



# FORMULATION AND EVALUATION OF POLYHERBAL COLD CREAM

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## Abstract:

Cosmetics are formulations used for the beauty and beauty of human appearance<sup>1</sup>. The aim of this study was to formulate and evaluate plant extracts containing aloe-vera prepared by the water-in-oil method in order to nourish and moisturize the skin<sup>3</sup>. Cold cream with rose oil, hibiscus rose sinensis flower extract and aloe vera extract. Evaluation of the quality of formulated products was evaluated using different evaluation methods. No change in physical properties was observed in the formulated creams. The formulated cream showed good consistency and spreading ability, pH and no evidence of phase separation during the study period. Stability parameters such as appearance, properties, viscosity and fragrance of the formulated cream did not show any significant change during the study period. Cold creams with herbal extracts have a cooling and soothing effect because the water in the emulsion slowly evaporates. Cold creams are more moisturizing because they create an oily barrier that reduces water loss from the outermost layer of the skin, the stratum corneum<sup>4</sup>. They are water-in-oil emulsions intended for use on accessible skin or mucous membranes to produce a local and sometimes systemic effect at the site of application<sup>5</sup>.

Keywords: Hibiscus Rosa sinensis, Aloe vera, emulsion, stratum corneum

## Introduction

Cosmetics are the products which are generally used to beautify the skin and also to purify the skin<sup>2</sup>. The cosmetics are the word derived from Greek word – 'kosmesticos' which means to adorn. Since then, materials that are used to enhance the appearance or beautify the skin are called cosmetics. From ancient times to the present, people still use herbal cosmetics to beautify their skin. Cold cream is a water-in-oil emulsion. Cold cream provides a longer contact time at the application site compared to other semi-solid dosage forms or formulations<sup>3</sup>. They add elegance to the skin and it is not so greasy. Thanks to the oil phase, it softens the skin. The function of the cold cream is to restore the moisture of the dry skin, it allows to remove waste substances from the pores and also cools the body. It is easily water washable and easy to wash. They are non-irritating when applied to the skin<sup>11</sup>. The water phase provides extra protection to the skin. It liquefies at body temperature. It penetrates through the epidermis of the skin through natural pores<sup>4</sup>.

**Classification of cosmetics :-****According to the function, cosmetics are classified into the following groups:**

- 1) Decorative function (Example - Lipstick, Nail polish, etc.).
- 2) Corrective function (Example - Dry cream and heavy face powder).
- 3) Protective function (Example-Dry cream and heavy face powder).
- 4) Curative function (Example - antiperspirant, hair preparation, etc ..

**According to their uses, cosmetics are again sub-divided into the following classes:**

- 1) For the skin (Example Powder, Cream, Lotion, Deodorant, Bath and cleansing preparation, Make up, etc.)
- 2) For the Hair (Example Shampoo, Hair tonic, Hair dressing, Shaving preparation, etc.).
- 3) For the nails (Example - Nail polish, Nail conditioner, Polish remover, etc.). etc.).
- 4) For the teeth and mouth (Example - Dentifrices, Mouth washes

**Skin care product :-**

- i) Face wash
- ii) Moising cream
- iii) Vanishing cream
- iv) Cold cream

**Cold cream:-**

Cold creams are water-in-oil or oil-in-water type emulsions added with certain fats (generally beeswax) and perfuming agents. These are applied on skin to provide smoothness and remove makeup<sup>12</sup>. Cold creams are named so due to the cooling effect they impart on application<sup>5</sup>.

**An ideal cold cream should have the following properties:**

- 1) It should have a low sensitisation index.
- 2) It should be elegant in appearance.
- 3) It should be non-dehydrating.
- 4) It should provide a smooth texture.
- 5) It should be non-greasy and non-staining.
- 6) It should not cause irritation to the skin.
- 7) It should not alter the membrane or skin functioning.

**Preparation method :-**

The cold creams are prepared by the following steps:

- 1) Beeswax is melted in a container on a water bath maintained at 70° temperature and added with mineral oil;

this is mixture A (oily phase).

2) Water is heated in another container at the same temperature and added with borax; this is mixture B (aqueous phase).

3) Mixture B is slowly added to the mixture A with stirring to form a creamy emulsion.

4) In the last step, the preparation is brought down to 40°C temperature added with a suitable perfume.

### **Advantages**

1) As cold creams contain enough amounts of water and oil, they keep skin safe from the rough environments.

2) They also keep skin moisturized and safe from damages.

### **Disadvantages**

1) However, as they contain petroleum, that might block the evaporation of water, they often clog pores resulting in pimples,

2) They might also dark the complexion if overused

### **AIM AND OBJECTIVE:**

#### **Aim:-**

The aim of present study to formulate and evaluate aloe vera cold cream.

#### **Objective:**

To prepare the cream by using the emulsification technique.

### **MATERIAL &METHOD:**

**Materials :-**The materials used in the formulation of the cream is given in the table 1

**Table-1 :**

Sr.no	Ingredients	Company name
1	Bees waxes	Central drug house private limited
2	Borax	Labogens
3	Liquid paraffin	Central drug house private limited

4	Distilled water	KBK Enterprises
5	Rose water	Dabar
6	Methyl-p-hydroxy benzoate	Central drug house private limited
7	Hibiscus Dried Flower	Yucca Enterprises

### Roles of Ingredients :-

**Table-2:**

Sr. No	Ingredients	Roles
01	Aloe vera gel	Anti-ageing, Anti Inflammatory, moisturizer, reduce acne and pimples.
02	Bees wax	It gives thickness to the cream.
03	Borax	With emulsifying agent to form soap.
04	Liquid paraffin	Lubricating agent, alkaline agent
05	Rose oil	Fragrance
06	Methyl p-hydroxy benzoate	Preservative
07	Hibiscus	Improve Skin tone,Hyperpigmentation,discolouration,darkspots

**Methods –**

The cream was prepared by using the cream base that is bee's wax, liquid paraffin, borax, distilled water, rose oil, aloe-vera and hibiscus flower extract powder<sup>11</sup>. The cream was prepared by using the slab technique/extemporaneous method for geometric and homogenous mixing of all the excipients and the aloe extracts<sup>12</sup>. By using slab technique, we have developed three batches of our herbal cream, namely F1, F2, and F3. All three batches were evaluated for different parameters like appearance, PH, viscosity, phase separation<sup>12</sup>

**Formulation of Polyherbal Cold cream:-**

Heat the liquid paraffin and beeswax in a borosilicate glass beaker to 75°C and maintain this heating temperature<sup>6</sup>. (Oil phase). In another beaker, dissolve the borax, methyl paraben in distilled water and heat this beaker to 75°C to dissolve the borax and methyl paraben to give a clear solution. (Aqueous phase). Then slowly add this aqueous phase to the heated oil phase<sup>6</sup>. Then add a measured amount of Aloe vera gel and mix until a smooth cream is formed. Then add a few drops of rose oil for fragrance and then slowly add Hibiscus extract powder, mix well. Put this cream on a plate and if necessary add a few drops of distilled water and stir the cream geometrically on the plate so that the cream gets a smooth texture and all the ingredients are mixed properly<sup>14</sup>. This method is called the plate technique or the improvised method of preparing the cream<sup>7</sup>.

Table-4 formulation of cold cream

Sr. No	Ingredients	Formula	Formula	Formula
		F1	F2	F3
01	Bees wax	15 gm	20 gm	25 gm
02	Borax	0.8 gm	0.8 gm	0.8 gm
03	Liquid paraffin	50 gm	50 gm	50 gm
04	Aloe vera	1 gm	1 gm	1 gm
05	Rose water	33.2 gm	28.2 gm	23.2 gm
06	Methyl p- hydroxy benzoate	0.02gm	0.02gm	0.02gm
07	Hibiscus Flower Extract Powder	0.50gm	0.50gm	0.50gm

**Polyherbal Cold cream**

**Evaluation of Polyherbal Cold Cream :-****1) Determination of Physical appearance**

The physical appearance of cold cream was inspected visually against dark background. The average of three readings is recorded. The result is given in the table no 3

**2) Homogeneity**

Homogeneity is the formulated cold cream was tested for the homogeneity by visual appearance and by touch. After feel Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was checked. After application of cream, the type of film or smear formed on the skin were checked. The ease of removal of the cream applied was examined by washing the applied part with tap water.

**3) Sensitivity test :-**

The cream which was prepared has applied on 1cm skin of hand and exposed to sunlight for 4-5mins.

**4) Spread ability :**

The spread ability was expressed in terms of time in seconds taken by two slides to slip off from the cream, placed in between the slides, under certain load. Lesser the time taken for separation of the two slides better the spread ability. Two sets of glass slides of standard dimension were taken<sup>8</sup>. Then one slide of suitable dimension was taken and the cream formulation was placed on that slide. Then other slide was placed on the top of the formulation. Then a weight or certain load was placed on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. Then the weight was removed and excess of formulation adhering to the slides was scrapped off. The upper slide was allowed to slip off freely by the force of weight tied to it. The time taken by the upper slide to slip off was noted<sup>9</sup>.

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

Where,

m= Standard weight which is tied to or placed over the upper slide (30g)

l= length of a glass slide (5 cm)

t= time taken in seconds.

**5) pH :**

The pH of aloe cold cream was determined using pH meter. The most accurate common means of measuring pH is through a lab device called a probe and meter, or simply a pH meter. The probe consists of a glass electrode through which a small voltage is passed. The meter is a voltmeter, measures the electronic impedance in the glass electrode and displays pH units instead of volts. Measurement is made by submerging the probe in the semisolid until a reading is registered by the meter.

**6) Viscosity:**

Viscosity of cream was done by using Ostwald viscometer at a temperature of 25 °C using spindle No. 63 at 2.5 RPM. According to the results all the three formulations showed adequate viscosity<sup>10</sup>.

**RESULT AND DISCUSSION****Results:****Physical observation –Table no 5**

Sr.no	Parameter	Formula F1	Formula F2	Formula F3
01	Colour	Faint green	Faint green	Faint green
02	Odour	Pleasant	Pleasant	Pleasant
03	Texture	Smooth	Smooth	Smooth
04	State	Semi solid	Semi solid	Semi solid

**Washability observation –****Table no 6**

Sr.no.	Formulation	Washability
01	F1	Easily washable
02	F2	Easily washable
03	F3	Easily washable

**Sensitivity study observation –Table no 7**

Sr.no	Formulation	Irritant effect	Erythema	Edema
01	F1	No	No	No
02	F2	No	No	No
03	F3	No	No	No

**pH –Table no 8**

Sr.no	Formulation	pH
01	F1	6.7
02	F2	6.2
03	F3	6.6

**Conclusion:**

By using Aloe Vera gel and Hibiscus flowers the cream showed a multipurpose effect and all these aloe ingredients showed significant different activities. Based on results and discussion, the formulations F1, F2 and F3 were stable at room temperature and can be safely used on the skin. However, the formula 1 showed the best results in all aspects.

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