are added and mixed thoroughly. The prepared cream was mix well and transferred into a clean airtight container. (As shown in fig.8) [13,14,15]



Fig. 7: Preparation of herbal cream



Fig. 8: Formulated of herbal cream

EVALUATION OF HERBAL CREAM

1. Physical Appearance

Consumers frequently rate creams and other cosmetics based on their visual appearance. It is necessary to appear attractive. The physical appearance of the creams that had previously been prepared were examined. [16]

Table 2: Physical Properties of formulated herbal shampoo

Sr. No.	Evaluation Parameters	Observations
1	Colour	Whitish
2	Odour	Pleasant
3	Texture	Smooth

2. PH Determination

The prepared formulation was tested with a digital pH meter. (as shown in fig.9) [17]



Fig. 9: PH of herbal cream

inflammation when applied to the skin. (as shown in fig.10) [18]

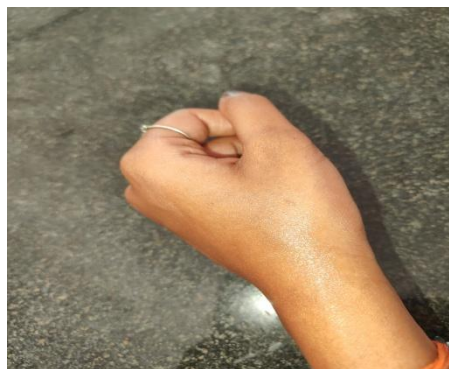


Fig. 10: Skin Irritability test

3. Skin Irritation Test.

The skin irritability test determines whether a cream formulation causes irritation, redness, itching, or

Table 3: Observation and results of evaluated herbal cream

Sr. No.	Evaluation Parameters	Observations
1	Colour	Whitish
2	Odour	Pleasant
3	Texture	Smooth
4	PH	5.4
5	Skin Irritation Test	No itching or redness

APPLICATION OF HERBAL UNDER-EYE CREAM.

Herbal under-eye creams are commonly used in cosmetic and dermatological treatments.

1. Reduction of dark circles
2. Anti-inflammatory effects
3. Moisturization and Hydration.
- 4 Anti-aging benefits.
5. Safe for sensitive skin. [19,20,21,22]

II. RESULT AND DISCUSSION

Cream formulations, especially semi-solid creams, are very useful for skin application because they stay longer on the skin, spread easily, and help in better absorption of active ingredients. In this study, an herbal under-eye cream was prepared and evaluated using different tests to check its quality, safety, and effectiveness.

Various evaluation tests were carried out, including physical appearance, irritancy, washability, pH, phase separation, and spread ability. All the prepared batches showed differences in their properties, but overall, they performed well in most parameters. The cream had a smooth, homogeneous, and creamy texture, which is important for easy application on the delicate under-eye area.

The pH of the cream was found to be between 5.4 and 5.8, which is suitable and safe for skin. No irritation was observed during the irritancy test, indicating that the formulation is skin-friendly. The cream also showed good washability and no phase separation, which confirms its stability.

Spread ability of the cream was good, meaning it can be easily applied without causing heaviness. After application, users felt that their skin was more hydrated, smoother, and brighter. Some users also noticed a reduction in puffiness, dark circles, fine lines, and wrinkles.

The presence of natural ingredients such as cucumber juice (rich in vitamins A, C, E, and K), coffee, and aloe vera enhances the effectiveness of

the cream. These ingredients help in skin rejuvenation, nourishment, and improvement of under-eye conditions.

Overall, the herbal cream was found to be stable at room temperature, safe for use, and effective in reducing dark circles. The formulation is of high quality and can be considered a good natural alternative to synthetic creams. Further research can help improve and optimize the formulation in the future.

III. CONCLUSION

The study successfully formulated and evaluated a herbal under-eye cream using natural ingredients like aloe vera, cucumber extract, caffeine, rose water, coconut oil, and vitamin E. The prepared cream showed good physical properties such as smooth texture, pleasant odor, and appropriate consistency.

The evaluation tests confirmed that the cream is safe for skin use, as it had a skin-friendly pH (around 5.4–5.8) and did not cause any irritation, redness, or itching. It also showed good stability, spreadability, and washability, making it suitable for regular application.

The presence of natural ingredients provided multiple benefits, including moisturizing the skin, reducing dark circles and puffiness, and improving overall skin appearance. Antioxidant and anti-inflammatory properties of the ingredients help in reducing signs of aging and protecting the skin from environmental damage.

Overall, the herbal under-eye cream is an effective, safe, and natural alternative to chemical-based products. It can be used daily to improve under-eye skin health and appearance. Further research may help enhance its effectiveness and optimize the formulation.

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