

Formulation and Evaluation of Haritaki Under Eye Cream

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Abstract

The study focuses on the Formulation and Evaluation of Haritaki Undereye Cream, aimed at reducing dark circles and improving skin health using Terminalia chebula (Haritaki) extract. Dark circles are a common dermatological concern caused by factors such as fatigue, stress, dehydration, aging, and melanin overproduction. Many synthetic undereye creams contain artificial fragrances and chemicals that may cause irritation, redness, and increased skin sensitivity. The project involves the development of an herbal undereye cream utilizing Haritaki extract, known for its antioxidant, anti-inflammatory, and skin-rejuvenating properties. The formulation also includes aloe vera gel, beeswax, glycerine, and Vitamin E, ensuring hydration and nourishment while avoiding synthetic chemicals. The cream was prepared using oil-in water emulsion techniques and evaluated for pH, spreadability, stability, homogeneity, washability, and skin irritation. Results indicate that the formulated cream has a smooth texture, good Spreadability, an ideal pH of 5.95 (skin-friendly), and no observed irritation. Stability tests confirmed that the cream retained its color, consistency, and efficacy over 30 days. The study concludes that the Haritaki-based undereye cream is a safe, effective, and natural alternative to conventional products, providing hydration, reducing dark circles, and enhancing overall skin appearance without adverse effects.

Keywords: Haritaki, Dark circles, Anti-aging, Under eye cream, Skin rejuvenation.

INTRODUCTION:

Eyes are known as “The Windows of our Soul”. One of the major problems faced by people of all age groups is that of dark circles. The skin under the eye is very thin and when blood passes through the large veins close to the surface of the skin, it can create a bluish tint to the skin. The more transparent the skin is, the darker the circles appear. When there is more melanin produced around the eyes than is usual, giving them a darker colour, the condition is periorbital hyperpigmentation. The causes for dark circles include fatigue, stress, excessive sun exposure, sleep deprivation, long working hours, lack of balanced diet, dehydration and medical conditions related to kidney, thyroid, and anemia. Eye care products are one of the top selling cosmetics in the world. A large number of under eye creams are currently available in the

market. However many common side effects reported for these currently available under eye creams are as follows: redness, burning, itching, peeling and swelling ⁴

It is a common goal of humans to want to seem attractive, young, and lovely. Compared to other parts of the skin, the skin is thinner and has less fat in the area around the eyes. For this reason, The earliest indicators of aging include puffiness, bags, pigmentation, dark circles beneath the eyes, stress, illness, environmental pollution, melanin deposition, lifestyle, and genetics. One of the most prevalent conditions people of all ages experience is dark circles. Blood traveling through the large veins beneath the skin beneath the eye gives it a bluish tint since the skin there is so thin. Dark circles get darker when the skin around the eyes dries out too much. Periorbital hyperpigmentation describes the condition when more melanin than usual is produced around the eyes, giving them a darker hue under the eyelids or around the eyes. Everyone, regardless of age, frequently experiences dark circles. It is sometimes referred to as a consistent, circular darkening of the skin under or around both eyes. Dark circles may be a result of a variety of extrinsic and intracellular factors, such as sex, aging, anatomical variations, atopic dermatitis, dryness, heredity, and other physical issues³

Dark circles are mostly found in few groups, these groups include:

1. Elderly people.
2. People with a family history of dark circles under their eyes.
3. People with darker skin tones ¹

PLANT PROFILE:

Haritaki is a deciduous tree that grows up to 30 meters in height. It has a broad, rounded crown and a straight, cylindrical bole. The leaves are elliptical, dark green, and 7-15 cm long. The flowers are small, yellowish-green, and arranged in axillary spikes. The fruit is a drupe, greenish-yellow, and 2-3 cm long.

SCIENTIFIC CLASSIFICATION: -

Scientific name- Terminalia chebula.

Family – Combretacea

Higher classification- Tropical almond.

Order - Myrates.Kingdom- Plantae.



Figure No 1: -Haritaki seeds

AIM AND OBJECTIVES:

Aim: Formulation and Evaluation of Haritaki Under eye Cream. Objectives:

- To develop a cream which contain API to reduce the hyperpigmentation under eye, which will give confidence to one.
- To identify and select appropriate herbal ingredient that have been traditionally used for managing dark circles.
- To formulate under eye cream using that ingredient.
- To do evaluation of undereye cream.
- To reduce melanin production under eye and reduce dark circles.

MATERIALS AND METHODS:

MATERIALS: -

Apparatus: Mortar and pestle, measuring cylinder, beaker, stirrer, water bath, thermometer, burner, etc

Instrument: Mixer, PH meter, etc

Chemicals and Reagents: Stearic acid, bees wax, cetyl alcohol, potassium hydroxide, sodium hydroxide.

Plant materials: Haritaki seeds

METHODS: -

Collection of Haritaki Seeds:

Haritaki seeds were purchased from V.N Maradwar Ayurveda, Wardha. Seeds were washed with distilled water to get rid of extraneous matter and were dried.

Preparation of Haritaki seeds extract:

50 gm of Ink nut (Haritaki) soaked overnight



Remove the seeds; Take this in mixture/ mortar pestles



Extraction were filtered.

FORMULATION OF HARITAKI

List of Ingredient required for undereye cream Preparation:

Sr. No	Ingredients	Batch 1	Batch 2	Batch 3	Batch 4	Roles
1.	Haritaki extract	5ml	3.5ml	3ml	2.5	Antioxidant , Reduces dark circles
2.	Bees wax	3.6g	3.6g	3.6g	3.6g	Stabilizer
3.	Stearic acid	3.6g	3.6g	3.6g	3.6g	Emulsifier
4.	Cetyl alcohol	0.2g	0.2	0.2g	0.2g	Emollient
5.	Potassium hydroxide	0.08g	0.08g	0.08g	0.08g	Stabilizer
6.	Sodium hydroxide	0.064g	0.08g	0.08g	0.08g	Adjust the PH
7.	Triethanolamine	0.48g	0.48g	0.48g	0.48g	Adjust the PH, emulsifier
8.	Sodium benzoate	0.05g	0.05g	0.05g	0.05g	Preservative
9.	Glycerine	6ml	5.5ml	5.5ml	5ml	Moisturizing agent
10.	Aloe vera gel	4g	3g	2.5g	1.5g	Anti-ageing, moisturizer
11.	Vitamin-E capsule	1 capsule	1 capsule	1capsule	1 capsule	Skin softner
12.	Rose water	6ml	5ml	5ml	5ml	Flavouring vehicle
13.	Citric acid	0.005g	0.005g	0.005g	0.005g	Preserve and extend shelf life, regulate PH

Table No.1 : Formulation of Haritaki

PROCEDURE:

Phase A: oil phase: The emulsifying agent stearic acid was dissolved in Ceto styryl alcohol and then

beeswax is added and heated at 75° C.

* Oil phase was prepared.

Phase B: Aqueous phase: water soluble compounds like triethanolamine, sodium hydroxide, sodium benzoate and citric acid dissolved in water and heated at 75° c.

*Aqueous phase was prepared.

Phase C: Herbal phase: Glycerine and aloe vera gel was added in haritaki extract.



Add vitamin E capsule Add rose water and mix well.



Add aq. Phase in oil phase at same temperature i.e. 75°c with continuous stirring.



After maintaining the same temperature, the herbal phase was added and triturated.

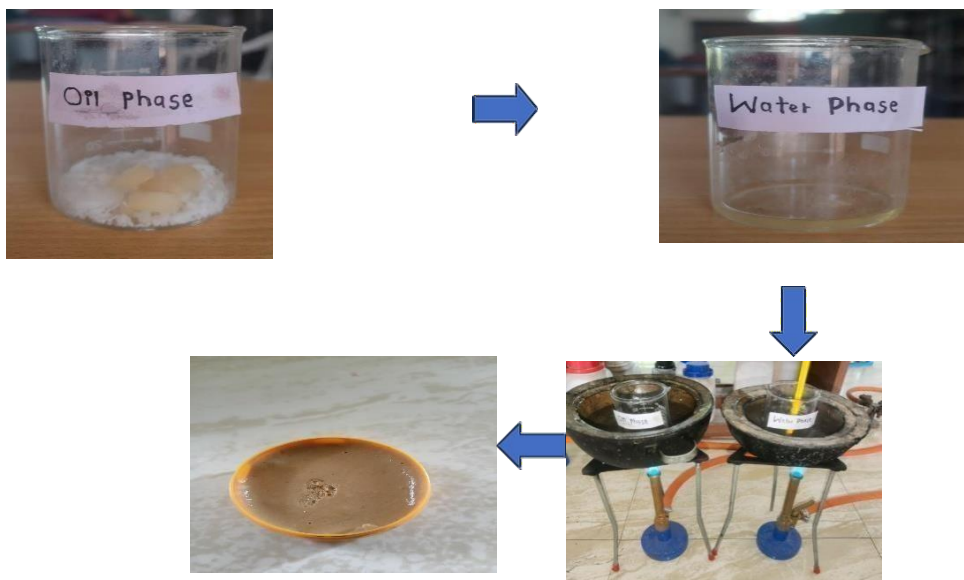


Figure No. 2 Preparation of under-eye cream.

EVALUATION PARAMETERS:

EVALUATIONS

- **Physical evaluation:** For the Formulation, physical features such as colour, appearance, and consistency were assessed.
- **pH:** The pH of the topical under-eye ointment was measured digitally. In 50 ml of distilled water,
- 0.5 grams of the formulation were dissolved for an hour. Results were calculated to determine each formulation's pH values.
- **Washability:** The creams' ease of removal was assessed by rinsing the region with tap water where they had been applied.
- **Irritancy study:** Mark a 1-square-centimeter square on the left dorsal surface. The time was noted after administering the cream to the targeted location. For up to 24 hours, irritation was observed and reported at regular intervals.
- **Phase Separation:** The prepared cream was stored in a dark, tightly-sealed container at a temperature of 25 to 100 °C. Phase separation was then monitored every 24 hours for the next 30 days. The phase

separation was verified, and any changes were examined.

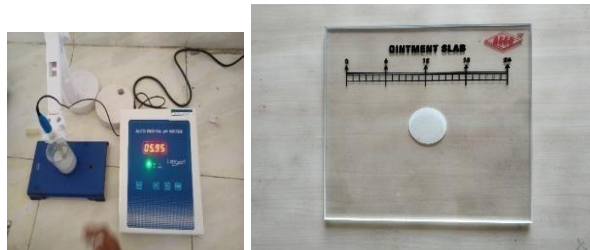
- **Spread ability:** The time it took two slides to separate from the cream, which was positioned in between the slides under a given force, was used to gauge the spread ability. The quicker the two slides can be separated, the better the spread ability. There were taken two sets of regular- sized glass slides. The cream mixture was next put on a slide that was the proper size. The formulation was then covered in the following slide. The cream between the two slides was evenly pushed to create a thin layer when a weight or other prescribed load was applied to the upper slide. The slides then had any remaining formulation scraped off of them once the weight was removed. The weight was then taken off, and the slides had any extra formulation scraped off of them. Weight coupled with the upper slide's force enables it to slide off readily. It was timed how long it took for the upper slide to detach.
- **Homogeneity:** By looking at it and touching it, the uniformity of the formulation was evaluated.

RESULTAND DISCUSSION RESULTS:

Organoleptic evaluation

Evaluation Parameters	Batch 1	Batch 2	Batch 3	Batch 4
Colour	Light Brown	Light Brown	Light Brown	Light Brown
Odour	Pleasant	Pleasant	Pleasant	Pleasant
Consistency	Semi solid	Semi solid	Semi solid	Semi solid
Texture	Smooth	Smooth	Smooth	Smooth

Table. No. 2: Result of Organoleptic property.



1. Appearance and Homogenicity:

Observation: Prepared cream was found to be homogeneous in nature.

2. pH:

Observation: pH was found to be 5.95

3. Spreadability: $S = ML/T$

Where, M = weight of upper slide L = length of circle

T = Time in minute

$$S = 5.84 \times 5/240$$

$$= 0.121 \text{ g.cm/s}$$

4. Skin Irritation test:

Observation: There is no Irritation, redness or itching was observed.

5. Stability test:

Sr. No.	Parameter	Initial value	After 30 Days

			Batch1	Batch2	Batch3	Batch4
1.	Colour	Light brown	No change	No change	No change	No change
2.	consistency	Homogeneous	No change	No change	No change	No change
3.	pH	5.95	5.95	5.95	5.95	5.95

Table No.3: Result of Stability test

6. Washability:

Observation: Easily washable.

DISCUSSION:

The formulated Haritaki under eye cream demonstrated excellent for Spreadability, and skin compatibility. The pH was within the ideal range, ensuring no irritation to the sensitive undereye area. The moisturizing effect was notable, supporting the hydration benefits of the formulation.

Haritaki, known for its antioxidant and anti-inflammatory properties, helped reduce oxidative stress and pigmentation under the eyes. It does not reduce dark circles but also glows the skin and reduces skin damaged. As it causes no irritation it is better than allopathic cream. As it passed all the evaluation parameters like pH, washability Phase separation, irritations Spreadability etc.

The Spreadability ensured ease of application without excessive greasiness, making the product suitable for daily use. The pH (5.5 -6.5) was within the physiological range of the skin, ensuring that it would not cause irritation or disturb the skin natural barrier function. Apart from haritaki, the formulations effectiveness was influenced by the choice of base ingredients including aloe vera, glycerine helped retain moisture, emulsifiers and stabilizers played a crucial role in maintaining a smooth and non-greasy texture. Formulation prepared from these project goes under various evaluation parameter like Spreadability, washability, pH, irritation, homogeneity and phase separation.

CONCLUSION:

The cream has been created with the aim of developing formulation containing traditional and safer substances and studying their effectiveness in removal of eye contours by in vitro techniques. The present study involves formulation development and evaluation of under eye cream, present work mainly focuses on potential of extract from cosmetic purpose. It helps to reduce dark circles under eye area. The most crucial feature of these under eye cream is that it works better than synthetic under eye cream and is free of harsh chemicals. Because this study’s manufactured under eye cream has anti tanning property, it can be concluded that using it will leave your skin looking fresh and free of dark circles.

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