



Formulation and Evaluation of Herbal under Eye Cream for Dark Circles Reduction

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ABSTRACT

A powdered extract of Tea that has been finely pulverized with a pestle and mortar, and levigates was created. The coffee powder for use in subsequent extraction. Propylparaben was added after the emulsifying agent stearic acid had been dissolved in cetyl alcohol, and the mixture had been heated to 75°C. Irritation, erythema, and edema were monitored and reported at regular intervals for up to 24 hours. The cream was kept in a sealed container at 25 to 100°C, away from light. When the cream between the two slides was uniformly compressed to create a thin layer after applying weight or another predetermined load to the upper slide. Semi-solid cream formulations, including semi-solid topical preparations, are preferred because they have better release characteristics and a longer residence time on the skin. The spread ability grade indicates how easy it is to apply the cream formulation. Result: The herbal under-eye cream composition was made with these properties in mind. It was noted that the manufactured cream was consistent and had a decent look and consistency. Due to the highly narrow pH range of all the formulations (5.6 to 7.0), the skin shouldn't be irritated by them. The type of smear that developed on the skin after the cream application was non-greasy. Conclusion: The aim of formulation an herbal under eye cream for dark circles reduction was found to successful with good result. The dark circles cream showed a good spreadability. The formulation showed a good property on our skin without causing skin irritation.

Keywords: Herbal, Under Eye Cream, Dark Circles

Introduction:-

Cosmetics Throughout History

Ayurveda says that blood impurities are typically the cause of skin issues. Skin-related disorders are brought on by blood toxins that have accumulated as a result of poor diet and lifestyle choices.

Ancient Origins of Cosmetics

The ancient science of cosmetology is believed to have originated in Egypt and India, but the earliest records of cosmetic substances and their application dates back to Circa 2500 and 1550 B.C, to the Indus valley civilization. The word cosmetics defined as "Substances of diverse origin, scientifically compounded and used to i) cleanse, ii) allay skin troubles, iii) cover up imperfections and iv) beautify" (Encyclopedia Britannica, 1970), is used in this paper in a wider sense to include Oral hygiene as well.

Evolution of Cosmetics

Over time, cosmetics expanded beyond adornment to include items like high-heeled shoes and artificial dentures. The acceptance and role of cosmetics in daily life increased significantly postWorld War II, as they were recognized for their psychological and skincare benefits.



Modern Understanding of Cosmetics

The modern understanding of cosmetics encompasses a broad range of products and practices aimed at enhancing or altering the appearance of the face, skin, and body. This field includes both traditional beauty products and advanced skincare technologies.

Herbal Cosmetics and Cosmeceuticals

Herbal cosmetics utilize natural ingredients with cosmetic benefits, gaining popularity for their gentle and non-toxic properties. Cosmeceuticals, introduced in the 1990s, combine cosmetic and pharmaceutical properties, often using plant-based active ingredients for therapeutic benefits.

Medicinal Plants and Extraction Techniques

Medicinal plants have been used historically for various ailments and are now recognized as important sources of drugs. Extraction methods, including distillation, maceration, and solvent extraction, are used to obtain active components from plants for medicinal purposes.

Dark circles

Dark circles under the eyes, also known as "Windows of our Soul," are a common beauty issue. They give the appearance of tiredness or illness, make us feel worse, and have a negative impact on our self-esteem. The skin under the eyes is very thin, and blood passing through the large veins has a bluish tint. When the skin around the eyes becomes too thin, or when the melanin produced around the eyes is higher than.

Benefit of using dark circles cream:

- Reducing the Appearance of Dark Circles
- Hydrating the Under-Eye Area
- Decreasing Puffiness
- Improving Skin Elasticity
- Brightening Effect
- Antioxidant Protection
- Calming and Soothing
- Convenience and Ease of Use

MATERIAL

Plant Material

Tea extract, Coffee extract, Aloe vera, was taken as plant material in this formulation. Aloe vera was collected from the Botanical Garden, Lucknow Model College of Pharmacy, Lucknow. Orange Peel Powder, Rose Water, Vitamin E Capsule Aloe vera, was purchased from the local market of Dubagga, Lucknow.

1. Tea

Synonym

Tea leaf, tea plant



Biological source –

Tea leaves are obtained from the plant *Camellia sinensis*.

Family Theaceae

Description –

Colour- Dark brown, green

Odour- Aroma.

Taste- Bitter

Chemical Constituents Caffeine, Gallic acid, Caffeine, theobromine, theophylline.

Uses: Antioxidant properties, aiding digestion, improving mental alertness, and reducing risk of heart disease.



Fig 1: Dried tea leaf

2. Coffee

Synonym-

Coffee berry, Coffee Arabica, Coffee plant

Biological source – Coffee is obtained from the coffee plant dried ripe seed *Coffea Arabica*

Family- Rubiaceae

Description –

Colour- Dark brown

Odour- Aroma

Taste- Bitterness

Chemical Constituents- Caffeine, Chlorogenic acids, Lipids, Alkaloid

Uses: It has antioxidant properties, cognitive function improvement, and reduced risk of certain diseases.



Fig 2: Coffee powder

3. Aloe-Vera

Synonym-

Aloe vera, burn plant

Biological source –

Dried latex of leaves of it also known as cape aloe.

belong to the

Family- liliaceae

Description –

Colour- clear to slightly yellow / translucent gold

Odour- similar like rotten garlic or onion.

Taste- Bitter

Chemical constituents - aloe emodin ,vitamins, Enzymes, Minerals, Sugars, Salicylic

Uses - heals burns and clears acne, removes dark circles



Fig 3: Aloe- vera leaves

Rose water:

Synonyms:

Rosa water, Floral water



Biological source –

Rose water is primarily derived from the petals of the *Rosa rubiginosa*

Family Roseaceae

Description –

Colour- light pinky- blush

Odour- roses odour, fresh, sweet

Taste- slightly sweet and floral

Chemical Constituents Phenyl ethanol, Geraniol and Citronellol, Linalool, Phenylethyl alcohol.

Uses: Antibacterial properties. It is also used in eye drops to treat eye conditions and in various remedies to soothe sore throats and digestive issues.

Orange Peel Powder

Synonyms:

Citrus sinensis peel powder

Biological source

Derived from the dried peels of the fruit of the sweet orange tree, scientifically known as *Citrus sinensis*.

Family – Rutaceae

Description –

Colour- Pale orange

Odour- citrusy aroma.

Taste- like orange, bitterness

Chemical Constituents : Flavonoids, Vitamins, Carotenoids, Pectin Fiber ,Polyphenols

Uses: Digestion and promoting gut health, immune system. antioxidant Properties, oxidative anti-inflammatory.



Fig 4: Orange peel powder

Preparation of extraction tea and coffee

Step 1: Formulation of tea extract

Weigh 20gm of tea and dilute it in 80ml of rosewater.
Then cooked on a hot plate at 75°C.
Filter the tea extract using filter paper.
Now, the tea extract is stored in a beaker.



Fig 5: Extraction process of tea leaf

Step 2: Formulation of coffee extract

Weigh 10g of coffee powder and dissolve in 90ml of rose water.
Then, cook on a heated plate at 75°C.
Now, filter the coffee extract via filter paper.
Now, the tea extract is kept in a beaker.



Fig 6: : Extraction process of Coffee powder

Step 3: Preparation of Aloe-vera gel:

Firstly, we will clean the aloe vera leaves. Then we cut those leaves with a knife and take out its pulp. Then we grind the pulp with help of grinder. We careful not to include any pieces of aloe vera skin and then take out aloe vera gel in petridish.



Fig 7: Aloe-vera gel

FORMULATION OF HERBAL UNDER EYE DARK CIRCLES CREAM

Several elements and their roles in the manufacturing of herbal under eye creams are listed below in the table:

Table: 1

Sr.no.	Ingredients	Roles
1	Tea Extract	Reduces fine lines and wrinkles
2	Coffee Extract	Reduces dark circles and puffiness
3	Aloe vera	Gel Provide moisture and hydrates the under-eye skin
4	Rose Water	Helpful in eye dryness and provide cooling sensation
5	Stearic Acid	Emulsifier and Emollient
6	Cetyl Alcohol	Thickening agent
7	Potassium Hydroxide	Maintain the pH
8	Sodium Hydroxide	Maintain the pH
9	Triethanolamine	Maintain the pH
10	Glycerine	Humectant and moisturizing agent
11	Methyl Paraben	Preservatives
12	Propyl Paraben	Preservatives
13	Vitamin E Capsule	Treats Hyperpigmentation and Protects UV exposure
14	Orange Peel Powder	Fragrances



Fig 8: Final product



Procedure:

Step 1: Formulation of tea extract

Step 2: Formulation of coffee extract

Step: 3 (For oil phase)

Propylparaben was added after heating the emulsifying ingredient, stearic acid, in cetyl alcohol to 75 °C.

Step: 4 (For aqueous phase)

In another beaker, dissolve sodium hydroxide, potassium hydroxide, triethanolamine, and methylparaben in rose water and heat to 75°C to generate an aqueous phase.

Step: 5

Glycerine and aloe vera gel were also added to the extract. After properly combining all ingredients, add a vitamin E tablet. After heating the oil phase, add an aqueous phase at the same temperature and mix continuously. The heating of the aqueous phase was completed. This produced a smooth, uniform cream.

Step: 6

Once the cream has formed, add orange peel powder for scent. Transfer the cream to a container and mix it geometrically to achieve a smooth texture and correct blending of all components.

EVALUATION PARAMETER OF HERBAL UNDER EYE CREAM

Physical evaluation:

Physical characteristics like color, appearance, and consistency were evaluated during the formulation process.

Determination of pH:

The pH of the topical under-eye cream was digitally assessed. 0.5 grams of the formulation were dissolved in 50 cc of distilled water for 1 hour. pH values were calculated for each formulation.

Washability Test:

To evaluate the cream's removal ease, the area where it was administered was rinsed with tap water.

Irritancy study:

Draw a 1-square-centimeter square on the left dorsal surface. The time was recorded after applying the lotion to the desired area. For up to 24 hours, erythema, edema, and irritation were monitored and reported at regular intervals.

Determination of Homogeneity:

By looking at it and touching it, the uniformity of the formulation was evaluated.

Spread ability Test: The time it took two slides to separate from the cream, which was placed between the slides under a particular force, was used to determine spread ability. The faster the two slides can be separated, the greater their spread ability. There were two sets of regular-sized glass slides. The cream mixture was then transferred on an appropriate-sized slide. The formulation was then discussed on the following slide. When applying a predetermined load to the upper slide, the cream between the two slides was equally pressed to form a thin layer.



After removing the weight, the slides were scraped clean of any leftover formulation. After removing the weight, the slides were scraped to remove any excess formulation. Weight, together with the higher slide's force allows it to slide off easily. It was timed how long it took the upper slide to detach. The determinations were carried out in three times and the average are readings was recorded and calculate.

$$S=m*I/t$$

Were,

S - Spread ability

m - Weight tied to upper glass slide.

I - Length moved on a glass slide

t - Time taken.

The determinations were carried out in three times and the average are readings was recorded and calculate.

RESULT AND DISCUSSION

Cream formulations, particularly semi-solid topical medicines, are recommended for their superior release properties, longer skin-residence length, high viscosity, and bio-adhesiveness.

Flaky skin experiences less irritation and is more hydrated. The herbal under-eye cream was created with these features in mind. The made cream was uniform and had a good appearance and consistency.

All formulations have a narrow pH range (5.6 to 7.0) and are unlikely to cause skin irritation. The cream left a non-greasy smear on the skin after application.

Physical evaluation:

In this test colour, odour, texture, and state of the four formulations were checked.

Table: 2

Sr. no.	Parameter	Formulation
1	Colour	Brown
2	Odor	Pleasant
3	Texture	Smooth
4	State	Semi – solid

Determination of pH:

The pH meter was calibrated and measured the pH by digital pH meter placing in the beaker containing 100mg of the at a temperature room temperature.

Irritancy:

It was applied to the layer of skin and allowed to absorb. An hour was spent evaluating the skin for signs of inflammation, redness, itching, or pain. The procedure used for the commercial formulation was same.

Spread ability test:

The cream base should spread freely with minimal drag and friction during rubbing. Spread ability was measured using a wooden board, scale, and two glass slides with two pans each sides are fixed on a pulley.



Where,

$$S = m \times l / t$$

$$S = 0.4086$$

Conclusion

The study used in-vitro procedures to test the efficacy of traditional herbs in removing eye outlines. This study is primarily concerned with the development and evaluation of the under-eye cream emphasizes the extract's cosmetic value. It reduces dark circles beneath the eyes and can be further studied for anti-tyrosine and anti-wrinkle qualities.

This study aims to investigate the potential of extracts for cosmetic applications. Cosmetics have become increasingly popular in the personal care market. The eye cream made in this investigation was a w/o type emulsion.

making it easy to wash off with normal water, leading in increased customer compliance. Our investigation indicates that the formulations were highly stable, with good spreadability and no signs of phase separation.

The formulations had a consistent pH, emollient characteristics, were non-greasy, and easily removed after use. The stable formulations were shown to be safe, with little skin reactions such as irritation and allergic sensitivity.

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