



Formulation & Evaluation of Multipurpose Herbal Cream

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ABSTRACT

Objective:- To formulate and evaluate herbal cream using Aloe vera gel, Dimethyl sulfoxide, Neem extract (*Azadirachta indica*) and Turmeric (*Curcuma longa*) to give multipurpose effect.

Methods:- The cream was prepared by using cream base which is liquid paraffin, beeswax, methyl paraben, borax, distilled water, Aloe vera gel, dimethyl sulfoxide, extracts of Turmeric and Neem. The cream was prepared by slab technique or extemporaneous method for mixing the cream in geometric manner to provide a smooth texture and for mixing of all ingredients properly. From using slab technique, we have formulated three different batches of our herbal cream, named as F1H, F2H and F3H. All three batches were evaluated

/ test for different parameters like physical evaluation, pH, irritancy, viscosity, phase separation and spreadability.

Results:- All three formulations, that is F1H, F2H and F3H showed good appearance, almost neutral pH, no erythema, edema and redness on skin during irritancy study, easily washable, good spreadability and no phase separation. All three formulations F1H, F2H and F3H were found stable at room temperature.

Conclusion:- By using Aloe vera gel, Neem and Turmeric the cream showed multipurpose effect and all herbal ingredients were used showed different significant activities. Based on the results we can say that all three formulations F1H, F2H and F3H were stable at room temperature and can be safely used on the skin.

Keywords:- Aloe barbadensis (gel), *Azadirachta indica* (Neem), *Curcuma longa* (Turmeric), Multipurpose cream, Herbal cosmetic.

INTRODUCTION

The concept of beauty and cosmetics is as ancient as mankind and civilization. Indian herbs and its significance are popular worldwide. An herbal cosmetic has growing demand within the world market and is a useful gift of nature. Herbal formulations always have attracted considerable attention due to their good activity and relatively lesser or nil side effects with synthetic drugs. Herbal cosmetics are defined because the beauty products which possess desirable physiological activity like healing, smoothing appearance, enhancing and conditioning properties due to herbal ingredient. Now-a-days the usefulness of herbs within the cosmeceutical production has been extensively increased in care system and there's an excellent demand for the herbal cosmetics. Cosmetics are the substances intended to be applied to the physical body for cleansing, beautifying, promoting attractiveness, and altering the looks without affecting the body's structure or functions. But the usage of synthetic products becomes very harmful from while for the youth also as our surroundings. Various synthetic compounds, chemicals, dye and their derivative proved to cause various skin diseases having numerous side effects. Thus we are using herbal cosmetics the maximum amount as possible. The basic idea of skin care cosmetic lies deep within the Rigveda, Yajurveda, Ayurveda, Unani and Homeopathic system of medicine. These are the products during which herbs are utilized in crude or extract form. These herbs should have sorts of properties like antioxidant, anti- These herbs are

selected on the idea of a standard system and scientific justification with modern uses. A herbal cream which will give effective protection to skin and free from any toxicity or toxic residue or any irritation when regularly used and will even be cosmetically acceptable.


Creams are semi-solid preparations containing one or more medicinal agents dissolved or dispersed in either a water-in-oil emulsion or an oil-in-water emulsion or in another type of water-washable base. Cream can be classified as oil in water and water in oil emulsion. It is applied on surface or superficial part of skin and its advantage is to remain for a longer duration of time on site of application. The main function of a skin cream is to provide protection from different environmental condition, weather and provide soothing effect to the skin. The general types of creams are cold, cleansing, vanishing, foundation, massage, night, hand and body creams. The main purpose of our work is to formulate a herbal cream which can produce multipurpose effect, like moisturizer, reduce acne and irritation, reduce skin conditions like psoriasis, eczema, wrinkles, dry skin, rashes etc. and also add glow to the skin. Aloe vera, Neem and Turmeric, these three herbal ingredients are used in our preparation. Aloe vera acts as Anti-ageing, anti-inflammatory, moisturizer, reduce acne and pimples. Neem is used to promote wound healing, relieves skin dryness, itching and redness and it is also used to reduce pigmentation and scar. Turmeric is used as antibacterial and adds glow to the face.

HEALTH BENEFITS OF TURMERIC

Medicinal Uses

- > Natural anti-inflammatory
- > Anti-cancer Effect
- > Powerful antioxidant
- > Protects Heart disease
- > Treat or Prevent Diabetes
- > Prevent Alzheimer's Disease
- > Treats Depression
- > Improves skin health
- > Prevent Eye Degeneration
- > Prevent age-related chronic diseases
- > Treating Rheumatoid Arthritis
- > Protects your body from free radicals
- > Help in Osteoarthritis




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Benefits Of Aloe Vera For Face

- Aloe Vera helps in keeping your face healthy & gives you a natural shine.
- Aloe Vera is rich in moisturizing properties, it helps in removing dead cells.
- Aloe Vera is very beneficial for the people with dry and cracked skin
- Aloe Vera also prevent or reduce wrinkles and dark spots of your face
- Aloe Vera gives protection against the harmful ultra-violet rays of the Sun, which protects you from Sun burn.



BENEFITS OF NEEM LEAF POWDER

- ACTS AS A SHIELD AGAINST DANDRUFF.
- IT CAN BE USED FOR BOTH FACE AND HAIR.
- TREATS DRY SCALP MAKING IT SMOOTH AND SHINY.
- WITH ITS VITAMIN C PROPERTIES, IT IS CAPABLE OF REMOVING BLACKHEADS AND DULLNESS IN THE FACE.
- INCREASES RADIANCE AND PRODUCES ANTI-AGEING EFFECTS.





MATERIALS AND METHODS

- **Collection of plant material**

Aloe vera, Neem were collected from local botanical garden.

Excipients and herbal ingredients with their roles

Role of ingredients-

Sr. no.	Ingredients	Roles
1	Aloe vera gel	Anti-ageing, anti-inflammatory, moisturizer, reduce acne and pimples.
2	Neem extract	Promote wound healing, relieves skin dryness, itching and redness.
3	Turmeric extract	Antibacterial, adds glow to the face.
4	Beeswax	Emulsifying agent
5	Liquid paraffin	Lubricating agent
6	Borax	Alkaline agent
7	Propyl paraben	Preservative
8	Distilled water	Vehicle
9	Rose oil	Fragrance

Extraction processes

1) **Neem**

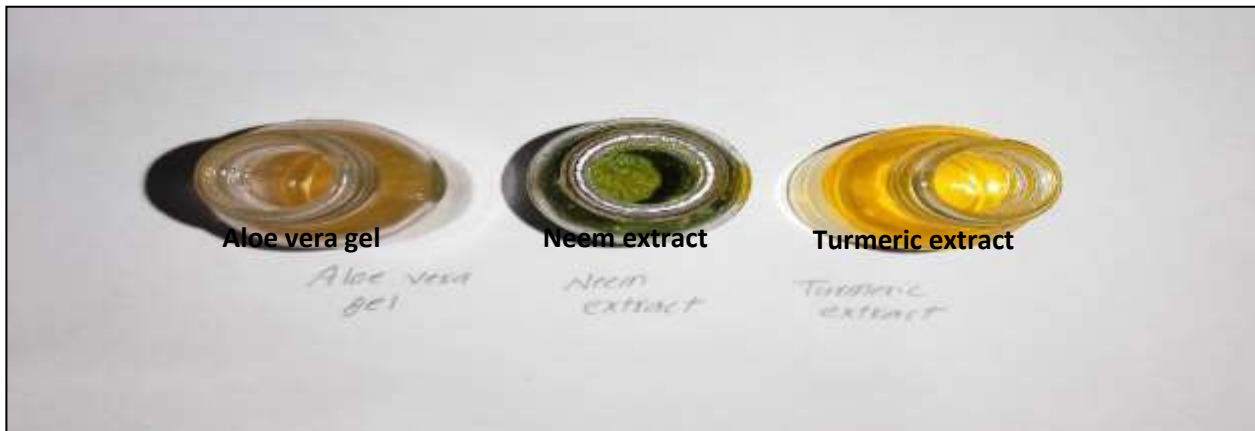
Collect fresh neem leaves. Washed it with distilled water. Dried it in hot air oven and then powdered. Take 5g neem powder in 20ml Dimethyl Sulfoxide at 100°C for 5 to 10 minutes. Then filter it by filter paper and clear solution is obtained.

2) Aloe vera

Collect mature and fresh aloe vera leaf from plant. Washed it with distilled water. Dried it in hot air oven. Leaf is dissected longitudinally by sterile knife. Then semi-solid aloe vera is collected. Remove fibres and impurities from it. Aloe vera extract is obtained.

3) Turmeric

Take 1g turmeric powder in 10ml distilled water and shaken in volumetric flask. Heated in water bath at 80 to 100°C for 5 to 10 minutes. Then filtered it and turmeric extract is obtained.



Extracts of natural plant ingredients

Formulation of cream

Take the liquid paraffin and beeswax in a borosilicate glass beaker at 75°C and maintain that heating temperature (Oil phase).

In other beaker, dissolve borax and propyl paraben in distilled water by maintaining temperature 75°C with water bath. Stir the solution with glass rod until all solid particles get dissolved (Aqueous Phase).

Then gently add heated aqueous phase in heated oily phase with continue stirring.

After mixing both phases, immediately add Aloe vera gel, Neem extract and Turmeric extract into it with continue mixing by glass rod until it will form a smooth cream.

When the cream is formed, then add rose oil as fragrance.

Then transfer this cream on slab and mix the cream in geometric manner to provide a smooth texture and for mixing of all ingredients properly.

Add few drops of distilled water if necessary.

This method is called as slab technique or extemporaneous method for preparation of cream.



Cream formulations

Formulation of cream

Sr. no.	Ingredients	Formulation F1H	Formulation F2H	Formulation F3H
1	Aloe vera gel	2.7ml	1.42ml	1.67ml
2	Neem extract	0.9ml	0.28ml	0.67ml
3	Turmeric extract	2.7ml	1.42ml	1.67ml
4	Beeswax	5.45g	4.97g	5.36g
5	Liquid paraffin	18.1ml	21.32ml	20.11ml
6	Borax	0.36g	0.56g	0.50g
7	Propyl paraben	0.03g	0.056g	0.050g
8	Distilled water	QS	QS	QS
9	Rose oil	QS	QS	QS

Evaluation of cream Physical evaluation

In this test colour, odour, texture and state of cream are observed.

Irritancy

Mark 1cm² area on left hand dorsal. Cream was applied on that area and note that time. After interval upto 24 hours it is checked for irritant effect, erythema and edema if any then reported.

Sr. no	Formulation	Irritant effect	Erythema	Edema
1	F1H	Nil	Nil	Nil
2	F2H	Nil	Nil	Nil
3	F3H	Nil	Nil	Nil

Sr. no.	Parameters	Formulation F1H	Formulation F2H	Formulation F3H
1	Colour	Faint green	Faint green	Faint green
2	Odour	Pleasant	Pleasant	Pleasant
3	Texture	Smooth	Smooth	Smooth
4	State	Semi-solid	Semi-solid	Semi-solid

Washability

Apply small amount of cream on hand and wash it under running tap water.

Sr. no.	Formulation	Washability
1	F1H	Easily Washable
2	F2H	Easily Washable
3	F3H	Easily Washable

pH

Take 0.5g of cream and dispersed it in 50ml distilled water. Then check it's pH by using digital pH meter.



F1H



F3H



F2H

Sr. no.	Formulation	pH
1	F1H	7.98
2	F2H	7.94
3	F3H	7.96

Viscosity

Viscosity measured by using Brooke field viscometer with spindle no. 63 at room temperature.



F1H

F2H

F3H

Sr. no.	Formulation	Viscosity (Cps)	rpm
1	F1H	880	2.2
2	F2H	800	2.0
3	F3H	840	2.1

Phase separation

Prepared cream is kept in tightly closed container at room temperature away from sunlight and observed for 24 hours for 30 days for phase separation.

Sr. no.	Formulation	Phase separation
1	F1H	No phase separation
2	F2H	No phase separation
3	F3H	No phase separation

Spreadability

Spreadability is carried out for all three formulations, that is F1H, F2H and F3H. The less time taken for the separation of both the slides better the spreadability. Therefore according to statement F2H has better spreadability.

Sr. no.	Formulation	Time (sec)	Spreadability (gxcn/sec)
1	F1H	7	2.14
2	F2H	5	3.0
3	F3H	6	2.5

Greasiness

The cream is applied in the form of smear on the surface of skin and observed if smear was oily or greaselike. According to result, we can say that all three formulations F1H, F2H and F3H were non-greasy.

Sr. no.	Formulation	Greasiness
1	F1H	Non-greasy
2	F2H	Non-greasy
3	F3H	Non-greasy

CONCLUSION

By using Aloe vera gel, Neem and Turmeric the cream showed multipurpose effect and all herbal ingredients were used showed different significant activities. Based on the results we can say that all three formulations F1H, F2H and F3H were stable at room temperature and can be safely used on the skin.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

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