IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Formulation And Evaluation 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 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 effectat the site of application.

Keywords : Formulation Cold Cream, aloe cold cram

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 coldcream 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 .

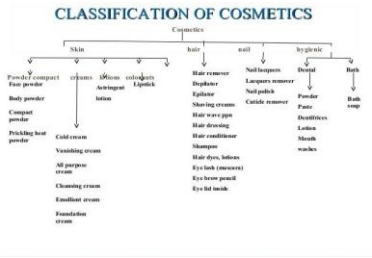
Classification of cosmetics :-

According to the function, cosmetics are classified into the following groups:

- Decorative function (Example - Lipstick, Nail polish, etc.).
- Corrective function (Example - Dry cream and heavy face powder).
- Protective function (Example-Dry cream and heavy face powder).
- 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, Shavingpreparation, 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 :-

1. Face wash
2. Moisurising cream
3. Vanishing cream
4. Cold cream
5. Cold cream

Cold creams are water-in-oil or oil-in-water type emulsionsadded 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 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.

Peparation method :-

The cold creams are prepared by the following steps:

1. Beeswax is melted in a container on a water bathmaintained at 70% temperature and added with mineral oil; this is mixture A (oily phase).
2. Water is heated in another container at the sametemperature and added with borax; this is mixture B(aqueous phase).
3. Mixture B is slowly added to the mixture A with stirring toform a creamy. emulsion.
4. In the last step, the preparation is brought down to 40°Ctemperature 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

Figure -1 cold cream

Literature review :-

1. Manisha Yogesh Sonalkar et al. formulated a poly herbal cream and evaluated.Cosmetics are the preparations which used to beautify and enhance the human appearances. The aimof the present research was to formulate and evaluate the aloe cold containing 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 of aloe 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 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 effectat the site of application.

2. N. Shaha et al. studied how In the creams were formulated based on the anti-oxidant potential of herbal extracts and its evaluation. Selected plant parts are dried and extracted using 70% alcohol by maceration. The extract was tested for antioxidant activity by superoxide scavenging activity. Quality evaluation of the product was assessed by using different evaluation methods. No change of the physical properties was observed; the pH was in a proper range (approximately pH6). The marker Curcumin was present in the extract, formulation and the peak was comparable with standard Curcumin obtained by HPLC. The formulations showed good spreadability, no evidence of phase separation and good consistency during this study period. It was found that the viscosity of the cream increases when decreasing the rate of shear so the viscosity of cream inversely proportional to rate of shear (rpm). There is no sign of microbial growth after incubation period of 24hrs at 370Cand it was comparable with the control.

3. Mishra B et al. studied the aim of the present study is to formulate and evaluate cold cream enriched with vitamin E and almond oil providing moisturizing effect. The cold cream was prepared by incorporating beeswax, borax, sweet almond oil, vitamin E and all other excipients. Fusion method is used for the formulation of the cold cream. Five different formulations are prepared and evaluated for the compliance with the pharmacopoeial parameters. All the prepared formulations are evaluated for the various parameters like pH, color, homogeneity test, viscosity, rheological studies, stability studies, etc. Among all the formulations, F4 shows the best result and all the parameters comply with the IP standards. Stability studies proved that there are no significant changes in the formulated cold cream. Thus, it is concluded that the vitamin E enriched cold cream is well formulated and evaluated with almondoil as an internal phase.

4. Anuradha Keshwar et al. formulated a poly herbal cream and evaluated the cold cream. In day to day practice the medicinalplants or herbs are widely used by the traditional ractitioners for curing various diseases. There is an increase in demand for plant based medicines, smetics, health products, food supplements and various pharmaceutical products. The aim of esent study is to formulate and evaluate cold cream using Bombax ceiba fruit pulp. Traditionally, Bombax ceiba is a well-known plant used in treatment of many diseases, with its therapeutic activity partly due to the presence of flavonoids, phenolics, sesquiterpenoids, shamimicin, bombamalosides, bombamalones, bombasin, bombasin 4-o- glucoside, and bombalin. The literature stated the plant having various pharmacological activities such as antioxidant, antimicrobial, anticarcinogenic,anti-inflammatory,immunemodulatory, hypotensive, hypolipidemic, antihyperglycemic, and analgesic.

5. Storm JE, formulated from time immemorial creams as topical preparations are considered an important part of cosmetic products. Creams may be considered pharmaceutical products as even cosmetic creams are based on techniques developed by pharmacy and un-medicated creams are highly used in a variety of skin conditions In ancient times, creams were simply prepared by mixing of two or more ingredients

using water as the solvent. With the advancement in technology, newer methods are used for formulation of creams. These semi solid preparations are safe to use by the public and society. They show versatility in their functions. In the present article, the history of creams, their advantages and disadvantages, method of preparation and ingredients used are discussed. Creams can be applied to any part of the body with ease.It is convenient to use cream by all the age group

of people. The types of creams with their examples are discussed in this article. In coming future, more advanced technologies and methods will be used for preparation, formulation and evaluation of creams. Also the demand of herbal constituents based creams are increasing day by day.

6. Clewell, et. al studied about Skin infections occur commonly and often present therapeutic challenges to practitioners due to the growing concerns regarding multidrug-resistant bacterial, viral, and fungal strains. The antimicrobial properties of zinc sulfate and copper sulfate are well known and have been investigated for many years. However, the synergistic activity between these two metal ions as antimicrobial ingredients has not been evaluated in topical formulations. Objective. The minimum effective concentration was found to be 3 w/w% for both active ingredients against the two tested microorganisms. Conclusions. This study evaluated and confirmed the synergistic in vitro antibacterial effect of copper sulfate and zinc sulfate in a cream

Aim:-

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

Objective:

To prepare the cream by using the emulsification technique.

PLAN OF WORK

To achieve this objective the following plan of work was made

1. Literature survey
2. selection of drug and excipients
3. method of preparation
4. Evaluation of the cream5-Conclusion
5. Reference

Herbal Drug and Exciplient Profile

1. Bess 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

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

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 theparaffin (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.

Figure -4 Liquid paraffin

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 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.

Figure -5 Aloe vera

Be

➢ Aloe vera gel has cooling pr matory. It helps with a pr also to retain moisture.

➢ : Aloe vera unclogs the po t is also used as aftershave tre

➢ 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.

➢ Fights skin-aging : Aloe vera has vitamin C and E which has anti-aging properties. It helps to increase collagen in the body.

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

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.

Figure -6 Rose water

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.

Figure -7 Distilled water

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.

[1]. 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

[2]. Million Marker does not recommend that pregnant

women or women trying to conceive expose themselves to methylp- hydroxy benzoate.

Figure -8 Preservative

Materials :-

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***
1	*Bees Waxs*	*Central drug house private Limited*
2	*Borax*	*Labogens*
3	*Liquid Paraffin*	*Central drug house Private Limited*
4	*Distilled water*	*KBK Enerprises*
5	*Rose Water*	*Dabar*
6	*Methyl-Hydroxy Benzoate*	*Central drug house Private Limited*

Instruments :-Table-2

Sr.No	**Instruments**	**Company Name**
1	Beaker	Boroglass
2	Glass Rod	Zoom Scientific World
3	Thermometer	GERA Research
4	Heating Mantle	Laby Care(skss410)
5	Measuring cylinder	ReliGlas INDIA
6	Weighing machine	ReliGlas INDIA
7	Mortar and pestle	Digital scale (SF400A)

Roles of ingredients :-Table-3

Sr.No	Ingredients	Roles
1	Aloe vera gel	Anti-ageing, Anti-Inflammatory, 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-Hydorxy Benzoate	Prservative

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 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 of aloe cold cream :-

Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 ℃ and maintain that heating temperature. (Oil phase). In another beaker, dissolve borax, methyl paraben in distilled water and heat this beaker to 75 ℃ 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 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 thecream 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

Sr. No	Ingredients	Formula F1	Formula F2	Formula F3
1	Bees wax	15 gm	20 gm	25 gm
2	Borax	0.8 gm	0.8 gm	0.8 gm
3	Liquid paraffin	50 gm	50 gm	50 gm
4	Aloe vera	1 gm	1 gm	1 gm
5	Rose water	33.2 gm	28.2 gm	23.2 gm
6	Methyl P-Hydroxy	0.02 gm	0.02 gm	0.02 gm

Figure no 9 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 reading is recorded.The result is given in the table no 3

2. Homogeneity

Homogeneity is the formulated cold creamwas tested for thehomogeneity y 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 bywashing 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.

Figure -10 sensitivity test

Figure -11 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 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.
m= Standard weight which is tied to or placed over theupper slide (30g)

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.

Figure -12 PH meter

6.Viscosity :-

Viscosity of cream was done by using Ostwald viscometer at a temperature of 25 ℃using spindle No. 63 at 2.5 RPM. According tothe results all the three formulations showed adequate viscosity.

Results :-

Physical observation –Table no 5

Sl.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

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

Sensitivity study observation –Table no 7

Sl.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

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

Conclusion :-

By using Aloe Vera gel the cream showed a multipurposeeffect 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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