



Formulation And Evaluation Of Herbal Cold Cream Using *Aloe Barbadensis Miller*

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ABSTRACT:

Cosmetic product is defined as any Substance or preparation Intended to be placed in contact with the Various external part of human body. [Epidermis, hair system, nail. Lips, and external genital organ or with the teeth and mucous membrane of the Oral cavity with a view exclusively. or mainly to cleaning them. Perfuming them changing their appearance or correcting body odour and protecting them Condition keeping good them.

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 creams are 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 effect at the site of application.

KEY WORDS - Aloe barbadensis (gel), Bees wax, Herbal cosmetic, Cold cream cream.

INTRODUCTION

Cosmetics word is derived from the Greek word “Kosmtikos” which means the power, organization and skill in beautifying. The word cosmetics is defined

- As per Drug and cosmetic Act (Indian Act):-

Cosmetic means any article Intended to be rubbed, poured, sprinkled, spread all or introduced into, or otherwise applicated to human body or other any apart they're of for cleaning. Beautifying, promoting, attractiveness appearnes and include Intended for use of a component of cosmetics.

- As per European pharmacopeia, Commission.

Cosmetic product is defined as any Substance or preparation Intended to be placed in contact with the Various external part of human body. [Epidermis, hair system, nail. Lips, and external genital organ or with the teeth and mucous membrane of the Oral cavity with a view exclusively. or mainly to cleaning them. Perfuming them changing their appearance or correcting body odour and protecting them Condition keeping good them.

HUMAN SKIN :-

The skin is the body's largest organ. It covers the entire body. It serves as a protective shield against heat, light, injury

and infection. The skin also:

1. Regulates body temperature
2. Stores water and fat
3. Is a sensory organ
4. Prevents water loss
5. Prevents entry of bacteria
6. Acts as a barrier between the organism and its environment
7. Helps to make vitamin D when exposed to the sun.

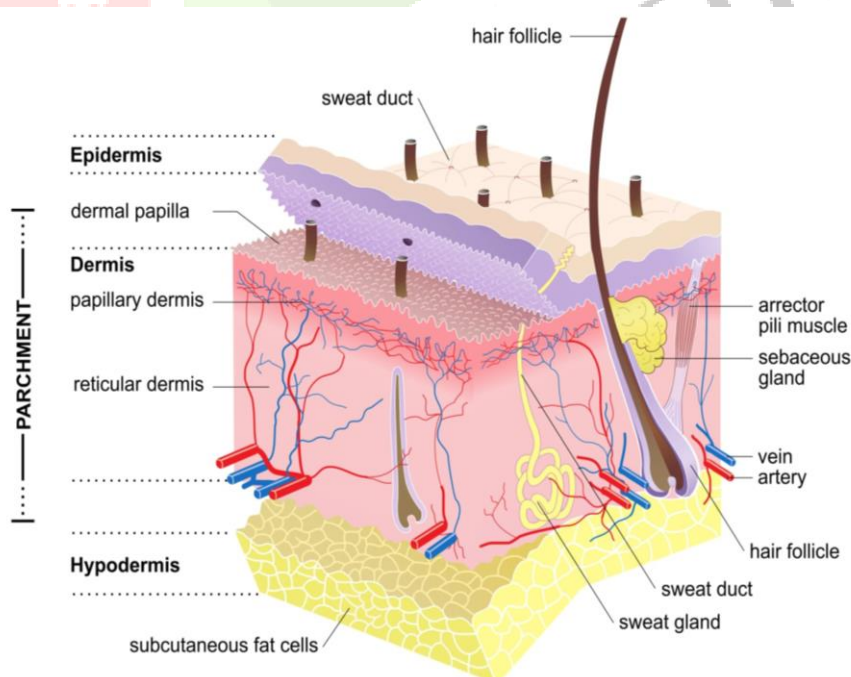


Fig 1:structure of human skin

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 use ,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 :-

- 1) Face wash
- 2) Moising cream
- 3) Vanishing cream
- 4) 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. Cold creams are named so due to the cooling effect they impart on application.



Fig 2 :- harbal cold cream

IDEAL CHARACTERISTICS OF COLD CREAM:

- 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.

ADVANTAGES OF COLD CREAM:

- 1) The primary use of the cream is for skin treatment. o Mineral ingredients in the cream, work as a moisturizer.
- 2) Generally useful for dry skin. o It can also be used as an alternative for lip balm if you have very dry, chapped lips. o It can be used as a makeup remover and cleanser.
- 3) Sometimes it is applied to the face before putting on any makeup.
- 4) It can be used as an alternative to shaving cream.
- 5) With a hot washcloth it can help exfoliate the skin.
- 6) As cold creams contain enough amounts of water and oil, they keep skin safe from the rough environments.
- 7) They also keep skin moisturized and safe from damages.

DISADVANTAGES OF COLD CREAM:

- 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.
- 3) Cold cream is quite heavy in consistency. o It will feel very "greasy" on the application.
- 4) Also, people living in hot, humid weather will find this too heavy.

PEPARATION METHOD :-

- 1) The cold creams are prepared by the following steps:
- 2) 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).
- 3) Water is heated in another container at the same temperature and added with borax; this is mixture B (aqueous phase).
- 4) Mixture B is slowly added to the mixture A with stirring to form a creamy. emulsion.
- 5) In the last step, the preparation is brought down to 40°C temperature added with a suitable perfume.

AIM:-

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

OBJECTIVE:

1. To prepare the cream by using the emulsification technique.
2. To evaluate safety, efficacy and quality of Herbal cold cream.
3. They are non-irritant when applied on the skin.
4. To explore the many aspects of the rich traditional Indian herbal medicine.
5. To apply knowledge gained during the course in evaluating the usefulness of herbal formulas.
6. To formulate and evaluate a cosmetic herbal cold cream for glowing skin by using natural herbal ingredients.
7. To synthesize a cold cream ideal for all skin types.
8. To find the useful benefits of cold cream on human use as cosmetic product.

HERBAL DRUG AND 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.

Synonym: Paraffin-wax, Cranauba Biological source: It is a product made from the honeycomb of the honeybee and other bees.

Family: Apidae

Chemical constituents: The main chemical constituents are carbon (73.3%), hydrogen (13.2%) and oxygen (7.5%).

Uses: - It offers a moisturizer that protects your lips from becoming dry and developing cracks. It is also used in lip-balm, lip-gloss, etc.



Fig 3:- bees wax

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 cleaning as it's alkaline in nature.



Fig 4:- borax

3. LIQUID PARAFFIN

Liquid paraffin, also known as paraffinum liquidum or Russian mineral oil, is a very highly refined mineral oil used in cosmetics and medicine. Cosmetic or medicinal liquid paraffin should not be confused with the paraffin (or kerosene) used as a fuel. It is a transparent, colorless, nearly odourless, and oily liquid that is composed of saturated hydrocarbons derived from petroleum.

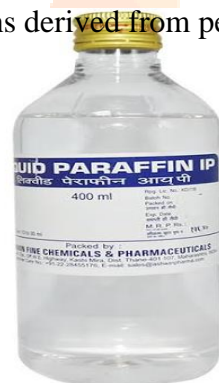


Fig 5:- liquid paraffine

4. ALOE VERA

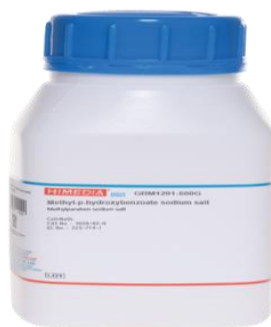
Aloe vera is a herbal plant species belonging to family Liliaceae. It is an ingredient in many cosmetics because it heals, moisturizes, and softens skin. We just have to cut one of the aloe vera leaves to extract the soothing gel. Aloe vera contains amino acids like leucine, isoleucine, saponin glycosides 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 a gel-like appearance. On the other hand, its structure forms a protective film for the skin, which helps in its healing properties. Sometimes the gel also serve as analgesic and antiinflammatory properties that benefits on skin wounds, burns and promotion of radiation damage repair. The leaf exudate contains several components that cause skin irritation and erythema (redness). So it is recommended to be used only in formulations and avoid leaf exudate.

Benefits –

- 1) 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.
- 2) Moisturize the skin : Aloe vera unclogs the pores and softens the skin. It is also used as aftershave treatment.
- 3) 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.
- 4) Fights skin-aging : Aloe vera has vitamin C and E which has anti-aging properties. It helps to increase collagen in the body.
- 5) Reduces infection and acne : It helps in gentle cleansing and treat pimples without causing any damage to the skin

**Fig 6 :- Aloe vera****5. METHYL P-HYDROXY BENZOATE –**

The compound is widely used as a preservative for foods, cosmetics and medicines. Those methyl paraben-containing products caused contact dermatitis and drug hypersensitivity (Larson, 1977; Mowad, 2000), but there has been no fundamental study on allergic reactions related to methyl paraben. Methyl para hydroxy benzoate has been found to cause skin, eye, and respiratory irritations. . Since it is an endocrine disruptor, methyl para hydroxy benzoate can mimic the hormone estrogen and cause negative effects to glands that secrete reproductive hormones . Million Marker does not recommend that pregnant women or women trying to conceive expose themselves to methyl p- hydroxy benzoate

**Fig 7:- Methyl p- hydroxy benzoate**

MATERIAL AND METHOD:-**Raw herbs collection Materials:**

All crude drugs were collected from Kishori Collage of Pharmacy, Beed medicinal garden and Aditya Education Group Campus, Telgone naka ,Beed. The plant material collected was identified and authenticated by Mr.S.V.Jadhav , Assistant Professor, Quality Assurance and Mr. C.G.Kute Assistant Professor Pharmaceutics, Kishori College of Pharmacy, Beed

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.

SR No	INGREDIENTS	ROLES
1	Aloe vera gel	Anti-ageing, AntiInflammatory, moisturizer, reduce acne and pimples.
2	Bees wax	It gives thickness to the cream
3	Borax	With emulsifying agent to form soap
4	Liquid paraffin	Lubricating agent, alkaline agent.
5	Rose oil	Fragrance
6	Methyl p-hydroxy benzoate	Preservative

Table no 1 :- Ingredients and its Role

SR.NO	INSTRUMENTS
01	Beaker
02	Glass rod
03	Thermometer
04	Heating mantle
05	Measuring cylinder
06	Weighing machine
07	Mortar and pestle

Table no 2 :- Instruments

METHODS –

The cream was prepared by using the cream base that is bee's wax, liquid paraffin, borax, methylparaben, distilled water, rose oil, 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 two batches of our herbal cream, namely F1, and F2. All two batches were evaluated for different parameters like appearance, PH, viscosity, phase separation

FORMULATION OF ALOE COLD CREAM :-

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. (water phase). Then slowly add this aqueous phase to heated oily phase. Then add a measured amount of 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.

SR. NO	INGREDIENTS	FORMULA F1	FORMULA F2
01	Bees wax	15 gm	20 gm
02	Borax	0.8 gm	0.8 gm
03	Liquid paraffin	50 gm	50 gm
04	Aloe vera	1 gm	1 gm
05	Rose water	33 gm	28 gm
06	Methyl p- hydroxy benzoate	0.2gm	0.2gm

Table-3 formulation of cold cream

EVALUATION OF ALOE 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 of the formulated cold cream was tested for homogeneity of visual appearance and by touch.

After feeling emolliences, 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.

3. **Sensitivity test :-** The cream which was prepared has applied on Skin of hand and exposed to sunlight for 4-5mins



Fig 7:- Sensitivity Test



Fig 8:- Result after the sensitivity test

The above pictures shows the before and after results of sensitivity test.

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. 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.

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.

RESULTS :-

❖ **Physical observation –Table no 4**

SR.NO	PARAMETER	FORMULA F1	FORMULA F2
01	Colour	Faint green	Faint green
02	Odour	Pleasant	Pleasant
03	Texture	Smooth	Smooth
04	State	Semi solid	Semi solid

❖ **Washability observation –Table no 5**

SR.NO	FORMULATION	WASHABILITY
01	F1	Easily washable
02	F2	Easily washable

❖ **Sensitivity study observation –Table no 6**

SR.NO	FORMULATION	IRRITANT EFFECT	ERYTHEMA	EDEMA
01	F1	No	No	No
02	F2	No	No	No

❖ **pH – Table no 7**

SL.no	Formulation	pH
01	F1	5.9
02	F2	6.5

CONCLUSION :-

By using 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, and F2 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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