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"Formulation And Evaluation Of Herbal Anti-Septic Cream Using Curcuma Longa: Turmeric Rhizome."

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Abstract:

The purpose of the present research is to formulate and evaluate herbal vanishing creams that have antiseptic properties. The herbal product has various advantages over existing cosmetic vanishing creams found in the market. The cream is oil in water (o/w) emulsion Firstly, the oil phase was prepared by melting stearic acid (10gm), and potassium hydroxide (0.5gm)at 70ºC. Secondly, the aqueous phase was prepared using alcoholic extract of crude drug including turmeric, methylparaben (0.5gm), glycerine (3 to 5 drops), and water (15ml); was melted at 70ºC. The survey was carried out using evaluation parameters like organoleptic properties, pH, viscosity, homogeneity, spread-ability, irritancy, emollience, and antiseptic activity. Herbal cosmetics are safer to use because they are all-natural. The study aimed to create an antiseptic vanishing cream with herbal components.

Keywords: Botanical extract, turmeric rhizome, vanishing cream, anti-septic, crude drug.

INTRODUCTION

Nowadays, plant extracts are utilized in cosmetics to enhance beauty and attractiveness. Herbal cosmetics are classed by dosage type (e.g. creams, powders, soaps, solutions) and application area (e.g. skin, hair, nails, teeth, mouth). Creams are semisolid emulsions, used for applying to the skin or mucous membrane. A vanishing cream is a low-fat moisturizer that completely absorbs into the skin. It softens the skin and leaves nothing behind. Vanishing creams are oil-in-water emulsions (o/w) with an aqueous phase. Depending on the proportion of water to grease, the cream can be water-miscible and washed away easily or be thick and sticky. It is perhaps the commonest prescribed topical medicament. As it is less oily, messy, and sticky,

most patients find it more user-friendly. Cream can be water-miscible and readily washable or thick and sticky, depending on the water-to-grease ratio. This is one of the most commonly administered topical medications. Creams are defined as a semisolid dosage form containing one or more drug substance dissolved or dispersed in a suitable base use as emollient. These are the semisolid preparation which is either o/w or w/o type emulsion. The skin is referred to as the largest part of the body organs and it contains 15% of the total adult weights. Normally the skin is very smooth. However, due to aging and exposure to heat and cold, sunrays, pressure, and abrasion, dust and microbial infection, etc., the smoothness may be lost and the skin becomes rougher and thicker. Skin is one of the most readily accessible organs of the human body.

- **Ideal properties of the anti-septic cream:-**
  - Pure whiteness.
  - Rubbed easily on the skin.
  - Non-sticky.
  - Non-irritable.
  - High melting point.
  - Very slight odor.
- **Need of Vanishing Cream**
  - Herbs are important for their disease-preventing and health-promoting properties.
  - Herbal cosmetics are natural and free from all the harmful synthetic chemicals that can normally be fatal to the skin.
  - Prevents and treats dry skin treat skin conditions such as eczema acne, and blackheads.
- **Aim and Objectives**

Aim: The aim of the study is "Formulation and evaluation of herbal anti-septic cream using Curcuma Longa: Turmeric rhizome**.**

Objectives :

1. To formulate an eco-friendly herbal cream that would not provide any allergic reactions to the skin or body.
2. To evaluate formulated products by different tests like pH tests, viscosity, washability, colour, odour, consistency, etc.
3. To prepare a product that will reduce the microbial count and site of infections.
4. To prevent nosocomial infections.

➢ INGREDIENTS PROFILE

1) TURMERIC RHIZOME

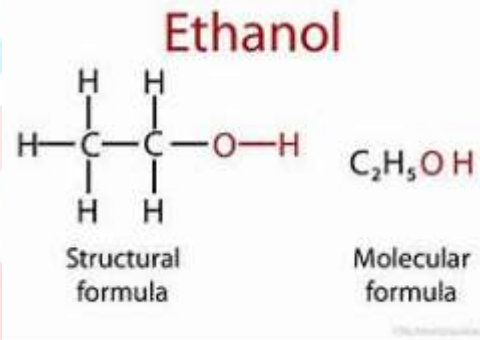
Scientific Name : *Curcuma longa*

Family: Zingiberaceae

Turmeric Rhizome

Benefits: It is rich in phytonutrients that may protect the body and shield the cells from damage. It works as a skin-lightening agent, helps in improving digestion, and supports the immune system.

2) ETHANOL



Formula: C2H6O

IUPAC Name: Ethanol

Uses:

1. Beverages: ethanol is a key ingredient in alcoholic beverages, such as beer, wine, and spirits.

2. Fuel:- Ethanol is used as a biofuel, blended with gasoline to power vehicles.

3. Solvent :- Ethanol is used as a solvent in various industries, including pharmaceuticals, cosmetics, and cleaning products.

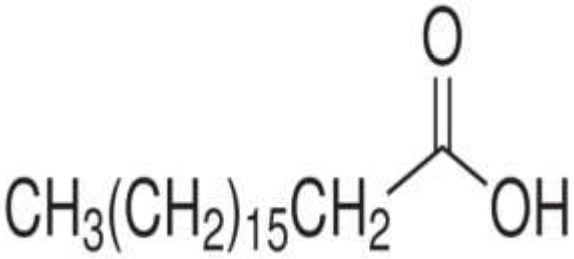
4. Disinfectants:- Ethanol is used as a disinfectant in medical and laboratory settings.

5. Recreational:- Ethanol is used in recreational activities, such as cooking and crafting.

3) STEARIC ACID

Formula: $C_{18}H_{36}0_2$

IUPAC Name: octadecanoic acid



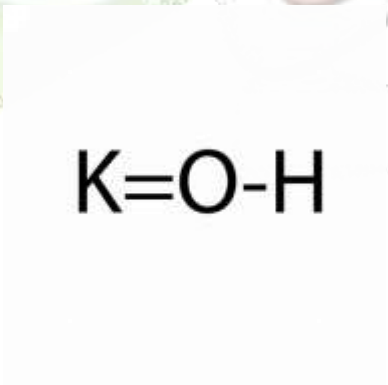
Structure:

Uses: Used in the production of detergent, formation of soaps, cosmetics, shampoos.

4) POTASSIUM HYDROXIDE

Formula: KOH

IUPAC Name: Potassium hydroxide



Structure:

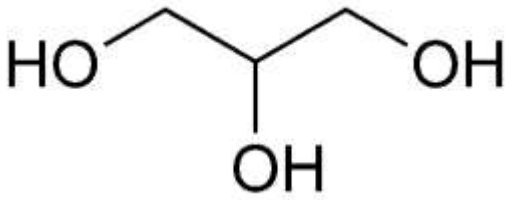
Uses: 1. Soap and detergent manufacturing:- KOH is used to produce soap, detergent and other cleaning products.

2. Paper production: KOH is used to process wood pulp and produce paper
3. Textile industry: KOH is used to treat textiles, remove impurities and improve fabric quality.
4. Pharmaceuticals: KOH is used as an intermediate in the production of various pharmaceuticals.
5. Battery production: KOH is used as an electrolyte in alkaline batteries.
6. Cleaning and disinfecting: KOH is used as a cleaning agent and disinfectant in various industries

5) Glycerine

Formula: $C_3H_8O_3$

IUPAC Name: propane-1,2,3-triol



Structure:

Uses: 1. Glycerine is used in pharmaceuticals, cosmetics, and the food industry.

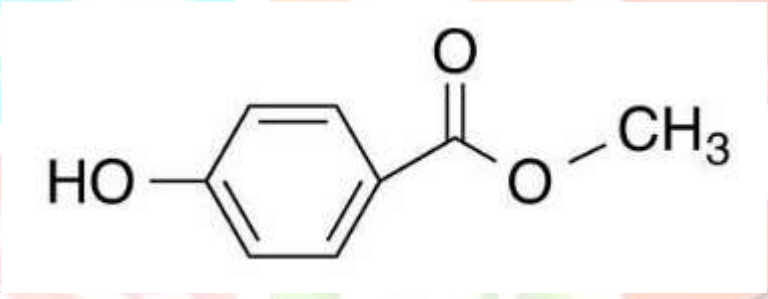
2. It is used in film to prevent areas from drying out too quickly

3. It is used to produce hydrogen gas.

6) Methyl Paraben

Formula: $C_8H_8O_3$

IUPAC Name: methyl 4-hydroxybenzoate



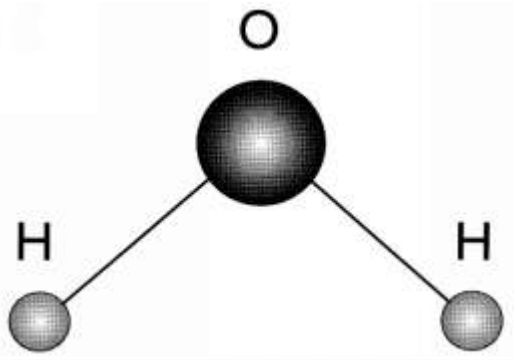
Structure:

Uses: Preservatives, cosmetics, personal hygiene products, pharmaceuticals.

7) Water

Formula: H_2O

IUPAC Name: Oxidase



Structure:

Uses: 1. Drinking water. Water is essential for human consumption and is necessary for many bodily functions.

2. Agriculture: Water is used for irrigation and other agricultural purpose.

3. Industry: Water is used in many industrial processes, such as manufacturing, mining, and energy production.

❖ **Table of herbal profiles with their properties.**

Sr.no	Ingredients	Quantity	Properties
1	Turmeric Rhizome	5 g.	Extract: anti-septic ,healing
2	Ethanol	100 ml	Extraction Solvent
3	Stearic Acid	10 g.	Emollient
4	Potassium Hydroxide	0.5 g.	Thickening Agent
5	Glycerine	5 Drops	Humectant
6	Methyl Paraben	0.5 g.	Preservative
7	Water	15 ml	Excellent solvent

❖ MATERIALS AND METHODOLOGY

a) 5gm of turmeric extract was placed in a conical flask.

b) 100ml of ethanol(Organic solvent) was weighed in a measuring cylinder and put in the conical flask.

c) Aluminium foil was used to cover the conical flask and rubber was tied. If aluminium foil is not there, cotton is used & stopper is placed.

d) After covering the flask with (crude drug extract + organic solvent), it is put for 5 days for maceration.

e) After the maceration, the product is filtered with help of a filter paper & funnel is used.

f) On a rectangular hot water bath weigh & place 10g Stearic acid in a porcelain dish put it to melt at 70 degree Centigrade.

g) In a beaker, add 15 ml of distilled water to that beaker. Weigh & add KOH (potassium hydroxide 0.5g + methylparaben (0.5g) and 2 to 3 drops of glycerine. Then put the beaker in a rectangular hot water bath & melt at 70ºC.

h) In another porcelain dish, keep the filtered macerated extract & melt at 70ºC.

i) From the beaker that is filled with (KOH, H_2O, Methylparaben, and Glycerine), with the help of a dropper, take drop by drop from if and add to the porcelain dish filled with stearic acid.

j) Then remove the beaker from the water bath after it gets emptied. take drop by drop from the porcelain dish of extract & add to the stearic acid (dish) until consistency arrives.

k) Cream formation occurs; allow it to cool. If debris is formed, allow it to agitate with the help of an agitation mixer. Then fill the formulation in a container & label it.

➢ **Evaluation Parameters: Result and Discussion.**

1) Physical evaluation

In this test, the cream was observed for the following state :

Appearance: Semisolid in nature.

Odour: Pleasant

Colour: Yellow

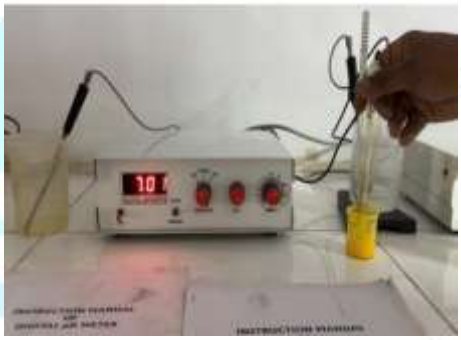
Transparent : non- transparent

Consistency: Smooth

2) pH

The pH of the formulated cream was determined using a digital pH meter by dissolving 1 gm of cream in 100 ml of water. The pH of the cream was also determined by dissolving the pH paper into the above solution of the cream.

Formulated Cream pH – 7.01



3) Consistency

The consistency of formulated creams were determined by hand. Take pinch of cream and rubbed with your fingers.

4) Viscosity

The viscosity of the cream was measured using a Brookfield viscometer, at various speeds:

1	**Spindle no**	64
2	**Speed**	60 rpm
3	**Reading in centipoise**	1160 cps

5) Homogeneity

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

6) Appearance

When the formulation was kept for a long time, it was found that there was no change in the colour of the cream.

7) Washability

The cream applied on the skin was easily removed by washing with tap water.

CONCLUSION

The present work focuses on the potential of herbal extract for cosmetic purposes. The use of bioactive ingredients influences the biological function of skin and provides nutrients necessary for healthy skin. The study revealed that the formulated herbal information using turmeric rhizome as an extract is effective as an antiseptic cream and defends against pathogenic bacteria from the results we could say the cream-based formulation is good in appearance, safe, does not produce any toxic or adverse reaction and is found to be effective.

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