

# Formulation & Evaluation of Herbal Tumeric & Aloe Cold Cream

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**Abstract:** *Cosmetics are the preparations which used to beautify and enhance the human appearances. The aim of the present research was to formulate and evaluate the aloe coldcontaining plant extracts prepared by using water in oil method for the purpose of nourishing and moistening the skin. The cold cream is prepared by using the rose oil and extract ofaloe vera. Quality evaluation of the formulated product was assessed by using different evaluation methods. No change of the physical properties was observed in formulated cream. The formulated cream showed good consistency and spread ability, pH, no evidence of phase separation during study period of research. Stability parameters like visual appearance, nature, viscosity and fragrance of the formulated cream showed that there was no significant variation during the study period of research. The herbal extract containing cold cream gives the cooling and soothing effect due to slow evaporation of water present in the emulsion. The cold creamsare more moisturizing as they provide an oily barrier which reduces the water loss from the stratum corneum, the outermost layer of the skin. They are water-in-oil emulsion and intended for application on skin or accessible mucous membrane to provide localized and sometimes systemic effectat the site of application.*

**Keywords:** Cold Cream, Turmeric Extract, Aloe Vera, Cosmetic Formulation, Emulsion Stability, Evaluation,

## I. INTRODUCTION

Cosmetics are the products which are generally used to beautify the skin and also to purify the skin . The cosmetics are the word derived from Greek word – ‘kosmesticos’ which means to adorn. From that time the materials which are used to promoting appearances or to beautify the skin are called as cosmetics. From ancient time till now people are still using herbal cosmetics for the beautification of skin.Cold cream is the water in oil emulsion.Cold cream gives the prolonged contact time in the site of application as compared to the other semisolid dosage form or formulation. They give elegancy to the skin and it is not that much greasy. Due to the oil phase, it gives an emollience to the skin. The function of the cold cream is for restoring moisture to dry skin, it allows to eliminate the waste materials from the pores and also cools the body. It is easily watered washable and easy to wash away. They are non-irritating when applied on the skin. The water phase gives extra conservation to the skin. It gets liquefy at body temperature. It gets penetrated via the epidermis of the skin via the natural pores .

### 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-dividedinto the following classes:

- For the skin (Example Powder, Cream, Lotion, Deodorant, Bath and cleansing preparation, Make up, etc.)
- For the Hair (Example Shampoo, Hair tonic, Hair dressing, Shaving preparation, etc.).
- For the nails (Example - Nail polish, Nail conditioner, Polish remover,etc.). etc.).



- For the teeth and mouth (Example - Dentifrices, Mouth washes)

#### **Skin care product :-**

Face wash Moisturizing cream Vanishing 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. Cold creams are named so due to the cooling effect they impart on application.

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

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

#### **Preparation method :-**

- The cold creams are prepared by the following steps:
- Beeswax is melted in a container on a water bath maintained at 70°C temperature and added with mineral oil; this is mixture A (oily phase).
- Water is heated in another container at the same temperature and added with borax; this is mixture B (aqueous phase).
- Mixture B is slowly added to the mixture A with stirring to form a creamy emulsion.
- In the last step, the preparation is brought down to 40°C temperature added with a suitable perfume.

#### **Advantages**

As cold creams contain enough amounts of water and oil, they keep skin safe from the rough environments. They also keep skin moisturized and safe from damages.

#### **Disadvantages**

However, as they contain petroleum, that might block the evaporation of water, they often clog pores resulting in pimples. They might also darken the complexion if overused.



Figure -1 cold cream

#### **EXCIPIENT PROFILE**

##### **1) Bees wax :-**

Beeswax is one of the most important ingredients in home-made cosmetics. Why on earth I haven't yet written a word about beeswax? Maybe beeswax is just so self-evident that I haven't even thought about it. However, beeswax is the most versatile ingredient that suits perfectly to the skin. The beeswax itself is clear and transparent.



Worker bees chew the beeswax which brings propolis to wax. The pollen carried by the worker bees gives to beeswax its clear, yellow colour.



Figure -2 Bees wax

**Uses :**

Beeswax is used in lip balm, lip gloss, hand creams, salves, and moisturizers; and in cosmetics such as eye shadow, blush, and eye liner. Beeswax is also an important ingredient in moustache wax and hair pomades, which make hair look sleek and shiny.

**2) Borax :-**

Borax is used in lotions and creams. Borax is combined with wax to improve the consistency of lotions and creams. It also work as an emulsifier when used with wax and it is mostly used in hand soaps. It is excellent ingredient used for cleaningas it's alkaline in nature.



Figure -3 Borax

**Uses :**

Borax, also known as sodium tetraborate, is a versatile substance with numerous uses. It's commonly used for cleaning, laundry, and pest control, but it also finds applications in industrial processes and even some medical research.

**Turmeric**



Fig.no.4 Turmeric



**Turmeric** : A time-tested ingredient, Turmeric imparts an instant glow to the skin. It reduces signs of aging, protects skin from sun damage, and brightens skin tone.

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#### **Turmeric skin benefit**

1. Adds Natural Glow To Your Skin
2. Treats Acne Breakouts
3. Helps With Atopic Dermatitis
4. Slows Down Skin Ageing
5. Helps With Psoriasis

**Aloe vera** :-Aloe vera is a herbal plant species belonging to family Liliaceae. It is an ingredient in many cosmetics because it heals, moisturizes, and softens skin. We just have to cut one of the aloe vera leaves to extract the soothing gel. Aloe vera contains amino acids like leucine, isoleucine, saponin glycosides that provide cleansing action, vitamins A, C, E, B, choline, B12 and folic acid and provide antioxidant activity. Aloe vera has great moisturizing properties because it is rich in polysaccharides, which also give it angel-like appearance.



Fig.no.5 Aloe vera

#### **Benefits –**

**Soothe sunburn** : Aloe vera gel has cooling properties and is anti-inflammatory. It helps with a protective layer for skin and also to retain moisture.

**Moisturize the skin** : Aloe vera unclogs the pores and softens the skin. It is also used as aftershave treatment.

**Boosts healing of wounds** : It is highly beneficial for burns, cuts and other injuries. It also helps to speed up skin cell reproduction by 8 times.

#### **Honey :-**

The anti-bacterial and anti-inflammatory effects of honey play an important role in reducing acne and breakouts. These properties reduce the bacteria that causes pimples, blackheads, and whiteheads. They also help to treat the redness and inflammation associated with breakouts.



Fig.No.6 Honey

#### **Uses :**

Honey has various uses, both in food and for health. It's a natural sweetener used in cooking, baking, and beverages.



### **Rose water:-**

Rose water is created by distilling rose petals with steam. Rose water is fragrant, and it's sometimes used as a mild natural fragrance as an alternative to chemical-filled perfumes. Rose water has been used for thousands of years, including in the Middle Ages. It's thought to have originated in what is now Iran. It's been used traditionally in both beauty products and food and drink products. It also comes with plenty of potential health benefits, including the following.



**Fig.no.7 Rose Water**

### **Uses :**

Rose water, a natural and versatile ingredient, is widely used for various purposes, particularly in skincare and aromatherapy. It's known for its soothing and calming properties, making it beneficial for sensitive skin and promoting a sense of relaxation.

### **Distilled water :-**



**Fig.No.8 Distilled water**

Distilled water is water that has been boiled into vapor and condensed back into liquid in a separate container. Impurities in the original water that do not boil below or near the boiling point of water remain in the original container. Thus, distilled water is a type of Purified water. purified water is water that is essentially free of microbes and chemicals. This is achieved by reverse osmosis (forcing the water through a membrane to get rid of chemicals, minerals and microbes), ozonisation (disinfecting water using ozone rather than a chemical), or distillation. The EPA requires purified water to not contain more than 10 parts per million of total dissolved solids in order to be labelled purified water. Distilled water is a type of purified water. Salts, minerals, and other organic materials are removed by collecting the steam from boiling water.

### **Uses :**

A water distiller is a machine that purifies water by removing more than 99.9% of contaminants, including chemicals, heavy metals, microorganisms and sediment. While design may vary, a typical water distiller consists of a boiling chamber, a cooling system and a separate storage tank.

### **Almond Oil**

All in all, a great emollient, Almond Oil serves to be the perfect treatment of the skin for fighting the chill and renewing it for another season cycle. It balances the skin's water loss. Regular massage regulates the blood circulation which in turn helps in the proper soaking of essential nutrients in the skin.





**Fig.No.9 Almond Oil**

**Uses :**

Almond oil is commonly used for its skin and hair benefits, as well as for culinary purposes. It's a rich source of vitamins, antioxidants, and fatty acids, making it useful for moisturizing, nourishing, and protecting both skin and hair. Additionally, almond oil can be used in cooking and for promoting overall health.

**MATERIAL AND METHOD :-**

The materials used in the formulation of the cream is given in the table 1 and the equipments used are given in the table-2.

**Table-1**

Sr. No.	Ingredients	Company name
I.	Bees waxes	Central drug houseprivate limited
II.	Borax	Labogens
III.	Liquid paraffin	Central drug houseprivate limited
IV.	Distilled water	KBK Enterprises
V.	Rose water	Dabar
VI.	Honey	Patanjali
VII.	Almond Oil	Bajaj

**Instruments :-**

**Table-2**

Sr, No	Instruments	Company name
I.	Beaker	Boroglass
II.	Glass rod	ZOOM Scientific World
III.	Thermometer	GERA Research
IV.	Heating mantle	Laby Care(skss410)
V.	Measuring cylinder	ReliGlas INDIA
VI.	Weighing machine	Digital scale (SF400A)
VII.	Mortar and pestle	

**METHODS –**

The cream was prepared by using the cream base that is bee's wax, liquid paraffin, borax, methylparaben, distilled water, Almond oil, rose oil, Turmeric and Aloe Vera gel. The cream was prepared by using the slab technique/extemporaneous method for geometric and homogenous mixing of all the excipients and the aloe extracts. 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

**FORMULATION :-**

Formulation of Turmeric and aloe cold cream :-

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Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 °C and maintain that heating temperature. (Oil phase). In another beaker, dissolve borax, methyl paraben in distilled water and heat this beaker to 75 °C to dissolve borax and methyl paraben and to get a clear solution. (Aqueous phase). Then slowly add this aqueous phase to heated oily phase. Then add a measured amount of Turmeric and aloe Vera gel and stir vigorously until it forms a smooth cream. Then add few drops of rose oil as a fragrance. Put this cream on the slab and add few drops of distilled water if necessary and mix the cream in a geometric manner on the slab to give a smooth texture to the cream and to mix all the ingredients properly. This method is called as slab technique or extemporaneous method of preparation of cream.

Table-4 formulation of cold cream

Sl. No	ingredients	Formula F1	Formula F2	Formula F3
I.	Bees wax	15 gm	20 gm	25 gm
II.	Borax	0.8 gm	0.8 gm	0.8 gm
III.	Liquid paraffin	50 gm	50 gm	50 gm
IV.	Turmeric	1 gm	1 gm	1 gm
V.	Aloe Vera	0.50 gm	0.50 gm	0.50 gm
VI.	Rose water	33.2 gm	28.2 gm	23.2 gm
VII.	Honey	0.50 gm	0.50 gm	0.50 gm
VIII.	Almond oil	1.5 gm	1.5 gm	1.5 gm

#### EVALUATION :

Evaluation of Turmeric and aloe cold cream :-

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

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.

Type of smear After application of cream, the type of film or smear formed on the skin were checked. Removal

The ease of removal of the cream applied was examined by washing the applied part with tap water.

#### 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. 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.

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.



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.

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

## II. RESULTS

A project utilizing herbal turmeric and aloe vera gel formulations, particularly in the context of skincare, often yields positive results due to the combined therapeutic properties of these ingredients. Turmeric, rich in curcumin, provides anti-inflammatory and antioxidant effects, while aloe vera offers moisturizing and soothing qualities. Studies have explored various formulations, including creams and gels, to evaluate their impact on skin conditions.

Physical observation – Table no 5

Sr.no	Parameter	Formula F1	Formula F2	Formula F3
I.	Colour	Faint green	Faint green	Faint green
II.	Odour	Pleasant	Pleasant	Pleasant
III.	Texture	Smooth	Smooth	Smooth
IV.	State	Semi solid	Semi solid	Semi solid

Sensitivity study observation – Table no 7

Sr.no	formulation	Irritant effect	erythema	edema
I.	F1	No	No	No
II.	F2	No	No	No
III.	F3	No	No	No

pH Table No 8

Sr.no	Formulation	pH
I.	F1	6.7
II.	F2	6.2
III.	F3	6.6

## III. CONCLUSION

By using Turmeric and Aloe Vera gel 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.





From the above results it is concluded that the formulated cream showed good consistency and spread ability, homogeneity, pH, non-greasy and there is no phase separation during study period of research. From the above study it can be concluded that the polyherbal cold cream is safe to use as it is developed from herbal extract.

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