

# Formulation and Evaluation of Anti-Tanning Cream

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**Abstract:** Nowadays, tanning has become a significant skincare issue because of pollution, stress, UV radiation, and lifestyle choices. The goal of the current effort is to synthesise a herbal anti-tan medication and evaluate its many properties for both stability and effectiveness. Using only natural ingredients, the herbal concoction was made onsite in accordance with the suggested composition. The following ingredients—marigold flower extract, Aleovera gel, cetyl alcohol, were bought at the neighborhood market, dried, ground, and then combined geometrically before being placed in an airtight container for future analysis. The results of numerous tests validated the formulation's quality criteria. The criteria were determined to be sufficient for standardising the formulation of herbal medicines. In this paper, a poly-herbal anti-tan formulation was synthesised and assessed on a number of factors. The produced herbal cream was determined to be suitable by all requirements and may be used as a superior treatment option for tanning. The word "tanning" comes from the colour tan and has a cultural background

**Keywords:** Marigold, Cream, Evaluation, Tan, Formulation

## I. INTRODUCTION

Creams are homogeneous, semi-solid or viscous preparations that possess a relatively fluid consistency and are intended for external application to the skin or certain mucous membranes for protective, therapeutic or prophylactic purposes especially where an occlusive effect is not necessary.

They are semisolids usually consisting of solutions or dispersions of one or more medicaments in suitable bases.

**Anti-tanning cream:** Anti-tan cream are facials that are designed to reduce the appearance of sun tanning.

A tan is the healing mechanism of skin to protect itself from sun damage. When ultraviolet rays penetrate the skin, they stimulate the production of melanin, a dark brown pigment, for the purpose of shielding the skin from burning. As a result, the skin gets darker in the form of a tan. UVA rays penetrate to the lower layers of the epidermis, where they trigger cells called melanocytes to produce melanin. Melanin is the brown pigment that causes tanning. Sun tanning is the process in which skin color is darkened or tanned.

The present work focuses on the composition of an anti-tan herbal treatment for the skin along with the determination of its quality standards.

### **Marigold flower:**

There are lots of benefits of using Marigold flower extract. Known to help to lighten the skin tone and give a fairer look. With their cooling tendencies, they help in soothing skin and enhancing clarity. Marigold extract is a well-known natural treatment for eczema and other skin irritations due to its calming and anti-inflammatory properties. Its anti-inflammatory and antioxidant properties can help with the healing and regeneration of damaged skin cells, as well as the reduction of inflammation and irritation.



**Benefits:**

**HYDRATES SKIN:** Intensely hydrating skin brightening cream aka Marigold skin brightening cream help in collagen synthesis and thus deeply moisturizes & hydrates skin. This contributes to firming the skin & helps improve skin elasticity. Marigold is rich in the Lutein and Zeaxanthin carotenoids which help to protect skin from the harmful effects of sun and pollution by strengthening the lipid layer. Protects and reverses skin damage.

**REDUCES HYPERPIGMENTATION:** Retinol present in the Marigold cream ensures that collagen production is boosted and the aged cell's behavior is altered to make skin look younger. Hydration helps to restore skin elasticity. Enriched with Anti-oxidants.

**MADE WITH NATURAL INGREDIENTS:** The Cream is free from Sulfates, SLS, Petroleum, Artificial Preservatives, & Colors.

**SUITABLE FOR ALL SKIN TYPES:** This cream is suitable for all skin types. Also works wonders for sensitive skin.

**EXCIPIENT PROFILE**

**1) Marigold flower:**



**Synonym:** calendula, Tagetes.

**Family:** Asteraceae.

**Chemical Constituents:** alkaloids, anthocyanins, betacyanin, cardio glycosides, coumarins, flavonoids, glycosides, phenolics, quinones, saponins, steroids, terpenoids and tannins.

**Medicinal uses:**

promote skin health.

Wound healing.

Stomach ulcers.

Burns and wounds.

To stop bleeding.

**Morphology:**

Color- Yellow, Orange.

Odor- Pungent.

Taste- Citrus & pepper.

**2) aloe-vera**



**Synonym:** Aloe, Ghritkumari.

**Biological Uses:** Dried juice collected by incision from the bases of the leaves of various species of Aloe.

**Family:** Liliaceae.

**Chemical constituents:** Barbaloin, Isobarbaloin, Aloe Emodin.

**Medicinal uses :**

Lightens scars and blemishes.

Treats acne.  
Soothes sunburn  
Treats stretch marks  
Treats dry skin  
Anti aging

**Morphology:**

Color: slightly yellow or translucent gold.  
Odor: Earthy, Garlicky.  
Shape:triangular, fleshy leaves.

**3) Glycerine**



**Synonym:** glycerol

**Medicinal Uses:**

Hydrate  
The Outer Layer Of The Skin  
Relieve Dry Skin  
Moisturizer  
Protects The Skin Barrier  
Anti-Aging  
Smoothens The Skin.

**Morphology:**

Color colorless  
Odor- odorless  
Taste: Sweet

**4) Cetyl Alcohol**



**Synonyms:-**1-hexadecanol, hexadecyl alcohol

**Medicinal Uses:-**Moisturizer to treat or prevent dry rough ,scaly ,itchy skin and minor skin irritations.

**Morphology:-**

Nature:- waxy white powder or flake from at room temperature.  
soluble in Alcohols  
insoluble in water.

**5) Methyl Paraben**



**Synonyms:-** Methyl Hydroxy Benzoate, Benzoic Acid.

**Medicinal uses:-**

Antifungal Agent

Preservative

Reduce Irritation of skin

**6) Olive Oil**



**Synonyms:-**

Salad Oil

Corn Oil

Sweet oil

**Medicinal Uses:-**

Anti-Aging

Smooths Cracked Skin

Make up Remover

**7) Vitamin E Capsule**



**Synonyms:-** Rac-Alpha Tocopherol

**Medicinal Uses:-**




Wound

Inflammation

Sunburn Prevention

**II. FORMULATION TABLE**

SR.NO	INGREDIENTS	CATEGORY	QUANTITY TAKEN(F1)	(F2)	(F3)
1	MARIGOLD  Lutein oil Marigold Extract, Lutein 20%, Zeaxanthin 4% HPLC	Herbal Extract	2 ml	2 ml	2ml
2	ROSE WATER 	Perfume	1 ml	2 ml	3 ml
3	GLYCERIN 	Humectant	5 ml	4 ml	3 ml
4	ALOE VERA 	Herbal Extract	3 ml	4 ml	5 ml
5	OLIVE OIL 	Antioxidants	2 drops	1 drop	3 drops

6	VITAMIN E CAPSULE 	Antioxidant	2 Capsule	1 Capsule	2 Capsule
7	CETYL ALCOHOL 	Emulsifier	1 gm	1.5 gm	0.5 gm
8	METHYL PARABEN 	Preservatives	0.2 gm	0.3 gm	0.4 gm

### III. METHOD OF PREPARATION:

Firstly take a 4-5 marigold flower & remove the petals.



Then we have to extract the marigold petals properly.



In that above extract take measured amount of aloe vera gel, and measured amount of olive oil, glycerine & mix them.



In another container take a cetyl alcohol, methyl paraben and vitamin e capsule as given in the above table and mix them appropriately.



Add this container mixture drop wise into above marigold extract mixture and stir it vigorously.



Leave it for 10-20 min to set, hence the anti-tanning face cream was prepared.



**Prepared Creams**

**Evaluation**

**Physical parameters**

In this test color, odor, texture, and state of cream are observed.

S. No	Parameters	F1	F2	F3
1	Color	Faint Yellow	Yellow	Yellow
2	Odor	Pleasant	Pleasant	Pleasant
3	Texture	Smooth	Smooth	Smooth
4	State	Semi-Solid	Semi-Solid	Semi-Solid

Table 2: Physical parameters

**Irritancy test:**

Mark the area on the left hand dorsal surface. Then the cream was applied to the area and the time noted. After interval up to 24 hr. it is checked for irritant effect, erythema and edema if any than reported. (Table3)

S. No	Formulation	Irritant effect	Erythema	Edema
1	F1	Nil	Nil	Nil
2	F2	Nil	Nil	Nil
3	F3	Nil	Nil	Nil

Table 3: Irritancy test

**Wash ability:**

Wash ability test was carried out by applying a small amount of cream on the hand and then washing it with help of tap water. All three formulations were easily washable. (Table 4)

S. No	Formulation	Wash ability
1	F1	Easily Washable
2	F2	Easily washable
3	F3	Easily washable

Table 4: Wash ability test

**Phase separation:**

Prepared cream is kept in tightly closed container at room temperature away from sunlight and observed for 24 hours for phase. (Table 5)

S. No	Formulation	Phase Separation
1	F1	No phase separation
2	F2	No phase separation
3	F3	No phase separation

Table 5: Phase separation

**pH:**

Take 0.5 g of cream and dispersed it in 50 ml distilled water. Then check it's pH by using digital pH meter (Table 6)

S. No	Formulation	pH
1	F1	7.98
2	F2	7.94
3	F3	7.96

Table 6: pH test

**Spreadability:**

Spreadability is carried out for all three formulations that is, F1, F2 and F3. The less time take for the separation of both the slide better the spreadability. Therefore according to statement F3 had better spreadability.



S. No	Formulation	Time (sec)
1	F1	10
2	F2	9
3	F3	8

#### IV. CONCLUSION

People today require therapy for a variety of skin issues. Natural components opened the door to the creation of cosmetics without negative side effects. Herbal products are regarded as an effective and sustainable technique to enhance skin look. As a result, the formulation of the herbal package in this paper, which includes readily available substances like Marigold flower extract, cetyl alcohol, methyl paraben, Aleovergel. It is implied that the developed Polyherbal Anti tanning cream formulation had the properties of a typical cosmeceutical skincare formulation and was physically and chemically stable.

#### Result

It was discovered that the created formulations was of high quality, pale yellow in colour, and add a nice aroma that was ideal for cosmetics formulation. PH of the formulations was discovered to be 7.96 PH, which is closed to neutral range. It was determined that the rheological characteristics were adequate an appropriate for a Anti tanning Cream.

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