



International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Research on Formulation and Evaluation of Multipurpose Herbal Cream.

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ABSTRACT :

Products used to improve one's look are known as herbal cosmetics. The study's goal was to develop a herbal cream that would moisturise, nourish, brighten, and treat a range of skin conditions. Important ingredients including *Curcuma longa* (turmeric powder), *genus tagetes* (Marigold), *Aloe barbadensis* (aloe vera leaves), and *Azadirachta indica* (neem leaves) were used in the formulation of the cream. The choice of ingredients relies on the distinct therapeutic qualities of the agents. Different assessment criteria are applied to the cream. The formulations stayed stable at room temperature and can be applied to the skin without risk, per the findings and discussion. The o/w type emulsion used in this cream formulation makes it simple to wash off with water after use. The spreadability of the formulation was good. The cream's pH and viscosity were also acceptable. The cream showed no signs of phase separation while it was being stored. After application, the cream is easily removed and has a non-greasy texture. The formula doesn't cause irritation or damage to the skin. The cream was prepared using the slab method and was further assessed through various evaluation parameters, including phase separation, viscosity, pH, spreadability, washability, non-irritancy tests, and physical characteristics of the cream, all of which yielded positive results.

Keywords: Cosmetic, Herbal cream, Turmeric, Marigold, Aloe-vera, Neem.

1. INTRODUCTION

Creams are semisolid emulsions of the water in oil (w/o) or oil in water (o/w) types that are intended for external application. Cream is classified as an oil and water emulsion. Its primary function is to stay at the application location for a long period of time. It is utilized in the outside or superficial portion of the skin. A skin cream's dual purpose is to soothe the skin and protect it from various environmental factors and weather conditions. Creams come in several varieties, including cleansing, cold, foundation, disappearing, body, hand, massage, and night creams. Our main objective is to develop a multipurpose herbal cream that hydrates, lessens psoriasis, eczema, dry skin, wrinkles, rashes, and other skin conditions while also reducing acne and skin irritation. And giving the face more radiance. Three natural ingredients—neem, aloe vera gel, and others—were used in our formulation. Gel made from aloe vera is used as a moisturiser, to cure burn wounds, and to lessen acne and pimples. Neem is used to lessen skin scarring, redness, itching and pigmentation. It also has anti-inflammatory and antifungal qualities. Tulsi is accustomed to encourage wound healing and give skin a radiant appearance. Overexposure to ultraviolet light has been known to cause sunburn cells, rapid ageing of the skin, and an increased risk of skin cancer. Many new and traditional herbal cosmetics can help heal damaged skin. More efficient sun protection is needed because of the steadily rising frequency of melanoma, non-melanoma cutaneous neoplasia, and preneoplastic diseases. Despite the fact that sunscreens with UV filters are quite effective at shielding the skin from the sun's harmful rays, herbal sunscreens are quickly taking their place because of the negative consequences that come with UV filters. Our primary goal is to create a multifunctional herbal cream that treats dry skin, wrinkles, rashes, and reduces acne and skin irritation and other issues. Cosmetics are items that are applied to the body.



Fig 1. Aloe vera leaf.



Fig.2 Marigold Flower.



Fig.4 Turmeric.



Fig.4 Neem leaf.

2. Benefits of Aloe vera for Face :-

1. Aloe-Vera has many moisturizing qualities that aid in the removal of dead cells.
2. Avoid or lessen dark spots and wrinkles on your face.
3. Moisturise dry skin.
4. Soothe irritated skin.
5. Remove signs of ageing.
6. Its anti-inflammatory qualities can also lessen wound or injury pain, swelling, and soreness.
7. It helps sunburns and rashes feel cooler.
8. It promotes collagen synthesis and release the skin healthy and radiant.

9. Combats blemishes and pimples.
- 10.Reduces puffiness and dark circles.
11. Eases psoriasis and eczema.
12. Gets rid of dead skin cells.
13. Treats sunburns.
14. Give the skin a natural glow.
15. Skin was hydrated using vital.
16. Reduces stretch marks and delays the onset of premature ageing.

● **Benefits of Marigold Flower For Face :-**

1. Beauty Secrets.
2. Facilitated Sleep..
3. Proven Result.
4. Improve Digestion.
5. Relieves From Nausea.
6. Heals wounds and chapped skin .Contains cell regenerative properties.
7. Great for dry and damaged skin.
8. Calms acneic skin.
- 9.Soothes rashes & soreness.

1. Benefits of Turmeric For Face:-

1. Natural anti-inflammatory compound.
2. Boosts heart health and prevents cancer and Alzheimer's disease.
3. Powerful antioxidant.
4. Treats depression.
5. Cures acne.
6. Reduces dark circles.
7. May help psoriasis and eczema.
8. cleanses the skin.
- 9.Aids in wound healing, aids in weight loss.
10. Shields the body from free radicals.
11. Acts as an antimicrobial agent.

● **Benefits of Neem leaf For Face:-**

1. It can be used on both the face and the hair.
2. It protects against dandruff.
3. It smoothes and shines the dry scalp.
4. It increases brightness and has an anti-aging impact.
5. It increases blood circulation.
6. Neem is rich in antioxidants and vitamin E, which reduce wrinkles.
7. It also helps treat ulcers.
8. It keeps the the skin healthy and radiant.

9. It has antibacterial properties that help get rid of pimples.
10. With fatty acids and glycosides, it has an anti-inflammatory effect and lightens and blurs acne scars.
11. It soothes eczema.
12. It prevents infections.
13. It evens out skin tone.
14. It has anti-aging benefits.

2. MATERIALS AND METHODS:-

Collection of plant Materials :- Neem, aloe vera, marigold, and turmeric were gathered from the nearby botanical garden. There is no denying that drugs that contain regardless of the kind of crude drug, the highest concentration of active ingredients are properly collected. and the collection region. The benefits of the current environment are also taken into consideration when collecting unrefined pharmaceuticals, and when collecting natural drugs for commercial purposes, careful attention should be paid to the utilisation of expert workers. Depending on which section of the fruit is used, the fruits are picked. They gathered fully developed apples that were either fully or partially ripe. When they have an adequate supply of food reserves and the highest concentration of chemical constituents, rhizomes are harvested. For scientific purposes, herbaria are collections of preserved plant samples and the data that goes with them.

- **Methods of preparation:-**

Slab method:- Until a consistent preparation is achieved, the ingredients are combined. An ointment mill will be used in one small-scale process, such as spontaneous compounding. Use a hard rubber spatula if an ointment's ingredients react with metal. Place the cream on the slab, mix it in a geometric pattern, and add a few drops of distilled water if necessary to give it a smooth texture and makes sure all the ingredients are well combined. This procedure is referred to as the slab technique or the extemporaneous method of cream preparation (Ashara K. et al., 2013)



Fig.5 Ointment Slab.

Trituration method :- Apply the trituration process to liquids or particles of insoluble powder that have been finely separated. Insoluble powder is added by a geometric dilution. By digging a well in the center, liquid is added to stop air pockets from forming. Reduce the solid medication to a fine powder with a stainless steel spatula, then mix it with a small amount of base on an ointment slab until a homogenous product is produced (Ashara K, et al., 2013) (Figure 5).

Fusion technique: Applying heat to induce liquefaction or melting is known as fusion. Combining, melting, and cooling all or part of the components is the fusion process. ingredients of an ointment while stirring constantly until they solidify. Melting the base of an ointment lowers its melting point. Melting It is best to start with the melting point that is the highest and work your way down to the lowest. Add the medication gradually to the melted mass and stir thoroughly until the mass cools and uniform products form to avoid overheating low-melting-point substances (Ashara K, et al., 2013).

Table 1: Herbal ingredients and excipients used along with their functions Senior No. Roles of Ingredients

Sr.no.	Ingredients	Roles
1.	Marigold	Anti inflammatory, antioxidant.wound healing.
2.	Aloe vera	Anti-ageing, reduce acne and pimples.
3.	Turmeric	Glow your skin and antiseptic, anti- inflammatory .
4.	Neem	Relieves skin dryness promote wound g Healing.
5.	Borax	Alkaline agent.
6.	Bees wax	Emulsifying agent
7.	Liquid paraffin	Lubricating agent.
8.	Methyl paraben	As a preservative
9.	Distilled water	Vehicle.
10.	Rose oil	Fragrance.

○ **Extraction process :-**

1)Aloe vera :-

Aloe Vera leaves that were fresh, mature, and in good heal were collected and distilled water was used to clean them. After the leaves where properly dried in a hot air oven, the outer part of the leaf was then longitudinally dissected with a sterile knife.The colourless parenchymatous tissue was then removed using the sterile knife which is aloe vera gel. The fibres and contaminants are then eliminated by filtering it through muslin cloth. The preparation was then done using the filtrate, or filter product, which is a transparent aloe vera gel. Vitamin E oil is used in Aloe vera gel to increase the shelf life.

2) Marigold:-

Hand picking was used to gather the marigolds, and the cleaned petals were separated. The aforementioned petals were dried at 80–100 degrees Celsius in a hot air oven. A beaker was filled with dried marigold. About 300 millilitres of each solvent—ethanol and petroleum ether—are taken and put into a round-bottom flask. The soxhlet device is loaded with dried marigold. The top is connected to the condenser, while the bottom is installed in RBF. The temperature of the RBF, which is connected to a heating module, was set at 65 degrees Celsius. Continue extracting until you have a thick, viscous, yellow-brownish extract. [12]



Fig.6 Extraction of Marigold

3) Turmeric :-

Consider the meaty turmeric rhizomes. For three hours, the turmeric rhizomes were dried in an oven set to 105 °C. The dried rhizome was ground into a consistent powder. To avoid moisture absorption, the turmeric powder was kept refrigerated. A thimble containing 10 g of weighed turmeric powder was placed inside the Soxhlet device, which was progressively filled with acetone as the extraction solvent. Within eight hours, the extraction was completed at 60 °C. Following extraction, a rotary evaporator operating under vacuum at 35°C was used to separate the acetone from the extract. After drying, the residue was weighted.



Fig. 7 Extraction of Turmeric.

4)Neem :-

After being gathered, neem leaves were cleaned with distilled water and dried in a hot air oven. When the leaves were properly dried, they turned to powder. Next, 5 grammes of powdered neem leaves and 80–100 millilitres of dimethyl sulfoxide were shaken after being put in a volumetric flask. The solution is then heated in a water bath to 80–100 degrees Celsius to remove impurities, and concentrated to 20 millilitres. After that, a clear solution extract of neem leaves was the filtrate or filter product.



Fig.8. Neem Extract .

5)Rose oil :-

- .It repairs damage to hair.
- . Enhances Hair Growth
- . Minimises dandruff.



Fig .9. Rose oil

1) FORMULATION OF CREAM :-

While the liquid paraffin and bees wax are in a borosilicate glass beaker, keep the heating temperatures (oil phase) at 75°C. Dissolve the borax and methyl paraben in distilled water in a separate beaker that is maintained at 75°C with a water bath. Until all of the solids have dissolved (aqueous phase), stir the mixture with a glass rod. Add the heated aqueous phase to the heated oily phase gradually while stirring (Ashara K, et al., 2013). Add the extracts of aloe vera, neem, tulsi, and turmeric as soon as all the stages have been combined. Next, use a glass rod to continue mixing after adding the ripe papaya until a creamy cream forms (Table 2).



Fig.10 Extraction of Herbal plant.



Fig.11 Formulation of Herbal Cream.

Table 2: Formulation table

Sr.no.	Ingredients	F1HC	F2HC	F3HC
1.	Marigold Extract	2.7ml	1.6ml	1.4ml
2.	Aloe vera Extract	2.8ml	1.4ml	1.6ml
3.	Turmeric Extract	1.7ml	1.0ml	1.0ml

4.	Neem Extract	0.5ml	0.5ml	0.5ml
5.	Borax	0.3gm	0.5gm	0.2gm
6.	Bees wax	7.0gm	7.0gm	7.0 ky degm
7.	Liquid paraffin	18.1ml	20.3ml	20.1ml
8.	Methyl paraben	0.3gm	0.5gm	0.5gm
9.	Distilled water	q.s	q.s	q.s
10.	Rose oil	q s	q.s	q s

1. Physical parameters :-

The cream's colour, texture, odour, and condition are all assessed in this test.

Table 3: Physical parameters.

Sr.no.	Pareters	F1H	F2H	F3H
1.	Colour	Faint yellow	Faint yellow	Faint yellow
2.	Odour	Pleasant	Pleasant	Pleasant
3.	Texture	Smooth	Smooth	Smooth
4.	State	Semi solid	Semi solid	Semi solid

- Irritancy:** Mark the 1 cm² region on the left hand's dorsal surface. The time was noted after the lotion was applied to the afflicted area. The irritating impact, erythema, and oedema, if any, are examined after a 24-hour interval.

Table 4: Irritancy test

Sr.no.	Formulation	Irritant effect	Erythema	Edema
1.	F1C	Nil	Nil	Nil
2.	F2C	Nil	Nil	Nil
3.	F3C	Nil	Nil	Nil

- Washability:** To evaluate washability, After applying a small amount of cream, the hand was cleaned with tap water. Each of the three formulations was easily cleaned.(Table 5).

Table 5: Washability test

Sr.no.	Formulation	Washability
1.	F1C	Easily Washable

2.	F2C	Easily Washable
3.	F3C	Easily Washable

- **Phase separation:**-The prepared cream is kept in a tightly sealed container at room temperature, away from direct sunlight, and its phase is tracked for a full day.

Sr.no.	Formulation	Phase Separation
1.	F1C	No phase separation
2.	F2C	No phase separation
3.	F3C	No phase separation

- pH:** Mix 0.5 grams of cream with 50 millilitres of distilled water. The pH can then be measured with a digital pH meter. (Table 7).

Table 7: pH test

Sr.no.	Formulation	PH
1.	F1C	6.5
2.	F2C	6.2
3.	F3C	6.4

- Spreadability:** The spreadability of the F1C, F2C, and F3C formulations is examined. The faster the separation time, the better the spreadability. the two slides. Accordingly, F2C demonstrated superior spreadability. (Table 8).

Table 8: Spreadability test

Sr.no.	Formulation	Time (Sec)	Spreadability (gmc/sec)
1.	F1C	6	2.2
2.	F2C	4	3
3.	F3c	5	2.4

Conclusion :-

The usage of turmeric, marigold, aloe vera, and neem gave the cream a multipurpose effect, and each of the herbal ingredients showed unique and notable properties. We may infer from the results that all three formulations—F1C, F2C, and F3C—were stable at room temperature and safe to apply topically. Therefore, the statement claims that the F1C formulation of herbal cream is better than the F2C and F3C formulations. The potential of plant extracts for cosmetic applications is the main focus of this study. Cosmetics are currently used for a lot more things in the personal care system. Bioactive chemicals in cosmetics influence the skin's biological functions and provide the nutrients needed for healthy skin. Throughout, the generated formulation showed excellent consistency. The F1C formulation's good spreadability, trial time, and lack of phase separation. The developed herbal cream provides the best features and nutritional values while using less chemicals, shielding the skin against a range of skin problems. The cream is very reasonably priced because it was created with simple ingredients and a simple procedure. Applying the herbal cosmetic composition as a barrier to protect the skin

is safe. According to the findings of several cream tests, the formulation may be administered topically to protect skin. Natural remedies are more commonly used since they are believed to be less harmful and safer than synthetic ones

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