

Formulation and Evaluation of Herbal Eye Cream for the Treatment of Dark Circle

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ABSTRACT:

Potato starch extract, amla powder, and aloe Vera gel were utilized to make and assess the herbal lotion. Stearic acid, cetyl alcohol, potato starch, methyl paraben, distilled water, rose oil, and amla powder were used to make the cream base. The herbal extract and all of the excipients were combined uniformly to create the cream. Four batches (F1, F2, F3, and F4) of our herbal cream were made using the homogenous mixing technique. A variety of criteria, including appearance, pH and viscosity, irritation, and washability, were assessed for each of the four batches.

Keywords: Termuric, potato starch, aloe Vera gel, amlapowder.

I. INTRODUCTION-

Cream is a sort of semisolid emulsion that is meant to be applied externally. It comes in two varieties: water in oil (w/o) and oil in water (o/w). It is administered to the skin's outermost or most superficial layers. The purposes of the cream are to provide soothing effects to the skin and shield it from various environmental conditions. Many creams are available, including foundation, disappearing, night, cleansing, and cold. Our primary goal is to create a herbal cream that has multiple uses, such as reducing dark circles, irritation, aches, and skin diseases.



Fig No1-Dark Circles

The thinning skin behind the eyes, aging, and inadequate sleep are the main causes of dark circles under the eyes.

- Anemia resulting from low iron levels.
- Excessive sun exposure.
- Rubbing of the eyes frequently.
- Disorder of the thyroid.
- Dermatitis, inherited genetics.
- Dehumidification.
- Glaucoma treatment with eye drops.

Benefits of herbal cream:

- It aids in the reduction of dark circles.
- It promotes skin that glows.
- The components in herbal cream are organic and pure.
- It serves to nourish all types of skin.
- They don't cause skin irritation or negative consequences.

The drawbacks of cream:

- Excessive usage of cream may result in dry skin.
- Scaly skin might result from not bathing your skin enough.
- Skin cancer risk is increased by paraben.

Among the causes of all black circles under the eyes are age and insufficient sleep.

- Skin thinning around the eyes.
- Anemia resulting from low iron levels.
- Excessive sun exposure.
- Rubbing of the eyes frequently.
- Disorder of the thyroid.
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Importance of Herbal Formulation in India:

Millions of Indians regularly use over-the-counter (OTC) medications as self-medication or as prescription drugs in no allopathic systems, as well as herbal spices, home cures, and nutritious foods.

Numerous ailments, such as allergies, asthma, eczema, premenstrual syndrome, rheumatoid arthritis, fibromyalgia, migraines, and premenstrual syndrome, are treated using herbal therapy.

Among these are cancer, irritable bowel syndrome, menopausal symptoms, and chronic fatigue.



The Nobel laureate Ernst Boris Chain, the creator of the potent herbal medication penicillin, produced a thought-provoking piece titled "The quest for brand spanking new biodynamic substances". "There was an in-depth force in China and India aimed toward the systemic study of medicinal plants traditionally utilized in these nations in folklore," he wrote in 1967.

Medicine; nevertheless, as far, little new knowledge on substances with intriguing pharmacologic properties has been added. Therefore, in terms of pharmacological research, we can no longer expect many significant discoveries to come from the analysis of plant ingredients.²

What are the dark Circle under Eye-?

Role of ingredients-¹⁰

Table No 1- Role of Ingredients

Sr No	Name of Crude Drug	Botanical Name	Use	Image
1	Turmeric	Curcuma longa	Inflammation & Degenerative eye conditions	
2	Potato Starch	Solanum tuberosum	Thickening sauces And to make noodles and pasta.	

Dark circles under the eyes are typically caused by several factors-

- ✓ Genetics- Some people inherit a tendency to develop dark circles.
- ✓ Allergies- Chronic rubbing of the eyes due to allergies can also cause darkening.
- ✓ Sun Exposure- Overexposure to the sun can increase melanin production, leading to darker skin.

The region of skin beneath your eyes seems darker when you have dark circles under them. Depending on your natural color, this area may also seem blue, purple, brown, or black.


Our primary goal is to create a herbal cream that has the best possible results. To that end, we use a variety of herbal ingredients in our formulation, such as

Material and Method:

Aloe Vera gel, amla powder, almond oil, and turmeric are gathered from the nearby Nasik area. Laboratory supplies include stearic acid, cetyl alcohol, methyl paraben, glycerin, and sodium hydroxide. To make herbal cream, all ingredients are used.

3	Amla Powder	Emblica officinalis Gaertn	Improves eye health, Boosts immunity	
4	Aloe Vera gel	Aloe barbadensis miller	Restores hydration under eye	
5	Almond Oil	Prunus Amygdalus Dulcis	Reduces dark circles	
6	Stearic Acid	Octadecanoic acid	Commonly used in cosmetic	
7	Cetyl Alcohol	hexadecan-1-ol and palmityl alcohol	Industrial lubricant	

8	Sodium hydroxide	lye and caustic soda	Dyes and petroleum products	
9	Triethanolamine	TEOA	corrosion inhibitor	
10	Glycerin	Trihydric alcohol	skin care, hair care, and oral hygiene.	
11	Methyl paraben	-	germ growth	
12	Rose Water	Rosa damascena	Anti-depressant, anti-spasmodic, aphrodisiac	

13	Vitamin Capsule E	RRR-alpha-tocopherol	Helps skin hydration	
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Procedure: ^{4,5,6,}

Phase A: The oil phase

Cetyl alcohol was used to dissolve the emulsifying ingredient, stearic acid, and then methyl paraben was added and heated to 75 °C. The oil phase was ready.

Phase B: The water phase

This phase is generated by adding water to certain water-soluble compounds, such as sodium hydroxide, triethanolamine, and methyl paraben. Heated to 75°C after that. The water phase was ready.

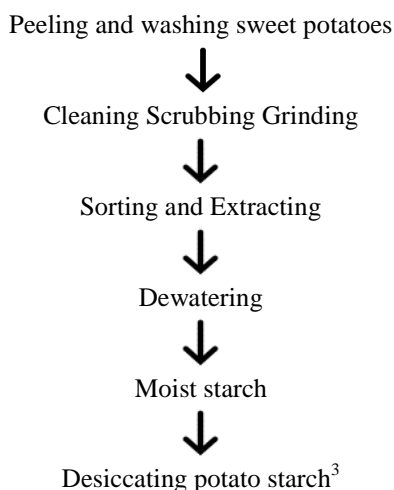
Phase C: The phase of herbs

Potato starch, amla powder, and glycerin were added to the aloe Vera gel. After thoroughly mixing, almond oil and vitamin E capsules were added, followed by an adequate amount of rose water.

The smooth and uniform cream was created by adding the heated aqueous phase to the oil phase at a constant temperature and stirring. Herbal phase was introduced and triturated following a drop in temperature to 45°C.

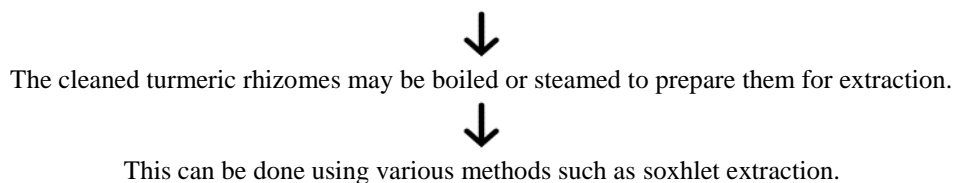
Extraction: ^{6,7}

Extraction of Potato Starch-



Extraction of Turmeric-

Melt 2g of turmeric extract in 20ml of distilled water, then transfer the mixture to a 250ml volumetric flask that has been heated to 80°C to 100°C for 15 minutes.





After extraction, the solvent containing extracted curcuminoids is filtered to remove solid particles. The filtrate is then concentrated under reduced pressure or by evaporating the solvent to obtain a crude extract.

Amla: Amla fruits are cleaned and powder to increase surface area



Grinding



The concentrated extract is then analyzed for its phytochemical composition, antioxidant activity and others parameters interest using technique like HPLC (High Performance Liquid Chromatography) or spectrophotometric methods.



Finally, the extracted and analyzed samples are stored under appropriate condition to maintain their stability.

Aloe Vera Gel-

Mature leaves of aloe Vera are selected, washed thoroughly remove any dirt or impurities and then peeled to obtain the inner gel.



A suitable solvent like water or mixture of water and ethanol is often used to extract bioactive compounds from the gel.



Utilizes ultrasound waves to enhance the extraction process by improving solvent penetration



The mixture is filtrated to separate the liquid extract from any remaining solid particles or fibers. The extract is concentrated using method such as evaporation or freeze-drying to remove the solvent and obtain concentrated gel extract.

The concentrated extract is then analyzed for its bioactive compounds such as phenolic compounds, vitamins and minerals.

Table No 2- Formulation of Cream (5,9,12,13,14,15)

Sr. No	Ingredients	F1	F2	F3	F4	Role
1	Turmeric	3gm	1.5gm	0.5gm	0.3gm	Antioxidant
2	Potato Starch	1gm	1.5gm	1gm	1.5gm	Lighten dark spot
3	Amla Powder	0.5gm	0.5gm	0.5gm	0.5gm	Antioxidant
4	Aloe Vera Gel	2gm	1gm	2gm	1gm	Ant aging
5	Almond Oil	0.8ml	0.8ml	0.8ml	0.8ml	Regenerate skin cells
6	Stearic Acid	3.6gm	3.6gm	3.6gm	3.6gm	Emulsifier
7	Cetyl Alcohol	0.1gm	0.1gm	0.1gm	0.1gm	Emollient

8	Sodium hydroxide	0.04gm	0.04gm	0.04gm	0.04gm	Help to adjust pH
9	Triethanolamine	0.24gm	0.24gm	0.24gm	0.24gm	Help to adjust pH
10	Glycerin	2ml	3.5ml	2ml	3.5ml	Moisturizing agent
11	Methyl paraben	0.002gm	0.002gm	0.002gm	0.002gm	Preservative
12	Rose water	q.s	q.s	q.s	q.s	Fragrance
13	Vitamin E capsule	1 capsule	1 capsule	1 capsule	1 capsule	Dark circles remover
14	Distilled water	6ml	5ml	6ml	5ml	Vehicle



Fig No 2- Formulation of Cream

Evaluation test for eye cream:^{11, 12}

✚ Physical evaluation

Color, scent, and texture were all assessed.

✚ Irritation-

Mark the area on the left hand's dorsal surface by 1 centimeter. After applying the ointment to the afflicted area, the time was noted. It is then assessed for irritancy and edema, if present, for a maximum of 24 hours, and reported.

✚ Wash ability-

The hand was cleaned with tap water after a small amount of lotion was applied.

✚ pH-After spreading 0.5g of cream in 50 ml of distilled water, the pH was determined with a digital pH meter.



Fig No 3- Digital pH meter

✚ Viscosity-

Using a Brooke field viscometer with spindle No. 63 at 2.5 RPM, the viscosity was measured at 25 °C.

✚ Phase separation-

The made cream was kept in a sealed container at a temperature between 25 and 100 c, away from light. After that, phase separation was seen every 24 hours for the following 30 days. We checked and verified the phase separation for any alterations.



Spread ability-

The amount of time it took for two slides to separate from the cream that was positioned in

between them while applying a particular force was used to gauge the spread ability. It takes less time to separate the two slides the better the spread ability.

Evaluation Parameter-

In this test, the four formulations' states, colors, and odors were examined.

Sr. No	Test	F1 Batch	F2 Batch	F3 Batch	F4 Batch
1	Yellow	Yellow	Yellowish green	Yellowish green	Yellow
2	Pleasant	Pleasant	Pleasant	Pleasant	Pleasant
3	4.6	4.7	5	5.2	4.6
4	No	No	No	No	No
5	Easily spread	Easily spread	Easily spread	Easily spread	Easily spread

II. RESULT AND DISCUSSION-

Studying every metric required for the cream helps in the creation and evaluation of the herbal cream formulation. Based on all evaluation factors, the herbal cream is successful in providing a beneficial outcome for dark circles.

Every review can see that the formulation of the herbal cream is of high quality. And additional research improves the formulation of creams in the future.

Herbal cream for dark circles is created and assessed. According to evaluation criteria, the formulation is stable at room temperature and is safe to apply to the skin.

III. CONCLUSION-

Every substance utilized in the formulation has the highest therapeutic benefit and the fewest, if any, negative effects on the skin. Due to the fact that all of the ingredients are natural and beneficial for dark circles. The herbal cream was discovered to be a natural product that may be used for a long time after all viewpoints were examined.

REFERENCE-

- [1]. Formulation and Evaluation of Poly Herbal under Eye Cream. Vaishnavi S. Patil, Sayali M. Yadav, Nisha S. Zende, Manisha M. Murgude, Rohan R. Vakhariya, Dr. C. S. Magdum. International Journal of Creative research Thoughts (IJCRT). Page No- 189.
- [2]. S.B Gokhale pharmacognosy book. 3rd and 4th edition.

- [3]. Vigneshwaran. L.V. senthil Kumar, formulation and evaluation of under eye derma gel.
- [4]. en.Wikipedia.org/wiki/cream
- [5]. <https://www.medicalnewstoday.com>
- [6]. <https://www.auraherbal.in/6-Benefits-of-using-herbal-cosmetics>.
- [7]. <https://youth.be/1f-thRqNx4M>
- [8]. <https://en.m.wikipedia.org>
- [9]. Manisha Yogesh sonalkar, sachin Annasaheb Nitave. Formulation and evaluation of polyherbal cosmetic cream. World J pharmacy pharmsci 2016: 5.772-
- [10]. Renuka.M. parmar, Mohammad.S. khan, formulation and evaluation of poly herbal under eye gel.
- [11]. Divya Sunil Irole, Dr. Sundesh. R. Wayal and Sonali Barke, Herbal formulations for the treatment of dark circles.
- [12]. <https://www.healthline.com>
- [13]. <https://www.chemicalsafetyfacts.org>
- [14]. <https://my.clevelandclinic.org>
- [15]. Herbal formulations for the treatment of dark circles. Divya Sunil Irole, Dr. Sandesh R Wayal and Sonali Barke. Journal of Pharmacognosy and Phytochemistry. Page No- 143.