



## A Review on Preparation and Evaluation of Turmeric Cream

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### ABSTRACT:

Cosmetics are widely used by men and women to beautify and improve their appearance. Nowadays, the demand for herbal cosmetics is increasing day by day due to their harmlessness. Additionally, since they are prepared from medicinal plants, they have fewer side effects. Many people due to its great comfort and economy, as well as its quality have recognized it. Curcumin is one of the food products frequently used in many activities, but the main problems in the commercial development of curcumin are solubility and stability problems. The aim of this review project is to develop and evaluate a turmeric herbal skin cream containing turmeric extract. Turmeric extract has antibacterial and anti-inflammatory properties and can brighten the skin. Therefore, this product is beneficial for human keratinocytes and is safe and stable. Turmeric skin cream does not have any side effects; it is not harmful or undesirable; it beautifies the skin. [1-4]

Key Words: Turmeric, Curcumin, Herbal, Skin, etc.

### 1. Introduction:

The rhizome of turmeric contains curcumin, which is used as a food additive to improve health and treat many diseases. Curcumin and other curcuminoids found in turmeric have many physiological and pharmacological activities. Turmeric extract has been reported to be used as a cosmetic or skin care product in both topical and oral preparations. It is said to be effective in treating aging skin, increasing skin thickness, reducing elasticity, skin damage, and other problems caused by sunlight. There is little empirical data to support these claims. Therefore, it is necessary to evaluate the benefits or other effects of this plant. Turmeric is one of the traditional herbs. It belongs to the Zingiberaceae family. Due to the presence of curcumin, a polyphenolic compound, it has 36-turmeric extract antioxidant, antibacterial, and antioxidant properties. Therefore, the phenolic compounds of curcumin are responsible for its antioxidant activity. Phytochemical structures in turmeric include vitamin C, cineole, curcumin, borneol, zingiberene, d-sabinete, and phellandrene. Turmeric contains a variety of compounds, including sesquiterpene ketones, monoterpenes, and sesquiterpene alcohols (such as zingiberene). Fresh turmeric contains curcumin, and curcumin is the most important curcumin in turmeric. Previous reports have reported that turmeric has antibacterial and antifungal effects. Curcumin is known for its inhibitory effects on bacteria such as *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella*. *Typhimurium* and *Pseudomonas aeruginosa* many studies have shown that turmeric extract has strong antioxidant properties. The main active compound of turmeric (curcumin) has strong free radical scavenging activity. It can eliminate RNS (active nitrogen) and ROS by transferring energy from three active sources, such as superoxide radicals, alkoxy radicals, peroxy radicals, hydrogen peroxide, singlet oxygen, peroxy nitrite, hydroxyl radicals, nitric oxide, and hydrogen extraction. Curcumin also exhibits indirect antioxidant properties through the reduction of various cytoprotective proteins, including catalase, gamma-glutamylcysteine ligase, and glutathione S-transferase. Curcumin treatment can reduce plasma malondialdehyde while increasing glutathione reductase, glutathione peroxidase, catalase activity, and plasma albumin levels. The aqueous extract and ethanol extract of turmeric may exhibit significant antioxidant properties by activating antioxidant enzymes, eliminating different free radicals, and inhibiting lipid peroxidation. Some in vivo studies in mice show that turmeric inhibits hydrogen peroxide in the brain by preventing lipid peroxidation. Different components of turmeric, such as chloroform, n-butanol, ethyl acetate, and n-hexane, have strong antioxidant properties.

A study found a relationship between digging capacity and curcumol content. This report. Additionally, ethanol extract may show greater protection against free radicals in mice by activating antioxidant enzymes such as catalase, superoxide dismutase, and glutathione peroxidase. Studies have shown that this herb has a protective effect against HIV.

#### Benefits of the Herbal Cosmetics

- It is natural and harmful to the skin or other parts of the body.
- Placebo has many benefits for consumers due to its use in culture and tradition.
- Flexible formulation.
- Its effectiveness has been proven since ancient times.

- Easy to obtain.

Economical.

#### **Advantages of Herbal Cold Cream**

1. It helps cleanse and beautify the body without side effects.
2. Normalizes the body.
3. It is highly nutritious and contains many vitamins and minerals.
4. Increases physical strength.
5. Supports the immune system without any side effects. Body balance.
6. Various plant species can be added.[1-4]
7. It is easy to use.
8. Suitable for everyone.
9. Avoid variations in drug levels in the context of different patients.
10. No special risks or professional personnel should use the product.
11. Achieve results with lower total daily doses.
12. Be patient. [1-4]

#### **Disadvantages of Herbal Cold Cream**

1. Large amounts of medicine are not easily absorbed through pores of skin.
2. Possible skin reactions due to contact dermatitis
3. Malabsorption may occur due to poor penetration of some drugs into skin.
4. May cause allergic reactions.
5. It is generally used in the use of drugs that require less plasma. [1-4]

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### **1. History:**

Turmeric has been used in Asia for centuries and is an important part of Ayurveda, Siddha medicine, traditional Chinese medicine, Unani medicine and the animistic rituals of the Austronesian people. It was first used as a dye and was later used in folk medicine. It spread from India to Southeast Asia along with Hinduism and Buddhism, with the color yellow being used to color the robes of monks and hermits. Turmeric was also found in Tahiti, Hawaii, and Easter Island before European contact. There is anecdotal and indirect evidence that Austronesian people spread and used turmeric throughout Oceania and Madagascar. In particular, the inhabitants of Polynesia and Micronesia never had contact with India, but turmeric was widely used in food and coloring. Independent domestication events are therefore also possible. Turmeric was found in Farmana and dates back to B.C. It is dated between 2600 and 2200 BC. Turmeric dates back to 3000 BC in Megiddo, Israel. It was found in a commercial grave dating back to 2000 BC. It is described as a plant color in Assyrian cuneiform manuscripts in the library of Ashurbanipal in Nineveh in the 7th century BC. In medieval Europe, turmeric was called "Indian saffron".

## 2. Phytochemistry:

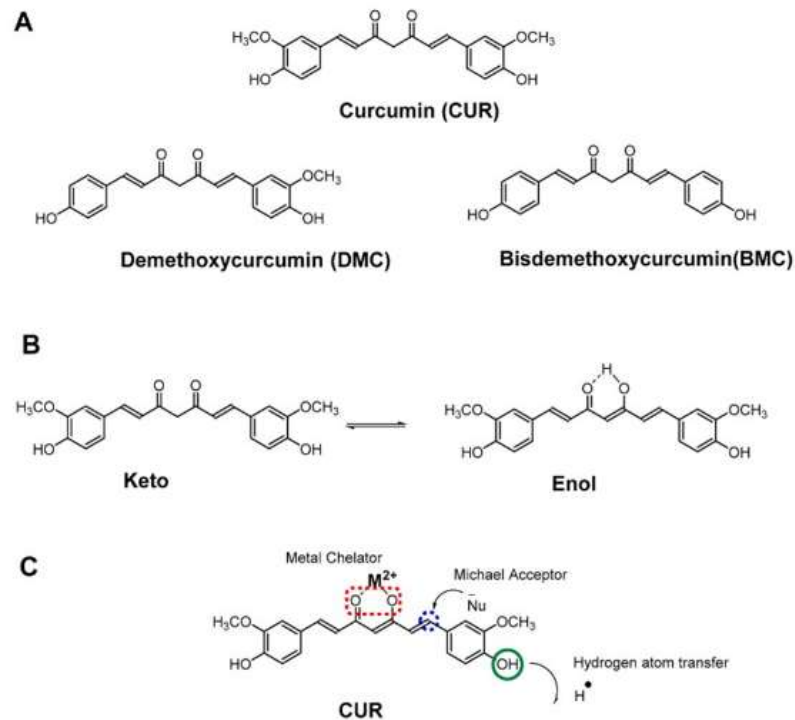


Fig.1 A). Chemical structure of curcuminoids, (B). Ketoenol tautomers of curcumin and (C). Chemically reactive sites within curcumin contribute to its activity and bioavailability.



Fig no.1 Turmeric

### Synonyms:

In northern India, turmeric is commonly called "haldi", this is a word derived from the Sanskrit word haridra; In South India it is known as "manjal", a word frequently used in ancient Tamil literature. kurkum (Arabic & Hebrew), huang jiang (Mandarin Chinese), curcuma (French, German, Italian, Spanish), and haldi (Hindi).

### Biological Source:

Turmeric is a product of *Curcuma longa*, an annual herb belonging to the Zingiberaceae family native to Southeast Asia.

<b>Kingdom</b>	<b>Plantae</b>
Subkingdom	Tracheobionts
Super Division	Spermatophyta
Division	Mangoliophyta
Order	Zingiberales
Family	Zingiberaceae
Genus	Curcuma
Species	longa
Scientific Name	<i>Curcuma longa</i>

**Chemical Constituents:**

Turmeric powder contains approximately 60-70% carbohydrates, 6-13% water, 6-8% protein, 5-10% fat, 3-7% dietary fiber, 3-7% essential oil, 2-7% fiber and 1.5-6% curcumin. The golden color of turmeric is due to curcumin. The phytochemical content of turmeric includes diarylheptans, a class that includes various curcuminoids such as curcumin, demethoxy curcumin, and bisdemethoxy curcumin. Curcumin content in commercial turmeric powder samples is as high as 3.14% (average 1.51%); curry powder contains less (0.29% on average). Turmeric contains approximately 34 essential oils; Among them, curcumin, gemstone, aranon and zingiberene are the main components.

**3. Cultivation:**

Climate and soil\_Turmeric can grow in many tropical regions all year round, from sea level to 1500 meters above sea level, at temperatures of 20-35°C and 1500 mm or more of precipitation, rainfed or flooded conditions. Although it can grow in the many soil grows best in sandy or clay loam soils with a pH range of 4.5-7.5 and good organic content.[5]

**Varieties**

There are many varieties in the country named after the place where they grow. Some of the most popular ones are Duggirala, Tekkurpet, Sugandham, Amalapuram, and Erode district, Salem, Alleppey, Moovattupuzha and Lakdong.

Development\_of\_Turmeric\_Varieties Initiated by ICAR-Indian Spice Research Institute, Kozhikode.[5]

**Sowing****Soil preparation**

Soil is prepared after receiving early rains. After about four deep plows, the soil is plowed finely. Sandy soils should be treated with 500 - 1000 kg/ha of slaked lime, depending on soil pH, and applied thoroughly. Immediately after taking pre monsoon showers, prepare beds of simple length, 1.0 m wide, 30 cm high and 50 cm away from the bed. Cultivation is also done on ridges and furrows.[5]

**Seed information**

Use of whole or split taproots and finger-like rhizomes for planting and choose healthy and disease-free rhizomes. Seed rhizomes are treated with 0.3% mancozeb (3 g/liter of water) for 30 minutes, dried in the shade for 3-4 hours before planting. 2,500 kilograms of rhizome seeds are required to plant one hectare of turmeric.[5]

**Transplanting:**

Turmeric has been found to be beneficial, although its transfer is not much.

Turmeric cultivation techniques using single buds (about 5 grams) have been standardized to produce high-quality plants at lower cost. The technology has been developed by the College of Horticulture and Research Institute, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu. The process involves transplanting rhizomes from seeds that are planted in the field 30-40 days after they are planted in pots. The advantage of this tool is to produce good plant material and reduce the number of rhizomes, ultimately reducing the cost of seeds.[5]

**Technology**

- Select healthy turmeric rhizomes for seeds
- Treat the selected rhizomes with mancozeb (0.3%) and quinophosphos (0.075%) for 30 minutes

Keep well in a ventilated place

- One month before sowing, cut the seed rhizomes into a bud and into small pieces.

The weight of the rhizomes is 5-7 grams.

- Treat a sprout (Mancozeb 0.3%) for 30 minutes before planting
- Pre-tray (98 wells) with partially decomposed coconut pulp and vermicompost (75:25) enriched with PGPR/Trichoderma. fill it. 10g/kg mix
- Place turmeric buds on front tray
- Keep front tray under shady mesh canopy (50%)
- Use rose pots or water using appropriate sprinkler when necessary
- Seedlings 30-35 days It becomes ready for planting in.[5]

### Planting

In Kerala and other western coastal regions where rains start earlier, the crop can be planted in the rainy season before April and May. Indicate the smallness of the bed with a hand hoe from a distance of 25cm x 30cm. Fill the hole with well-rotted cow manure or compost, place the rhizomes on top, and then cover with soil.

The best distance between furrows and ridges is 45-60 cm between rows and 25 cm between plants.[5]

### Organic Production

For certified organic production, crops must be under organic management for at least 18 months only two batches of turmeric, for example, come to the voluntary sale of organic produce. If the organic farm is established on previously unused land and there is sufficient evidence of the history of the area, the conversion period will be eased.

All farms are expected to follow organic production methods; however, over large areas, change can be done in stages, requiring the creation of a transformation plan. Turmeric is the best crop for agriculture and forestry - horti system, coconut, areca nut, mango, leucaena, rubber etc. It can be used as agricultural waste when planted together with as a mixed crop, it can be intercropped or rotated with green manure/crops or crops, which can increase productivity and control pests and diseases. When growing in a mixed growing system, all crops in the field must use organic production methods.

There should be a negative area with clear boundaries to prevent contamination of the organic farming area by neighbors who do not practice organic farming.

Crops grown in this block cannot be considered organic. Be careful in the mud to prevent water and chemicals from entering from neighboring farms.

Construction through gaps in the slope

Soil and water conservation should be followed to reduce erosion and runoff.

Only deep trenches should be dug in the field to prevent flooding.[5]

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## 4. Adulteration:

Turmeric and other spices may be added because they are often sold as heavy, toxic, cheaply prepared powders with similar colors as lead (II, IV) oxide ("red lead"). These additives gave turmeric an orange-red color rather than a golden color; this led the US Food and Drug Administration (FDA) to issue import warnings for turmeric originating from India and Bangladesh from 2013 to 2019. In 2014, the United States exported approximately 5.4 million kilograms (12 million pounds) of turmeric, some of which was used in food coloring, medicine, or nutritional supplements. The discovery of lead in turmeric products in 2016 led to recalls in the United States, Canada, Japan, South Korea, and the United Kingdom.

Lead chromate is a light yellow substance found as an additive in turmeric products. The contamination level of Bangladeshi turmeric, which is frequently used in foods, is 500 times above the national limit. Researchers have identified several sources for contamination of lead chromate in turmeric: from farmers, to traders who sell poor-quality roots, to "polishers" who add lead chromate to improve the yellow color for those sold to the retail trade. , no one knows the consequences of lead. Another additive in turmeric, methanyl yellow (also known as acid yellow, is rated negatively by the UK Food Standards Agency as illegal dyes in food.[5]

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## 5. Pharmacological activity:

*Curcuma longa* and its major bioactive constituent (Curcumin) possess various pharmacological properties. These include; anticancer, antidiabetic, anti-osteoarthritis, antidiarrheal, cardio protective, anti-oxidative, neuroprotective, hepatoprotective, anti-microbial, Reno protective and anti-inflammatory activities.

**Skin whitening agent:** The curcumin it contains can reduce melanin production and make the skin darker. Adding turmeric to your skin care routine can make your skin glow and reduce any dark spots and pigmentation.

### Antibacterial and Antioxidant:

Turmeric extract has antibacterial and antioxidant properties due to the presence of curcumin, a polyphenolic compound. Therefore, phenolic compounds of curcumin are responsible for its antioxidant activity. Phytochemical structures in turmeric include vitamin C, cineole, curcumin, borneol, zingiberene, d-sabinene and d-phellandrene. Turmeric contains a variety of compounds, including sesquiterpene ketones, monoterpenes, and sesquiterpene alcohols (such as zingiberene). Fresh turmeric contains curcumin, and curcumin is the most important curcumin in turmeric. Previous reports suggest that turmeric has antibacterial and antifungal effects.

Curcumin is known for its preventive effects on bacteria such as *E. coli*, *Escherichia coli*, *Staphylococcus aureus*, *Salmonella typhimurium* and *Pseudomonas aeruginosa*. Many studies have shown that turmeric extract has strong antioxidant properties. The main active compound of turmeric (curcumin) has strong free radical scavenging activity. It can eliminate RNS (active nitrogen) and

ROS by transferring energy from three active sources such as superoxide radicals, alkoxy radicals, peroxy radicals, hydrogen peroxide, singlet oxygen, Peroxynitrite, hydroxyl radicals and nitric oxide and hydrogen extraction. Curcumin also exhibits indirect antioxidant properties through the reduction of various cytoprotective proteins, including catalase, gamma-glutamylcysteine ligase, and glutathione S-transferase.

#### **Miscellaneous:**

Curcumin treatment can reduce plasma malondialdehyde while increasing glutathione reductase, glutathione peroxidase, catalase activity and plasma albumin levels. Aqueous extract and ethanol extract of turmeric may exhibit significant antioxidant properties by activating antioxidant enzymes, eliminating different free radicals and inhibiting lipid peroxidation. Some in vivo studies in mice show that turmeric inhibits hydrogen peroxide in the brain by preventing lipid peroxidation. Different components of turmeric such as chloroform, n-butanol, ethyl acetate and n-hexane have strong antioxidant properties.

Study found a relationship between digging capacity and curcumol content this report additionally, ethanol extract may show greater protection against free radicals in mice by activating antioxidant enzymes such as catalase, superoxide dismutase, and glutathione peroxidase. This study shows that this herb has anti-HIV effects.

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## **6. Physiology of human skin**

### **Epidermis:**

Epidermis is the uppermost layer of the skin consisting of multilayered keratinized squamous epithelium with different thicknesses in different parts of the body.

The thickness of the palms and feet is thickest. There are no blood vessels or nerves in the epidermis, but its deeper layers are bathed in different fluids than the skin. The dermis provides oxygen and nutrients and flows as lymph.[6-11]

**Dermis:** DERMIS is hard and elastic. It consists of connective tissue, which is a matrix containing collagen fibers intertwined with elastic fibers. The breakdown of elastic fibers occurs when the skin is stretched too much, causing permanent damage or cracks

which can occur during pregnancy and obesity. Collagen fibers bind water and provide tensile strength to the skin, but as this ability decreases with age, wrinkles form. Fibroblasts, macrophages and mast cells are the main cells in the dermis. Under the deepest layer, there is areolar tissue and it differentiates from fatty tissue.

[6-11]

Subcutaneous Glands they consist of secretory epithelial cells derived from the same tissue as hair follicles. They secrete oily sebum in hair follicles and are found on the skin all over the body except the palms and soles of the feet. They are usually found on the scalp, face, armpit and groin skin. In areas where there is a transition from one epithelium to another, such as the lips, eyelids, nipples, inner lips and glans, there are sebaceous glands that secrete sebum independently of the root hairs.[6-11]

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## **7. Functions of the Skin**

The skin has the following functions:

**a) Protection:** Langerhans cells, which are an anatomical defense in the body against infections and damage from inside and outside the environment, are in the skin

### **Adaptive immunity.**

**b) Sensory:** There are many nerves that respond to heat and cold, touch, pressure, vibration and tissue damage, see

### **Somatosensory System and Touch.**

**c) Temperature Management:** The blood supply of the skin is more than needed it allows controlling the energy loss resulting from radiation, convection and conduction. Dilated blood vessels increase perfusion and heat loss, while narrowed blood vessels greatly reduce cutaneous blood flow and conserve heat.

**d) Controls evaporation:** The skin provides a dry and semi-dry environment. Impermeable barrier to prevent water loss. Loss of this function causes a lot of water loss during combustion.

**e) Beauty and communication:** Others see our skin, it can measure our mind, physical body and attractiveness.

**f) Storage and exchange links:** as a means of binding vitamin D through the storage of lipids and water and the action of ultraviolet rays on some parts of the skin.

**g) Water Protection:** The skin acts as a water barrier so that essential nutrients do not flow out of the body.[7-9]

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## 8. Skin diseases

### a) Vitiligo

Vitiligo is a disease in which some areas of the skin lose normal pigment and turn white as a result. It is a phenomenon, affecting approximately 1% of the world's population. The pigment that gives the skin its natural color is melanin, produced by melanocytes.

### b) Scabies

Scabies is a very itchy disease caused by a human mite. It can affect people of all ages but is most common in young and old people. The mites that cause scabies are tiny mites that are smaller than the head of a pin. The rash is a combination of scratches and red, scaly areas; it may then spread and small bumps may appear.

### c) Rosacea

Rosacea is a rash that occurs mostly in the middle of the face in adults.

The easiest way to blush is on the cheeks, chin, forehead and nose. The cause of rosacea is not fully understood, but many people believe it is due to defects in the blood vessels at the front of the skin that expand too easily.

**d) Psoriasis:** Psoriasis is a skin problem that affects approximately 2% of the population. It occurs equally in men and women of all ages and often comes and goes unpredictably. It does not spread and does not leave any residue on the skin. The skin is a complex structure consisting of several different layers.

### e) Melanoma

Cutaneous malignant melanoma is a skin-colored cancer. If treated early, the prognosis is generally good. It is not contagious. The word "melanoma" comes from the Greek word "melas" meaning black. Melanin is the dark pigment that gives skin its natural color.

### f) Eczema (Atopic Eczema)

Atopic eczema is a skin disease. Specificity is a term used to describe conditions that often have a genetic background, such as eczema, asthma, seasonal rhinitis and hay fever. Eczema is a term used to describe changes in the layers of the skin, including redness, blistering, bleeding, crusting, flaking, thickening, and sometimes pigmentation.[8-11]

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## 9. Topically Administration

In the last few years, the treatment of diseases has led to the introduction of drugs into the human body by oral, sublingual, rectal, parenteral, topical, inhalation, etc. It is achieved by applying various methods. Delivery can be defined as

the application of a preparation containing a drug onto the skin for the direct treatment of skin diseases or cutaneous manifestations of a disease (such as psoriasis). A variety of different formulations predominate in the cosmetics industry, but foams, sprays, powders, solutions and even creams are also used. All used.

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## 10. Creams

Creams are that preparation can be applied to the skin. Cream is defined as an "oil-in-water or water-in-oil type liquid or semi-emulsion" dosage form, with the consistency of oil and water. Cosmetics are used for cosmetic purposes such as cleansing, beautifying, improving appearance, preventing or restoring function. These ointments are used to deliver drugs that cause local effects into the layers of the skin or mucous membranes. This product is intended for cosmetic use to better penetrate the skin to treat skin conditions. Creams are considered medicines when are prepared according to technology developed by the pharmaceutical industry; Non-pharmacological and topical medications are widely used to treat various skin conditions or dermatological conditions. Creams can be Ayurvedic, herbal or allopathic

and people use them according to their skin's needs. They contain one or more drugs substances dissolved or dispersed in a suitable base. Creams may be classified as o/w or w/o type of emulsion on the basis of phases. The term 'cream' has been traditionally applied to semisolid formulated as either water-in-oil (e.g.: cold cream) or oil-in-water (e.g.: vanishing cream).[6-11]

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## 11. Types of Cream

They are divided into two types:

Oil-in-water (O/W) cream and oil, which contain small oil droplets dispersed at a continuous level. An emulsion in which the Form is dispersed in the aqueous phase in the form of liquid droplets is called oil-in-water (O/W) emulsion.

Water-in-oil (W/O) creams consist of small streams of water flowing into a continuous oil. When the dispersion medium is water and the dispersion medium is oil, the emulsion is of the water-in-oil (W/O) type.

Classification of cosmetics

all cosmetics can be classified on different bases:

1. Depending on the job, washing, foundation, massage, etc. Depending on the situation or type of cosmetics.

Types of creams are divided according to their function, characteristic nature and type of cosmetic

1. Make-up cream (o/w emulsion): a) Vanishing creams. b) Foundation creams.

2. Cleansing cream, cleansing milk, cleansing lotion (w/o emulsion)

3. Winter cream (w/o emulsion): a) Cold cream or moisturizing creams.

4. All-purpose cream and general creams.

5. Night cream and massage creams.

6. Skin protective cream.

7. Hand and body creams.

Wound healing and healing can be defined as the loss or destruction of cells and organs or the maintenance of deep tissue or tissue function. Infections can be caused by physical, chemical, thermal, bacterial, microbial, severe or immune-mediated skin diseases. Pain does not affect the patient's body or mind. However, this also comes with significant costs and can scar the patient for life and cause skin damage. Wounds are generally classified according to the types of injury and disease as follows:

1) Closed wounds: contusions, closed bones, etc.

2) Open wound

a) Sharp cut.

b) Laceration.

c) Abrasion.

d) Avulsion.

e) Crush wound.

f) Punctured wound.

g) Bite wound.

h) Burn wound.

Wound healing is a process of cell contraction, movement, readhesion after injury or trauma of the skin. Wound healing involves platelet aggregation, blood clotting, formation of fibrin, inflammatory response to damage, alteration in the ground substances, angiogenesis and re-epithelization. Healing process cannot be complete until the disrupted surface are vigorously knit by collagen and finally terminated by scars formation. The process of wound healing may be hampered by the presence of free radicals which will damage the surrounding skin tissues. And the process of wound healing is influenced by several factors such as infections, nutrition, drugs and hormones, type and the sites of the wound and certain disease conditions. In India, since centuries people are using natural products obtained from plant and animal for treatment of wounds which was taught in a popular form of Indian medicine known as Ayurveda. Natural products have been used since centuries in different parts of world; natural products are becoming as important as alternative medicine because of their comparatively lesser side effects. Due to these reasons, natural/traditional medicine are investigated scientifically for the betterment of human health. These are used directly as in crude or raw form of drug for the treatment of chronic diseases.[7-10]

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## 12. Materials and method:

Preparation of crude alcohol extract:

Take 5 grams of raw turmeric, put it in an Erlenmeyer flask, add 100 ml of ethanol, and then close the lid of the Erlenmeyer flask. aluminum foil. This mixture is then softened for 5 days.

Preparation of the oil phase

Place stearic acid (18%) and lanolin in a porcelain plate and melt the mixture at 700 °C.



Prepare the water phase

Heat water, glycerin and borax at the same temperature as melted stearic acid and lanolin. Mix the oil phase with the water phase by stirring constantly. Preservatives and flavors added. Mix them well to obtain a homogeneous product.

Sr. No.	Ingredients	Concentration	Role
1	Turmeric	16%	Antiseptic
2	Stearic Acid	18.0g	Solubilizer
3	Glycerin	3.0g	Moisturiser
4	Lanolin	2.0g	Lubricant
5	Borax	1.0g	Emulsifier
6	Water	Up to 80ml	vehicle
7	Preservative	1.0g	Preservative
8	Perfume	q.s.	Fragrance

Table No.1 Composition of Turmeric Cream

### 13. Evaluation:

1. pH Determination: The pH of sugar can be measured using a digital pH meter at room temperature by using an appropriate amount of the preparation and diluting it with a suitable solvent in the required cooking pot.

2. Physical symptoms: The physical condition of the adhesive can be understood from its color, roughness and gradation.

3. Spreadability: Take a sufficient sample of two slides and apply a 100 gram weight to the slides for 5 minutes. Spreadability can be expressed as:

$$S = m * l / t$$

where m = weight applied to the slide.

l = long movement of the glass slide.

t = time spent.

4. Saponification rate: 2 g of product was refluxed with 25 ml of 0.5N alcoholic KOH for 30 min, 1 ml of phenolphthalein was added, immediately titrated with 0.5N HCl and the "a" reading was recorded. Repeat the process

Ignore the marked item. Remember

Reading is "b".

$$\text{Saponification rate} = (b-a) * 28.05 / w$$

Where,

w = weight of the product in grams.

5. Acid value: Dissolve 10 gm. of solution in.

To weigh out 50 ml of an equal volume of ethanol and heavy ether mixture, connect the flask to the reflux condenser and heat slowly until the sample is complete. Dissolve, add 1 ml phenolphthalein and titrate with 0.1 N NaOH until red light appears after shaking for 30 seconds.

Acid

$$\text{value} = n * 5.61 / w$$

where,

n = number. Millilitre of 0.1 N KOH solution.

w = weight of the object in grams.

6. Viscosity: The viscosity of the cream can be measured using a Brookfield viscometer

7. Uniformity: Uniformity of formulation is checked by sight and touch.

8. Removal: Check the ease of removal of the adhesive by washing the applied area with water.

9. Paint Test: Red paint mixed with cream.

Put a drop of water in a glass slide, cover it with a cloth and examine it under a microscope. If the scattered spheres are red and the background color is colorless, they are o/w type, while the opposite occurs in w/o type cream.

10. How do you feel after use: After using the test product, check the softening, slipperiness and amount of residue remaining?

11. Application type: After using the cream, check the film formed on the skin or the type of application.

12. Allergy study: Draw a 1 cm<sup>2</sup> area on the dorsal surface of the left hand. Use the cream on the selected area and record the time. Check for and report pruritus, erythema, edema (if present) continuously for up to 24 hours.[11]

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## 14. Conclusion

The cream is a semisolid preparation widely accepted by the public. The skin is the most accessible part of the body and is therefore susceptible to injuries. If cuts, burns, and wounds occur, they are best treated with topical creams. In recent years, the research and development of topical formulations for wound healing has continued to increase due to their obvious benefits. According to the pharmaceutical field and business progress, it is clear that cosmetics will remain an interesting and beautiful field of research in the coming years. More advanced technologies and methods will be used for preparation, formulation and evaluation of creams in coming years. The demand of herbal constituents based creams are also increased day by day.

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