A REASEARCH STUDY ON FORMULATION AND EVALUATION OF ANTI-AGING CREAM

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Abstract- *Skin aging is a complex process induced by constant exposure to UV radiation and damages the human skin. Topical formulations may contribute to the reduction of oxidative stress in the skin. The purpose of this study is to formulate and evaluate an anti-aging cream and to analyse its physicochemical qualities with an emphasis on safety and efficacy. Creams were formulated in this study based on the anti-oxidant potential of rosehip seed oil extract. The cream was made with ingredients such as stearic acid, cetyl alcohol, liquid paraffin, glycerine, propylene glycol, sodium benzoate, rose water, distilled water in various formulations. Oil in water (O/W) creams numbered F1 to F4 were made by incorporating different concentrations of rosehip seed oil. All formulations (F1 through F4) were evaluated based on a variety of factors, including pH, spread ability, and stability.*

Keywords: Anti-aging cream, rosehip seed oil, formulation, evaluation.

I. INTRODUCTION

Different groups and individual researchers have described anti-aging in their own unique way, giving anti-aging a variety of common meanings and connotations. Anti-aging is defined scientifically as slowing, preventing, or reversing the aging process in the human body. However, there is no proven and widely available medical technology that slows or reverses aging in humans.

Anti-aging is a myth for certain communities. They believe that aging is a natural process that cannot be avoided.
The anti-aging process or medicine, as defined by the medical and business communities, refers to the early detection, prevention, and treatment of age-related diseases. Calorie restriction, for example, reduces the likelihood of experiencing a variety of age-related conditions.

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- Dark spots
- Sagging skin
- Dull glow-less skin
- Lines & wrinkles
- Dry skin
- Patchy skin
- Open pores

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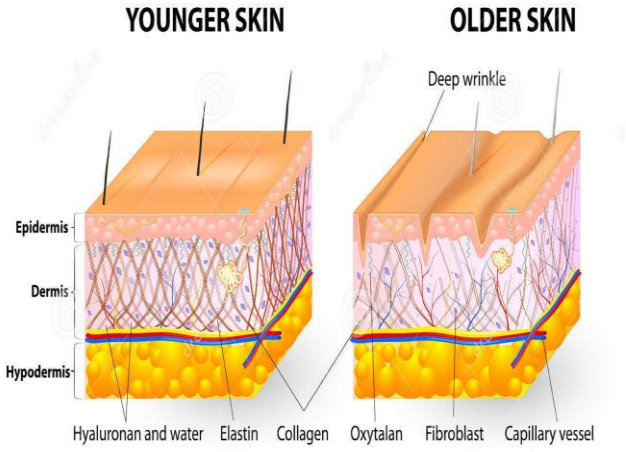

Fig: 1 anatomy of skin

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HOW TO PREVENT AGEING?

Here are some pointers to help you avoid the signs of aging on your body. Implementing them may be beneficial to your anti-aging treatment.

- Eat a healthy balanced diet: Most nutritionists agree that a healthy balanced diet is essential for reducing the effects of aging on your body. Including nuts, green vegetables, green tea, antioxidants, and other nutrients may play an important role in your anti-aging treatment.
- De-stress through exercise, meditation, and massage: Stress can have serious consequences for your body. Regular exercise will improve your stamina, immunity, and mediation & Regular massage will relieve stress and improve circulation.
- Drink plenty of water: Water is essential for good health. This will not only keep you healthy, but will also leave your skin glowing.

ROSEIP SEED OIL

Rose hip seed oil is an excellent natural moisturizer that is anti-aging, anti-inflammatory, and regenerative. It is suitable for most skin types, including oily and acne-prone, due to its high levels of polyunsaturated fatty acids and phytosterols. Some forms of this oil contain trans-retinoic acid, a molecule that works well on hyper pigmented skin as well as anti-aging and anti-acne products.

Fig:2 rosehip seed oil

PHYSICAL AND CHEMICAL CHARACTERISTICS

Rosehip seeds contain more than half of their lipid content in the form of polyunsaturated fatty acids. Rosehip seed oil has been used in cosmetics due to its therapeutic effect on some skin diseases.

Rosehip seed contains phytochemicals such as phenolic compounds (2554 g/g), carotenoids (2.92 g/g), and ascorbic acid (1798 g/g). Rosehip seed oil was also found to be high in polyunsaturated fatty acids, particularly linoleic acid (54.05%) and linolenic acid (19.37%), as well as phytosterols, particularly -sitosterol (82.1%). Other saturated fatty acids in lower concentrations and small amounts of dermatological actives of interest, such as transretinoic acid or natural retinoid (between 0.01% and 0.1%), have also been identified.

ANTI-AGING AND ANTI-ACNE

The ability of rosehip oil to regenerate damaged skin tissues was initially attributed to its high content of unsaturated essential fatty acids. These acids are essential for healthy skin because they are components of cell membranes and precursors of prostaglandin/leucotriens.

As an antioxidant, it can both protect the skin and help repair photo damage while also assisting with hyperpigmentation. Tretinin and other retinoid are regarded as the "foundation of...inflammatory and non-inflammatory acne treatment" for both acute and long-term acne treatment due to their ability to reduce inflammation while also encouraging cell turnover.

RETINOL

Retinol is a beauty care active ingredient derived from vitamin A that "has been demonstrated to promote skin cell turnover and stimulate collagen, the building block for skin, making it perfect for anti-aging and skin rejuvenation."

Retinol is one of the most well-known skin care ingredients. Retinol is an over-the-counter (OTC) retinoid that is derived (made from) vitamin A and is primarily used to treat mature-looking skin concerns as well as acne.

Fig: 3 retinol

ANTI-AGING MOISTURIZERS

- Moisturizer have a thicker, heavier consistency.
- They contain moisturizing ingredient in addition to anti-aging ingredients. So it may take a couple of minutes for them to absorb fully into the skin.
- They often contain SPF to protect your skin from sun during the day.
- They work best for normal, combination, or dry skin.
- Benefits of anti-aging creams
- Gain skin radiance
- Increase your self-confidence
- Positive the occurrence of age spots and discoloration
- It saves you from costly dermal procedure
- Skin tightening and hydration the signs of aging include excessive drying and loss of skin firmness and elasticity.

FORMULATION PROCEDURE OF CREAM

Heated oily phase and aqueous phase, both up to 70º c were mixed using homogenizer by addition of preservative, extract and fragrance. With constant mixing, the remaining distilled water is added by continuously stirred until the mixture cools. Cream was formed when the consistency of the mixture was viscous and opaque.

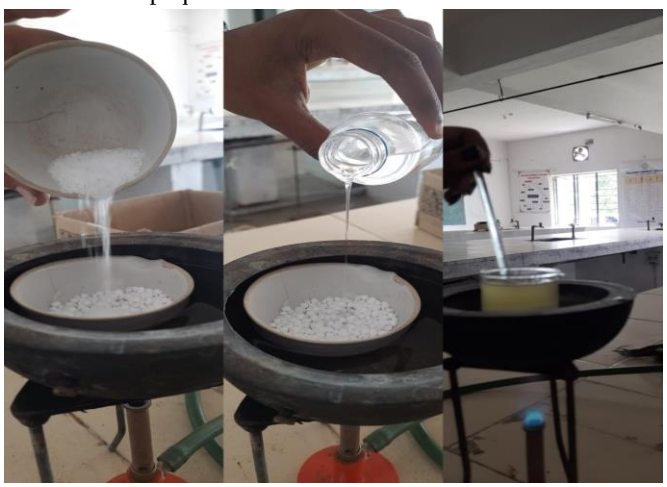

Fig: 4 formulation anti- aging cream

COMPOSITION OF FORMULATION:

S.no.	Ingredients	Quantity			
		F1	F2	F3	F4
1	Rosehip seed oil	1%	2%	3%	4%
2	Stearic acid	10%	10%	10%	10%
3	Cetyl alcohol	6%	6%	6%	6%
4	Liquid paraffin	6.6%	6.6%	6.6%	6.6%
5	glycerine	5%	5%	5%	5%
6	Propylene glycol	30%	30%	30%	30%
7	Sodium benzoate	0.05%	0.05%	0.05%	0.05%
8	Almond oil	2%	2%	2%	2%
9	Deionised water	Q.s.	Q.s	Q.s	Q.s

Table: 1 ingredient used in anti-aging cream

EVALUATION

To evaluate the prepared formulations quality control tests including visual assessment\and physicochemical controls such as PH and viscosity was performed. Also to assure the quality of product

1. ORGANOLEPTIC EVALUATION

The cream thus obtained was evaluated for its organoleptic properties like colour, odour, texture and state through visual observation.

2. DETERMINATION OF pH

The pH meter was calibrated using standard buffer solutions. About 0.5g of the cream was weighed and dissolved in 50ml of distilled water in a beaker, and its pH was measured.

Fig:5 PH METER

3. VISCOSITY

The viscometer was mounted vertical position on a suitable stand. Water was filled in to the viscometer up to mark A. The time was counted for water to flow from mark A to mark B. The same procedure was repeated for the test liquid by using the above formula viscosity of the test liquid could be determined.

Fig: 6 Ostwald viscometer

4. HOMOGENEITY

The formulations were tested for the homogeneity by visual appearance and by touch.

Fig: 7 homogeneity

5. SPREADABILITY

In this test, we taken the two set of glass slide of standard dimensions, the cream formulation place on one slide and other slide is place 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 and then observed the spread ability of cream.

6. AFTER FEEL

In this test, we are apply the some amount of cream on skin of hand and the observed the cream. Emolliency, slipperiness and amount of residue left after the application.

Fig: 8 after feel

7. TYPE OF SMEAR

After application of cream the type of film or smear formed on the skin was checked.

8. IRRITANCY TEST

Mark an area (1sq.cm) on the left hand dorsal surface. The cream was applied to the specified area and time was noted. Irritancy, erythematic, edema, was checked if any for regular intervals up to 24 hrs and reported.

9. REMOVAL

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

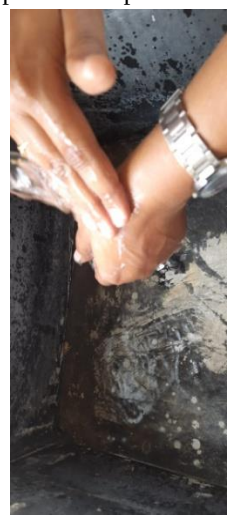

Fig: 9 removal

II. RESULTS AND DISCUSSION

1. ORGANOLEPTIC EVALUATION

The cream thus obtained was evaluated for its organoleptic properties like colour, odour, state and texture. The appearance of the cream was judged by its colour and roughness and graded. Results are listed in table

1	State	Semisolid	Semisolid	semisolid	semisolid
2	Colour	white	white	white	white
3	Odour	characteristic	characteristic	characteristic	characteristic
4	Texture	smooth	smooth	smooth	smooth

Table: 2 organoleptic evaluation

2. DETERMINATION OF pH

Fig: 10 ph test

The pH of the cream was found to be in range of to which is good for skin pH. All the formulations of cream were shown pH nearer to skin required. The results are listed in table

S. No	FORMULATION	pH
1	F1	6.08
2	F2	6.04
3	F3	5.72
4	F4	6.01

Table: 3 determination of ph

3. VISCOSITY

Viscosity was determined by Ostwald (capillary) viscometer. It was based on the poiseuilles law, which related the rate of fluid flow through a capillary tube to the liquid coefficient of viscosity. With a chromic acid mixture, the viscometer was cleaned and dried. Depending on the capacity of bulb 'A' until the 'C' water (10-25ml) was pipetted into bulb 'B'. it was drawn into bulb 'A' until the 'C'. Water flow through the capillary tube DE was measured using a stopwatch, and that observation was denoted as t1.

The viscometer was dried and bulb 'B' was filled with the same amount of sample which indicated as t2. The process was repeated.

4. HOMOGENEITY

All formulations produce uniform distribution of extracts in cream. This was confirmed by visual appearance and by touch.

5. SPREADABILITY

Fig: 11 spreadability test

6. AFTER FEEL

The optimises cream has emoliency, slipperiness and amount of residue left after the application of fixed amount of cream was found good.

7. TYPE OF SMEAR

The formulated all the creams (F1, F2, F3 and F4) are non-greasy.

Fig: 12 smear test

8. IRRITANCY TEST

The formulation F1, F2, F3 and F4 shows no reness, edema, inflammation and irritation.

9. REMOVAL

The cream F1, F2 and F3 applied on skin was easily removed by washing with tap water.

10. APPEARANCE

When formulations we kept for long time, it found that no change in colour, texture, state and odour of the cream.

III. DISCUSSION

The appearance of cream is smooth and odourless the colour of formulation will be white. Given formulation is O/W emulsion. When formulation is kept for long time it found that no colour change. The pH of the cream was found that formulation F3 and F4 nearer to skin pH. The viscosity of the formulation F4 shows best among other formulation. All formulation produced uniform distribution of extract in cream this was confirmed by visual appearance and by touch. The formulation F3 easily spread well. The cream F3 and F4 has emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was found good. The formulated cream F4 are not greasy. All the formulation F3 and F4 not shows redness edema, inflammation and irritation. The cream F3 and F4 applied on skin was easily removed by washing with tap water. The stability of formulation is stable at room temperature. The shelf life of formulation up to 6 month. Storage of cream in cool and dry place.

IV. CONCLUSION

Due to constant exposure of human skin to the UV radiations present in sunlight, several pathobiological alteration in cells occurs such as irregular pigmentation, increased wrinkling, loss of elasticity, dryness and roughness. For the protection of this signs of aging herbal cosmetic are used as a therapy. Retinol active constituent appear efficient against uv radiation-induced damage.

The results demonstrated that the formulated antiaging cream are safe and usable for the skin and having good potential for cosmetic oriduct development.

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