



# Formulation and Evaluation of Poly Herbal under Eye Cream

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## ABSTRACT:

To formulate and evaluate poly herbal cream using aloe vera gel, extracts of Haritaki, potato starch and Amla powder were used. The cream was prepared by using the cream base that is stearic acid, cetyl alcohol, Haritaki, potato starch, methyl paraben, distilled water, rose oil, aloe vera gel, extracts of Haritaki, potato starch and Amla powder. The cream was prepared by using the homogenous mixing of all the excipients and the herbal extracts. By using homogenous mixing developed four batches of our herbal cream were prepared namely F1H, F2H, F3H and F4H. All four batches were evaluated for different parameters like appearance, pH and viscosity. All the four formulations F1H, F2H, F3H and F4H showed good appearance, pH, adequate viscosity and no phase separation was observed. Also, the formulations F1H, F2H, F3H and F4H showed no redness and irritation during irritancy study and they were easily washable. All the four formulations F1H, F2H, F3H F4H were stable at room temperature. We used four herbal ingredients shows significant various activities. Based on the results, we can suggest that all the four formulations F1H, F2H, F3H and F4H were stable and can be safely used on the skin.

**Keywords:** Poly herbal under eye cream, Aloe Vera, Haritaki, Potato Starch, Amla Powder, Almond Oil.

## INTRODUCTION:

Creams are circumfluous conflation lozenge forms containing further than 20% water or unpredictable factors and generally lower than 50% hydrocarbons, waxes as vehicles<sup>(1)</sup>

Cream is classified-

- 1) Oil in water
- 2) Water in Oil

All causes of dark circles under the eyes includes <sup>(2)</sup>

- Poor sleep.
- Disinclinations, including hay fever
- Hyperactive saturation, which happens when the body produces further melanin
- Reduced situations of adipose towel around the eyes
- Thinning skin under the eyes
- Anemia from iron insufficiency
- Overexposure to sun
- Frequent rubbing of the eyes
- Aging

- Smoking
- Inherited genes
- Thyroid conditions
- Dehumidification
- Dermatitis
- Eye drop treatment for glaucoma

#### **Advantages of Herbal cream:** <sup>(3)</sup>

- It's helps to skin glow.
- Herbal cream has pure and organic ingredients.
- They are free from side effects or minimize the side effects.
- Herbal cream is easily available in market and suitable for all skin types.
- They also help to reduce skin damage, dryness of skin completely.
- To cure the skin irritation the herbal cream is really useful.
- They have no synthetic and harmful additives.
- Herbal cream for skin glow is made to strengthen the skin follicles by giving essential oils.
- They also nourishment all types of skin.

#### **Disadvantage of synthetic cream:** <sup>(4)</sup>

- Synthetic cream may leads to skin breakage.
- Overuse of synthetic cream can clog skin follicles.
- Infrequent skin washing can cause scaly skin.
- Ingredients like sulfates increase skin sensitivity and strip skin of their natural oil cause dryness.
- Paraben increase risk of skin cancer.
- Alcohol makes your skin dry and brittle.
- May have less natural appearance movement and feel.
- Too much use can cause skin dryness.
- Sodium Lauryl sulfate is commonly used in cream which may harmful to eyes and skin.
- It also can cause headache and vertigo or soreness in eyes, nose, throat and lungs.

The main aim of our work is to develop a herbal cream which can give good and best effect we have use polyherbal ingredient our preparation like

- **Haritaki powder** - We have used herbal ingredients in our preparation which are used to reduce pimples and acne, and it is an anti-oxidant.
- **Potato starch powder** - reduce skin diseases like dry skin, wrinkles, rashes etc. and also glow and bright to the face.
- **Amla powder** - is used as glowing skin, it gives vitamin c and it is also used to reduce pigmentation, redness and itching of the skin
- **Aloevera gel** - moisturizer, reduce acne and skin irritation.
- **Almond oil** - Almond oil used to lighten the dark circles under eyes and reduce under-eye puffiness. It shows anti-inflammatory and antioxidant properties. Almond oil is used to keep skin elegant.

In market there are large no of eyes cream is currently available. But in marketed eye cream have side effects like redness, irritation, itching. To make activities from naturally occurring traditionally plant materials belong to Ayurvedic.

**HARITAKI** <sup>(5)</sup>

Fig no.1

**Scientific name** - Terminalia chebula

**Family** - Combretaceae

**Higher classification** - Tropical almond

**Order** - Myrtales

**Kingdom** - Plantae

**Rank** - Species

**Part Used** - fruit

**Height** - 15-25 m

**Leaves** - leathery, oval leaves have a downy

**In summer** - White flower

**Uses** - Antioxidant

**PREPARATION OF HARITAKI** <sup>(6)</sup>

50 gm of Ink nut (Haritaki) crack and open the nuts.

Remove the seeds; Take this in mixture/mortar pestles.

Extracted powder transfer into airtight container.

**POTATO STARCH**

Fig no.2: Potato starch

**Scientific name** – Solanumtuberosum

**Family** – nightshade

**Higher classification** – Nightshade

**Order** – Solanales

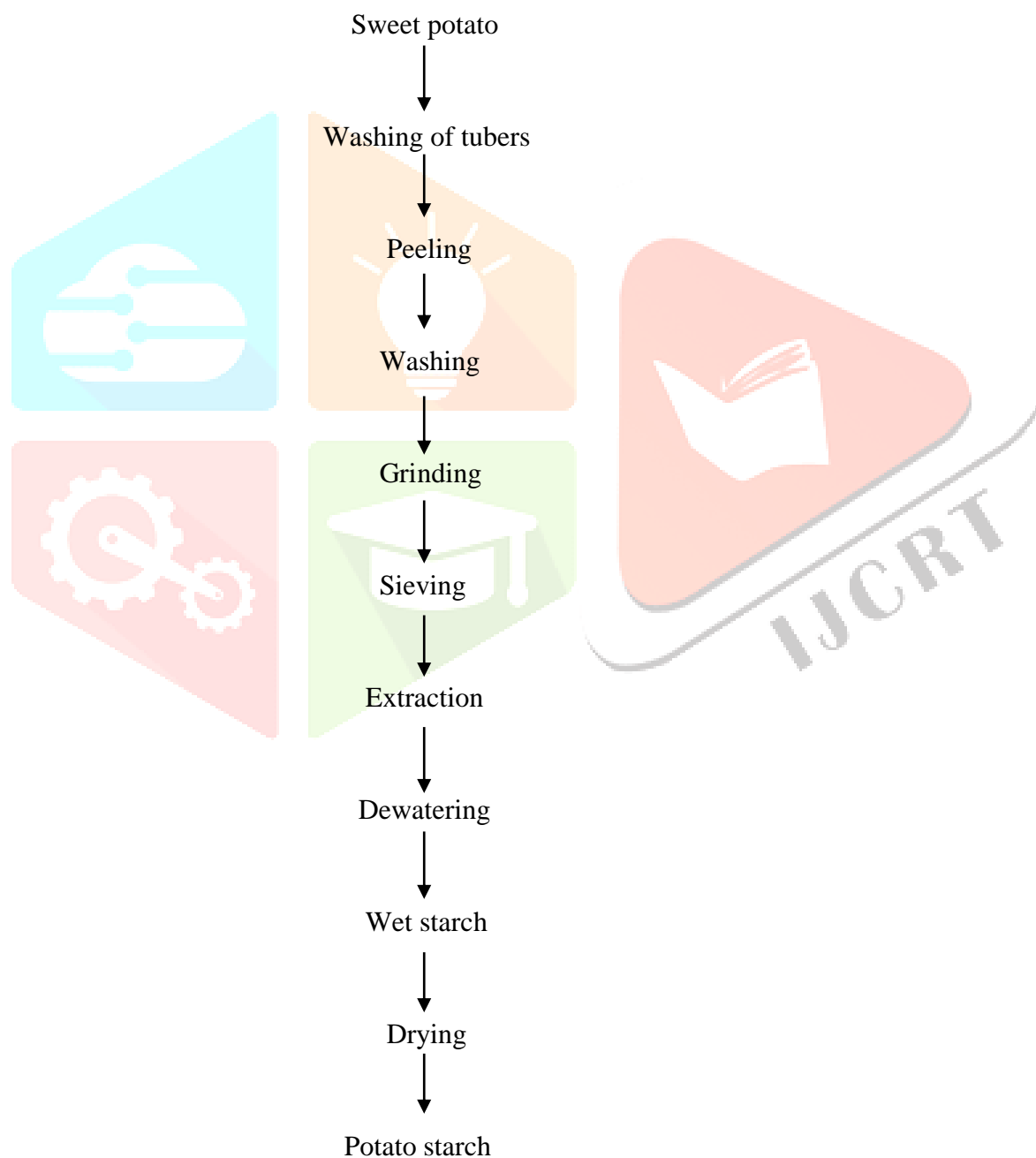
**Kingdom** – Plant

**Extraction Method** – Extraction <sup>(13)</sup>

**Part Used** – Fruit

**Height**–100 cm

### EXTRACTION OF POTATO STRACH



**AMLA POWDER** <sup>(8)</sup>

Fig no.3:Amla powder

**Scientific name** –Phyllanthusemblica**Family**–Phyllanthaceae**Higher Classification**–Leaf flower**Order** –Malpighiales**Kingdom**–Plant**Extraction Method** – Dry extraction method**Part Used**–Fruit**Height**–1-8 m**Leaves** –Small, greenish-yellow or pinkish.**ALOVERA GEL** <sup>(9)</sup>

Fig no. 4:Alovera gel

**Scientific Name** - aloebardensis miller**Family**-Asphodelaceae**Higher Classification**-vera**Order** -asparagales**Kingdom** -plantae

**Rank** -species

**Extraction Method** -simple drain method

**Part Used**-leaves

**Height** -24-39 inches/ 60-100cm

**Leaves** -sculant erect

**In Summer**- grows indoors year -round

**Use**- burns

**ALMOND OIL** <sup>(9)</sup>



Fig no. 5:Almond oil

**Scientific name**–Prunusdulcis

**Family** -rosaceae

**Higher classification** -drupe

**Order** -Rosales

**Kingdom** -Plantae

**Rank** -Species

**Extraction Method** - Hydraulic press and screw press

**Part used** - Oil expressed from seed

**Height** - 2 cm

**Leaves** - Long with a serrated edge

**In summer** - Grow alternately on the branch

**Use** – Anti-Inflammatory

Table No.1 Formulation for Cream

Sr. No.	INGREDIENTS	F1 BATCH	F2 BATCH	F3 BATCH	F4 BATCH	ROLE
1.	Haritaki	4 gm	3 gm	2.5 gm	2.7gm	Antioxidant
2.	Potato starch	1 gm	1.5 gm	2.5 gm	1gm	Help to lighten dark spots
3.	Amla powder	0.5 gm	0.5 gm	0.5 gm	0.5 gm	Antioxidant
4.	Aloevera gel	2 gm	1 gm	1.5 gm	2 gm	Anti ageing , Moisturizer
5.	Almond oil	0.8 ml	0.8 ml	0.8 ml	1.6 ml	Help to regenerate skin cells
6.	Stearic acid	3.6 gm	3.6 gm	3.1 gm	3.6 gm	Emulsifier
7.	Cetyl alcohol	0.1 gm	0.1 gm	0.1 gm	0.1 gm	Emulsifier , Emollient
8.	Potassium hydroxide	0.04 gm	0.04 gm	0.04 gm	0.04 gm	Stabilizer
9.	Sodium hydroxide	0.032 gm	0.032 gm	0.032 gm	0.032 gm	Help to adjust PH
10.	Triethanolamine	0.24 gm	0.24 gm	0.24 gm	0.24 gm	Help to adjust PH
11.	Glycerin	2 ml	3.5 ml	3 ml	2 ml	Moisturizing agent
12.	Methyl paraben	0.002 gm	0.002 gm	0.002 gm	0.002 gm	Preservative
13.	Propyl paraben	0.004 gm	0.004 gm	0.004 gm	0.004 gm	Preservative
14.	Rose water	q. s.	q. s.	q. s.	q. s.	Vehicle
15.	Vitamin E Capsule	1 Capsule	1 Capsule	1 Capsule	1 Capsule	Dark circle remover
16.	Distilled water	6 ml	5 ml	6 ml	6 ml	Vehicle



Fig no.6

## • PROCEDURE

### Phase A: Oil Phase

The emulsifying agent stearic acid was dissolved in cetyl alcohol then propyl paraben added and heated at 75 °C. Oil phase was prepared.

### Phase B: Aqueous phase

To prepare this phase, some water soluble compounds like methyl paraben, Triethanolamine, sodium hydroxide, potassium hydroxide added in water. Then heated at 75°C. Aqueous phase was prepared.

### Phase C: Herbal phase

Glycerin and Aloevera gel were added in potato starch and Alma powder. Mixed properly after that vitamin E capsule and almond oil were added, then quantity sufficient rose water was added.

After the completion of heating of aqueous phase it was added into the oil phase at same temperature with continuous trituration the smooth and homogenous cream was prepared. After fall in temperature at 45 °C herbal phase were added and trituated.

## • Evaluation test for poly herbal under eye cream

### A. Physical evaluation

Color, odor, texture, and status of the cream were all evaluated in this test.

### B. Irritation<sup>(10)</sup>

On the left-hand dorsal surface, make a (1cm<sup>2</sup>) mark. The cream was then administered to the affected area, and the time was recorded. Then, for up to 24 hours, it is evaluated for irritancy and edema, if any, and reported.

### C. Wash ability<sup>(10)</sup>

After applying a tiny amount of cream to the hand, it was washed with tap water.

### D. P<sub>H</sub><sup>(11), (12)</sup>

P<sub>H</sub> was measured using a digital P<sub>H</sub> meter after 0.5 g cream was spread in 50 ml distilled water.

### E. Viscosity<sup>(10)</sup>

At a temperature of 25 °C, the viscosity of cream was measured using a Brooke field viscometer with spindle No. 63 at 2.5 RPM.

### F. Phase Separation<sup>(10)</sup>

The prepared cream was maintained at a temperature of 25-100 °C, away from light, in a sealed container. Then, over the next 30 days, phase separation was monitored every 24 hours. The phase separation was examined and confirmed for any changes.

### G. Spread ability<sup>(10)</sup>

The spread ability was measured by the time it took two slides to slip away from the cream, which was placed in between the slides, under a specific force. The better the spread ability, the less time it takes to separate the two slides. Two sets of standard-sized glass slides were taken. The cream mixture was then placed on a slide of appropriate size. The formulation was then placed on top of another slide. The cream between the two slides was then pushed uniformly to form a thin layer when a weight or specified load was placed on the upper slide. The weight was then removed, and any excess formulation stuck on the slides was scraped away. The weight was then removed, and any excess formulation stuck on the slides was scraped away. The force of weight attached to the upper slide allowed it to glide off effortlessly. The length of time it took for the upper slide to fall off was recorded.

$$\text{Spread ability} = m \times l/t$$

Where,

m= A standard weight attached to or put on top of the upper slide (30g) The length of a glass slide is denoted by the letter l. (5 cm)

## • RESULTS AND DISCUSSION:

Evaluation results of all the 4 formulations are gives below.

### A. Physical evaluation

In this test color, odor, texture and state of the four formulations were checked.

### B. Irritancy

On the left hand dorsal surface, make a (1 cm<sup>2</sup>) mark. The cream was then administered to the affected area, and the time was recorded. Then, for up to 24 hours, it is evaluated for irritancy and edema, if any, and reported. According to the findings, none of the four formulations, F1H, F2H, F3H, and F4H, showed signs of irritancy and edema.



**Table 2: In this test color, odor, texture and state of the four formulations was checked**

Sr. No.	PARAMETER	F1H	F2H	F3H	F4H
1	color	Yellowish green	Yellowish green	Yellowish green	Yellowish green
2	Odor	pleasant	pleasant	pleasant	pleasant
3	Texture	Smooth, slippery, pearlescent	Smooth, slippery, pearlescent	Smooth, slippery, pearlescent	Smooth, slippery, pearlescent
4	State	semisolid	semisolid	semisolid	semisolid

**Table 3: Irritancy study observations**

Sr. No.	FORMULATION	IRRITANT EFFECT	EDEMA
1	F1H	No	No
2	F2H	No	No
3	F3H	No	No
4	F4H	No	No

**C. Wash ability**

Applying a little amount of cream to the hand and then washing it with tap water was used to access wash ability. All four formulas were simple to clean.

**Table 4: Wash ability observations**

S. no.	Formulation	wash ability
1	F1H	Easily washable
2	F2H	Easily washable
3	F3H	Easily washable
4	F4H	Easily washable

**D. pH**

The P<sup>H</sup> of all the three formulations, F1H, F2H, and F3H, was found to be closer to skin PH, indicating that they can be safely used on skin the PH of all three formulations, F1H, F2H, and F3H, was found to be closer to skin PH, indicating that they can be safely used on skin.

**Table 5: pH observation table**

S. no.	formulation	pH
1	F1H	4.8
2	F2H	4.7
3	F3H	5
4	F4H	5.2

### E. Phase separation

The prepared cream was maintained in a covered container away from light at a temperature of 25-100 °C. After that, phase separation was tested for 24 hours and 30 days. The phase separation was examined and confirmed for any changes. According to the findings, no phase exists.

**Table 6: Phase separation observation table**

S. No.	Formulation	Phase separation
1	F1H	No
2	F2H	No
3	F3H	No
4	F4H	No

### F. Viscosity

The viscosity of cream was measured with a Brooke field viscometer at 25 °C and 2.5 RPM using spindle No. 63.

### G. Spread ability

The spread ability of the four formulations, F1H, F2H, F3H, and F4H, was tested, and it was discovered that for F3H, the time taken by the three slides to separate is less, and as stated in the assessment time taken for separation of the three slides is better, therefore F3H exhibited greater spread ability.

**Table no.7: Spread ability observation table**

SR. NO.	FORMULATION	TIME (SEC)	SPREAD ABILITY
1	F1H	10	22.8
2	F2H	10	22.8
3	F3H	7	32.4
4	F4H	15	15.18

**Table no.8 EVALUATION OF HERBAL EYE CREAM**

Sr. No.	NAME OF THE TEST	SPECIFICATION	OBSERVATION
1	Color	Yellowish green	Yellowish green
2	Odor	Pleasant	Pleasant
3	Texture	Smooth, Slippery, Pearlescent	Smooth, Slippery, Pearlescent, scrubby
4	Aesthetic appeal	Excellent/Good/Satisfactory	Excellent
5	Cohesiveness	High/Moderate/Low	Moderate
6	Firmness	High/Moderate/Low	Moderate
7	Rub outs	Average 7-8 rubout	Average 5 rub outs
8	Spread ability	Complete/Moderate/Low	Complete
9	Residue left	Low	Low
10	PH	4-7	5
11	Flow	Highly viscous	Slightly viscous
12	Phase separation	No	No
13	Precipitation of ingredient	No	No



Fig no.7



Fig no.8

### Conclusion:

The above data research has been carried out with the aim of developing formulation containing traditional substance and studying their effectiveness in removal of the eye contours by in-vitro techniques. The present study involves formulation development and evaluation of under eye cream, the present work mainly focuses on potential of extract from cosmetic purpose. It helps to reduce dark circle from under eye area further studies can be conducted for more accurate result like anti-tyrosine's, anti-wrinkle.

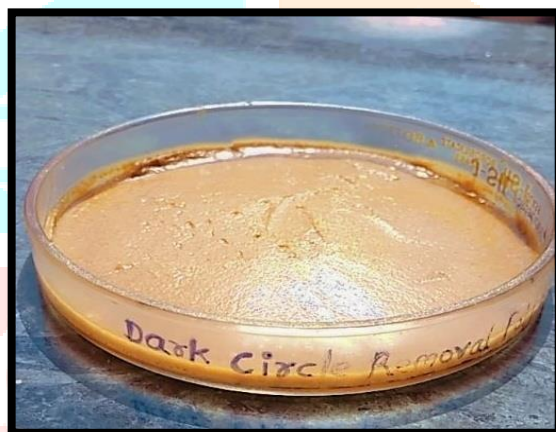


Fig no.9



Fig no.10

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