International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

Research Paper on Formulation and Evaluation of Cold Cream Using Aloe Vera Extract

1.*Jagtap Asmita Vilas 2.* Jadhav Sayali Uttareshwar 3.* Meera Deokar
**1,2 Student Late Lakshmi Phadtare College Of Pharmacy Kalamb India.*
**3 Guide Late Lakshmi Phadtare College of pharmacy kalamb India.*

Date of Submission: 20-04-2025 Date of Acceptance: 30-04-2025

ABSTRACT:-
Any substance or preparation meant to come into contact with different external parts of the human body is referred to as a cosmetic product. [Nails, hair system, epidermis]. Lips, the external genital organ, or the oral cavity's teeth and mucous membrane from an exclusive perspective. Or mostly to wash them. Giving them a perfume can change how they look, improve their body odor, and keep them safe.Cosmetics are preparations used to improve and beautify people's appearances. In order to nourish and moisturize the skin, the current study set out to create and assess plant extracts containing aloe that were made utilizing the water-in-oil method.Aloe vera extract and rose oil are used to make the cold cream. During the research period, the prepared cream demonstrated satisfactory consistency, spreadability, pH, and no signs of phase separation. Stability metrics such as the prepared cream's nature, viscosity, visual appeal, and aroma demonstrated that there was no discernible change throughout the course of the trial.The herbal extract containing cold cream gives the cooling and soothing effect due to slow evaporation of water present in the emulsion.Because they create an oily barrier that prevents water loss from the stratum corneum, the skin's outermost layer, cold creams are more hydrating. These are emulsions of water and oil that are used topically to produce localized and occasionally systemic effects.

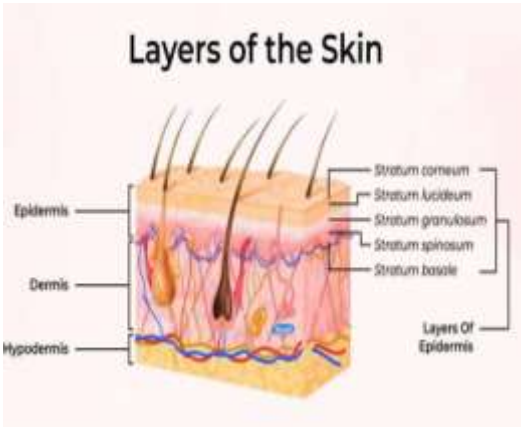
Keywords : Formulation Cold Cream, aloe cold cram, Herbal cosmetic,Moisturizing Effect.

I. INTRODUCTION :-

Definition-Cold cream is a water-in-oil (W/O) emulsion, a semi-solid preparation used for skin soothing and cleansing, often containing ingredients like beeswax, mineral oil, and borax, known for its moisturizing and protective properties. The purpose of cold cream, an emulsion-based moisturizer, is to protect, soothe, and hydrate the skin. In order to create a thick, creamy texture, cold creams are often made of a blend of oils, water, and emulsifiers. Because of its texture, the cream can form a barrier on the skin that helps to retain moisture and stop water loss through the epidermis. Since many other skincare products feel warmer when applied, the term "cold cream" has historically referred to its cooling and refreshing properties. In the past, basic materials like water, herbs, and animal fats were used to make cold creams.A complex combination of oils, emulsifiers, and active substances is used in the creation of cold creams, producing goods that suit a range of skin types and requirements.

- **Human skin:-**

Human skin is the body's largest organ and serves as a critical interface between the internal body and the external environment. It plays a vital role in protection, regulation, and sensation. Human skin is composed of three main layers, each with distinct functions and characteristics :-



- **Epidermis:** The outermost layer of the skin, the epidermis, is primarily made up of keratinocytes, which produce keratin.

Function: The epidermis acts as a barrier to protect underlying tissues from environmental damage, pathogens, and dehydration. It also regulates the

International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

skin's color and plays a role in the initial response to UV radiation.

- **Dermis:** The dormis lies beneath the epidermies Function: The dermis supports and nourishes the epidermis, provides structural strength and elasticity, and houses important structures such as sweat glands, sebaceous glands, hair follicles, and blood vessels. It is also involved in thermoregulation and serisation.
- **Hypodermis (Subcutaneous Layer):** The hypodermis is the deepest layer of the skin, consisting of loose connective tissue and fat cells.

Function:-It also serves as an energy reserve and helps anchor the skin to underlying structures like muscles and bon An ideal properties of cold cream should have the following

- **Ideal properties 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 initation to the skin.

- **Advantages of cold cream:**

1. The primary use of the cream is for skin treatment. Mineral ingredients in the cream, work as a Moisturizer.
2. Generally useful for dry skin. It can also be used as an alternative for ip balm if you have very Dry chapped lips. 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 sate 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.

- **Objective:**

To prepare the cream by using the emulsification Technique.

- **Herbal Drug and Excipient Profile**

1)Bess wax :-

One of the most crucial components of homemade cosmetics is beeswax. Why in the world haven't I published anything about beeswax yet? Perhaps beeswax is so obvious that I haven't even considered it. But the most adaptable substance that works wonders for the skins beeswax. The actuat beeswax is translucent and clear. Propolis is added to wax by worker bees as they chew the beeswax. Beeswax gets its bright, yellow color from the pollen that worker bees carry.

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 1. Beeswax.

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 nigredient used for cleaning as it's alkaline in nature.

In cold cream, borax serves primarily as an emulsifier and a preservatives helping to stabilize the mixture of oil and water and

International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

preventing of bacteria and fungi, this extending the creams shelf life

Fig2. Borax

3. LIQUID PARAFFIN :-

Liquid paraffin, also known an paraffinum liquid 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, calories, nearly odorless, and oily liquid that is composed of saturated hydrocarbons derived from petroleum.

Fig.3. Liquid paraffin.

4. ALOE VERA :-

Aloe vera is a hertial plant species belonging to familly Liliacese. 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, soleucine, saponin glycosides that provide Cleansing action, vitamins A, C, E, B, cholina, 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 gul-like appearance. On the other hand, its structure formed a protective filim for the scion, which helps in its healing properties. Sometimes the gel also serve as analgesic and anti-inflammatory 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 get 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 Treatment3
3. Boosts healing of wounds: it is highty beneficial for bums, cuts and other injuries. It also helps to Speed up skin cell reproduction by Times

International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

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
5. Reduces infection and acne: It helps in gentle cleansing and treat pimples without causing any damage to the skin.

Fig.4. Alovera.

5. METHYL P-HYDROXY BENZOATE –

The compound is widely used as a preservative for foods, cosmetice 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 hydroky bertzoate can mimic the hormone estrogen and cause negative effects to glands That secrets reproductive hormones. Million Marker does not recommend that pregnant women or women Trying to conceive expose themselves to methyl p-hydroxy benzoate.

Fig.5. Methyl P- Hydroxy Benzoate.

6. 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 tran it'sBeen used traditionally in both beauty products and Food and drink products. It also comes with plenty of Potential health benefits.

Fig.6. Rose water.

7. Distilled water :-

Distilled water is water that has been boiled into vaporand condensed back into liquid in

International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

a separate container.mpunties in the original water that do not boil below onear the boiling point of water remain in the originalcontainer. Thus, distilled water is a type of Purified water.purified water is water that is essentially hee of microbes and chemicals. This is achieved by reverse osmosis (forcing the water through a membrane to getridof chemicals, mineral and micmbes), ionization (disinfecting water using arone rather than a chemical, or distillation. The EPA requires purified water to not contain more than 10 parts per million of total dissolvedsolids in order to be labelled.

Fig. 7. Distilled water.

- **Materials :-**

The materials used in the formulation of the cream isGiven in the table 1 and the equipment's used are given in the table-2.

Table 1:-Ingredients

Sir. No	Ingredient	Company Name
1.	Bess wax	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

Table 2:-Instruments

Sir. No	Instrument	Company Name
1.	Beaker	Boroglass
2.	Glass rod	ZoomScientific World
3.	Heating Mantle Laby Care skaa410)	Heating Mantle Laby Care(skss410
4.	Measuring cylinder ReliGlas INDIA	Measuring cylinder ReliGlas INDIA
5.	Weighing machine ReliGlas INDIA	Weighing machine ReliGlas INDIA
6.	Mortar and pestle Digital scale (SF400A)	Mortar and pestle Digital scale (SF400A)

Table 3:-Role of ingredients

Sir.No	Ingredients	Role
1.	AloeVeragel	Anti-ageing. Ant inflammatory, Moisturizer, reduce acneandPimples.
2.	Borax	With emulsifying agenttoformsoap.
3.	Beeswax	Itgivesthicknessto thecream.
4.	Liquidparaffin	Lubricating agent, alkalineagent
5.	Rosewater	Fragrance
6.	Methyl-P-hydroxy Benzoate	Preservatives

International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

- **Methods:-**

The cream was prepared by using the cream base that is Bee's wax, liquid paraffin, borax, methyl paraben, Distilled water, rose oil, Alce Vera gel. The cream was Prepared by using the stab technique/extemporaneous Method for geometric and homogenous mixing of all the Excipients and the aloe extracts. By using slab technique. We have developed of our herbal cream.

- **Formulation of aloe cold cream :-**

1. Heat liquid paraffin and beeswax in a borosilicate Glass beaker at 75 Cand maintain that heating Temperature. (Oit phase)
2. 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).
3. Then Slowly add this aqueous phase to heated oily phase.
4. Then Add a measured amount of aloe Vera get and stir Vigorously until it forms a smooth cream,
5. Then add few Drops of rose oil as a fragrance.
6. Put this cream on the Slab and add New drops of distilled water if necessary And mix the cream in a geometric manner on the siab 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

Sir. No.	Ingredients	Formula
1.	Beeswax	20 gm
2.	Borax	0.8 gm
3.	Liquid paraffin	50 gm
4.	Aloe vera gel	2 gm
5.	Rose water	q.s
6.	Methyl-P-hydroxy Benzoate	0.2 gm
7.	Distilled water	q.s

A).Oli phase. B).Aqueus phase

Cold Cream Formulation

- **EVALUATION OF ALOE COLD CREAM :-**

1. Determinationof Physical appearance:-

The physical appearance of cold cream was inspected visually against dark background. The average of Three reading is recorded. The Result is given in the table no 3

2. Homogeneity:-

Homogeneity is the formulated cold cream was tested for the homogeneity visual appearance and by touch.

After feel 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 :-

Cream which was prepared has applied on Skin of hand and exposed to sunlight For 4-5mins.

International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 2 Mar–Apr 2025, pp: 2304-2311 www.ijprajournal.com ISSN: 2456-4494

Fig :- Sensitivity Test

Fig :- 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 p

laced on that slide. Then other slide was placed on thetop 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 × 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.

II. RESULTS :-

- **Physical observation –Table no 4**

Sr.No	PARAMETER	OBSERVATION
1	Colour	White
2	Odour	Pleasant
3	Texture	Smooth
4	State	Semi solid

- **Washability observation –Table no 5**

Sr.No	FORMULATION	WASHABILITY
1	F1	Easily Washable

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

Sr.No	FORMULATION	IRRITANT EFFECT	ERYTHEMA	EDEMA
1	F1	No	No	No

- **pH – Table no 7**

Sr.No	FORMULATION	PH
1	**F1**	**5.5**

III. 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 were stable at Room temperature and can be safely used on the skin. However the formula 1 showed the best results

REFERENCES :-

[1]. Manisha Yogesh Sonalkar, Sachin Annasaheb Nitave.Formulation and evaluation of polyherbal Cosmetic cream. World J Pharm Pharm Sci 2016;5:772-9.

[2]. N. Shah, B.M.Methal, (2006) A Handbook of Cosmetic, Vallabh Prakashan.

[3]. Mishra B, Pandit JK and Bhattacharya SK, Recent trends indrug delivery systems – transdermal drug Delivery, Indian Journal of Experimental Biology, 28, 1990, 1001-1007.

[4]. Anuradha Keshwar, Unmesh Keshwar, Ashwini Deogirkar,S. S. Dhurde, Veena Deo and B. K.Shrikhande, FormulationDevelopment and Evaluation of Cream Containing Natural Essential Oils Having Mosquito Repellent Property, World Journal of Pharmacy And Pharmaceutical Sciences, Volume 5, Issue 8, 1586-1593.

[5]. Storm JE, Collier SW, Stewart S, Metabolisam of Xenobiotics During Percutaneous Penetration: Role Of Absorption Rate and Cutaneous Enzyme Activity, Fundam.Appl.Toxicol, 1990;4:132 - 41.

[6]. Clewell, M. Barnes, J. R. Endres, M. Ahmed, and D. K.S. Ghambeer, "Efficacy and tolerability Assessment of a topicalformulation containing copper sulfate and Hypericumperforatum on patients With herpes skin lesions: a comparative, randomized controlled trial," Journal of Drugs in Dermatology, vol. 11, no. 2, pp. 209–215, 2012.

[7]. Martin BA, Lemos CN, Dalmolin LF, Arruda C, Brait ÍSC, Cazarim MdS, da Cruz-Cazarim ELC, Bueno PCP, Júnior MP, Pereira LRL, Cardili RN, Fonseca Vianna Lopez R. A New Approach to Atopic Dermatitis Control with Low-Concentration Propolis-Loaded Cold Cream. Pharmaceutics.2021;13(9):1346.

[8]. R.M. Mehta, pharmaceutics-II , fourth Edition , Vallabh Prakashan 2015;222.

[9]. Dr. Sweta Srivastava Koka ; MS. Supriya Shidhaye , Handbook of Experimental – Herbal Drug Technology , S.Vikas and Company – Medical Publishers , Editiol 2020; 15:17.

[10]. A. Azarang, O. Farshad, M. M. Ommati et al., "Protective role of probiotic supplements in hepatic Steatosis: a rat model study," BioMed Research International, vol. 2020, Article ID 5487659, 13 Pages, 2020.View at: Publisher Site | Google Scholar

[11]. Azarang, O. Farshad, M. M. Ommati et al., "Protective role of probiotic supplements in hepatic Steatosis: a rat model study,"BioMed Research International, vol. 2020, Article ID 5487659, 13 pages,2020.View at: Publisher Site | Google Scholar.