

Formulation and Evaluation of Hair Removal Cream by Using an Herbal Base

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Abstract: *The cosmetic and hygiene industry and the hair removal market are growing in importance. Teenage girls and women often worry about unwanted hair. This study highlights the importance of choosing herbal hair removers over herbal depilatories due to their high efficacy, safety and lack of side effects. Hair removal herbs and their composition in herbal creams, as well as other hair removal methods, are being studied. Hair removers are cosmetic products designed to remove hair from the skin. Chemical hair removers mostly contain salts of thioglycolic acids as active components. The following ingredients are needed to make the hair cream: thioglycolic acid, cetyl alcohol, turmeric powder, neem and Tulsi extract, ginger and papaya powder, liquid paraffin and the required amount of orange oil. The pH, viscosity, spreadability and homogeneity of the depilatory cream composition were evaluated. The results showed the composition and excellent properties of F3.*

Keywords: Hair removal, Herbal, Depilatory, Cream, Evaluation

I. INTRODUCTION

About 100,000–150,000 human hairs exist, and every one develops and loses via numerous stages of the hair's boom cycle. About (88%) percentage of hair is made from proteins. These varieties of proteins are of the hard, fibrous keratin type. Proteins are made from prolonged chains of amino acids. All epidermal cells' cytoskeleton is made from keratin proteins. The keratin proteins observed in hair fiber frequently encompass the amino acid cysteine.

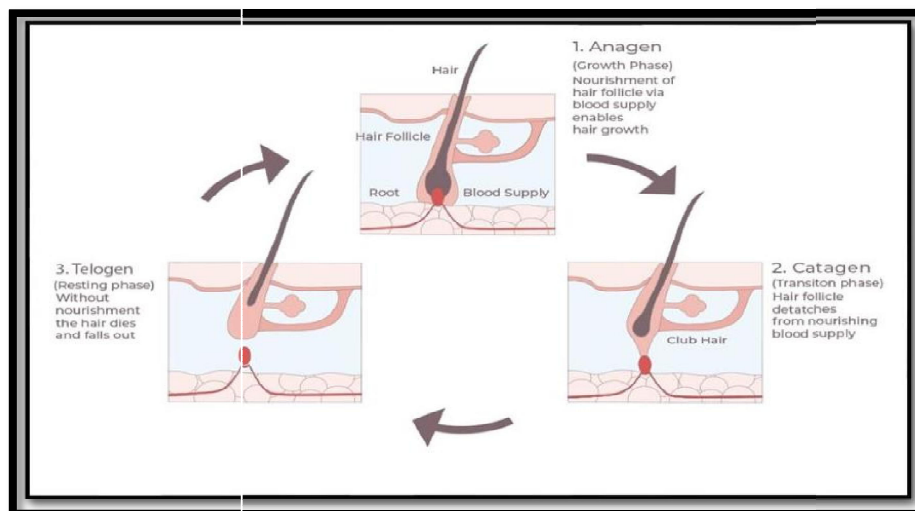


Fig.1 Phases of Hair Growth

The bonds of chemical substances referred to as disulfides preserve the sulphur atoms with inside the cysteine molecules together. These disulfide connections are extraordinarily sturdy and difficult to separate. The number one determinant of the toughness and resistance of hair fibre to breakdown beneath neath environmental strain is the

disulfide chemical bonds that preserve the keratins together. Hair undergoes 3 stages of boom: anagen, catagen and telogen.[1]

The hair follicle, characterized by a cylindrical intussusception in the epidermis, is where the hair grows. Hair is a thin, stretched shaft of keratin cells. Cysteine, the most common amino acid in hair, and sulphur are both found in the amino acids that make up the majority of hair. These acids are often called keratin.[1]

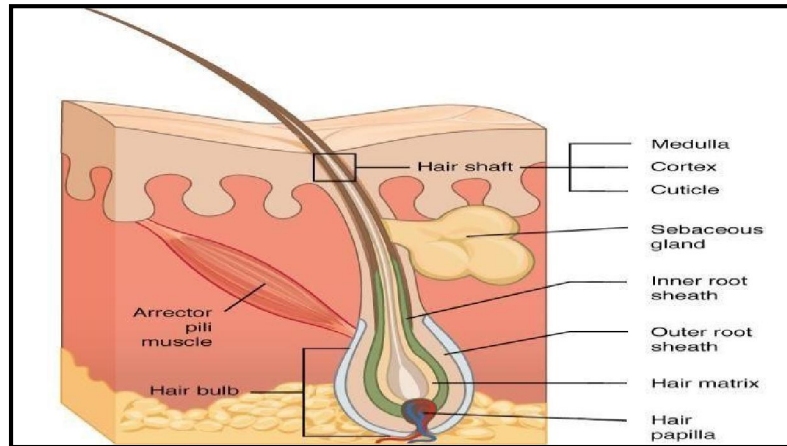


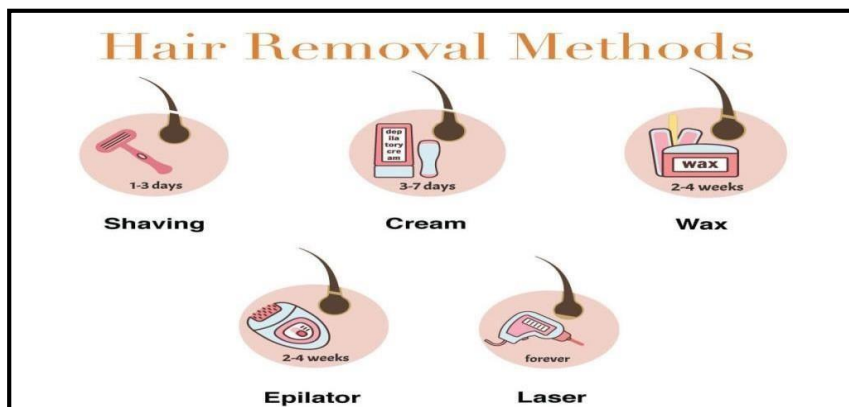
Fig .2 Anatomy of Hair[12]

Both men and women have to deal with unwanted hair growth. Although unwanted hair is not harmful to health, it is likely to affect a person and their ability to look their best. Unwanted facial and body hair fulfils the function of uniform and cosmetic appearance.[10]

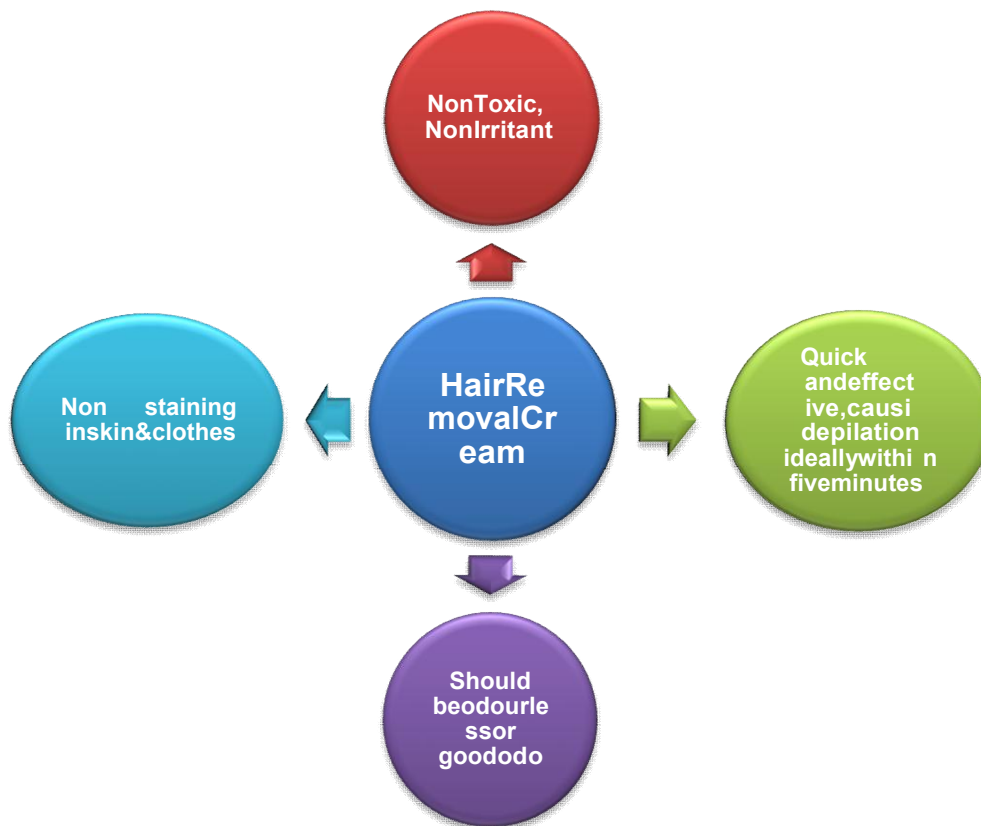
Hair removal is a general term for products used to remove unwanted hair. Thioglycolate salts and sulphides are the main components of hair products. There is a risk of irritation when using chemical removal. Therefore, the main goal of our research is to find herbal remedies that are safe to use and have no negative side effects. In ancient times, women used turmeric in the bath every day, but due to its colouring properties and today's hectic world, this is not possible. However, apart from turmeric, there are many other herbs and essential oils that are important for hair control. Depilatory.

HAIR REMOVAL CREAM

Cream known as depilatory cream. The main ingredient of the hair removal cream is thioglycolic acid. Hair is removed by destabilizing the keratin structure using depilatory creams. These are hair proteins. The hair is first thinned and then dissolved into a gel-like consistency that can be cut and brushed away.[6]



Ideal Characteristics of Hair Removal Cream



II. MATERIAL AND METHODS

2.1 Materials

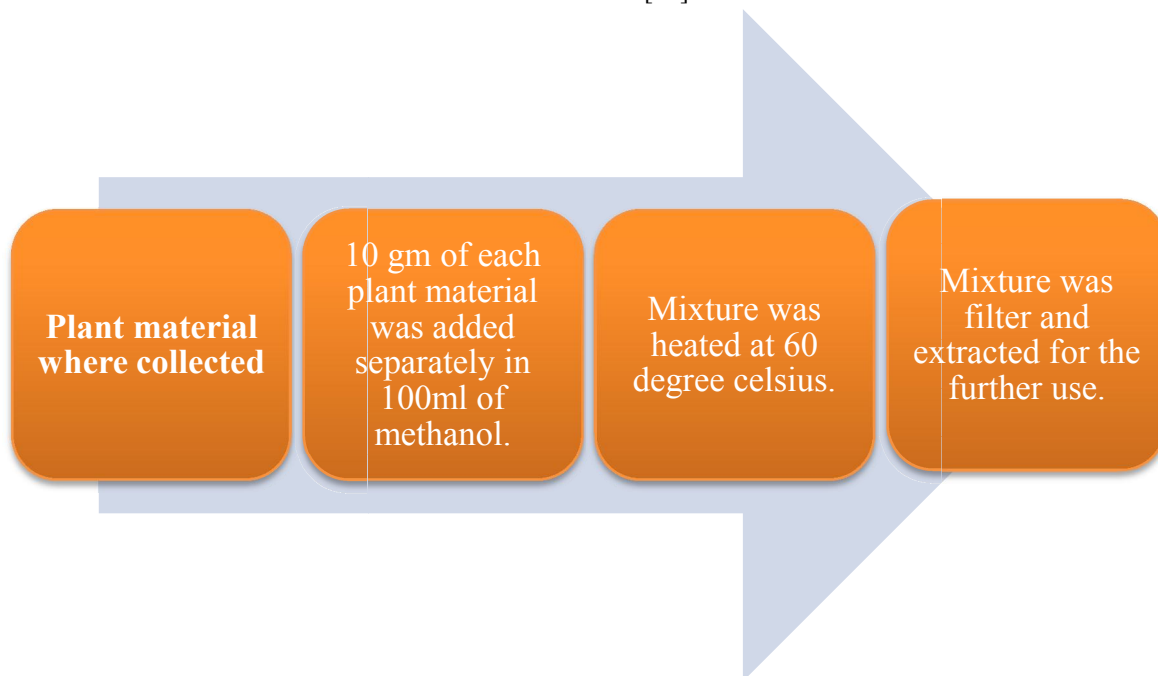
Purchase of thioglycolic acid from SPECTRO LAB PVT. LTD.MUMBAI. Cetyl alcohol and beeswax are obtained from ULTRA PURE LAB CHEM INDUSTRIES. All herbal ingredients like Tulsi, neem, papaya, turmeric and ginger freshly collected from plants in Satara city.

EXCIPIENTS AND HERBAL INGREDIENTS WITH THEIR ROLES

INGREDIENTS	ROLES
Thioglycolic acid	Active ingredient breaks the disulfide bonds in keratin and remove hair.
Cetyl alcohol	Emulsifying agent helps prevent creams from separating into oil and liquid.
Liquid paraffin	Lubricating agent
Tulsi	Antibacterial, add glow on skin
Neem	Antioxidants, reduces the dark spots, blemishes, and redness.
Papaya	Moisture the skin and breaking down the hair follicles thus preventing the hair from regrowing.
Turmeric	Natural chemical stop hair growth or slow hair growth.
Ginger	antioxidants ,help preserve skin's collagen
Bees wax	Emulsifying agent, stabilizer and give thickness to the cream.
Orange oil	Fragrance

Extraction of Neem and Tulsi Leaves

The plant material was collected from the source. 10 g (dry weight) of each plant material (plant leaves) was added separately in 100 µl of methanol solution. The mixture was heated to 60°C in water and incubated for one hour. The mixture was filtered and used as methanol extract for further use [13]



Selection of Herbs (Turmeric, Papaya and Ginger Powder)

Turmeric, papaya and ginger powder have been traditionally used in Asian culture since ancient times to treat various ailments. As research on this herb and its main compounds increased, it became popular. Collected from plants to make herbal powder and buy some from Waghdole Ayurveda shop in Satara. address Shaniwar Peth, Chimanpura Peth, Satara, Maharashtra 415002.



Papaya Powder



Turmeric Powder



Ginger Powder

PREPARATION OF HAIR REMOVAL CREAM

Heat liquid paraffin, beeswax and cetyl alcohol in borosilicate glass at 75°C and maintain this heating temperature (oil phase). Take Dead Mallet and mix turmeric powder, ginger powder, papaya powder. Then slowly add the powder mixed in the oil phase and stir constantly. Then add measured amount of neem and Tulsi extract and mix vigorously to form a smooth cream. Then add the active ingredient thioglycolic acid to the cream and stir constantly until it mixes well with the cream. Then add orange oil for flavor. Mix well until a proper cream is formed.

Table 1: Formula for preparation of cream

INGREDIENTS	F1	F2	F3
Thioglycolic acid	1.5 ml	3 ml	2.5 ml
Cetyl alcohol	1.5 gm	2 gm	1.5 gm
Turmeric powder	1 gm	1 gm	1.5 gm
Neem Extract	0.5 ml	0.5 ml	1 ml
Tulsi Extract	0.5 ml	0.5 ml	1 ml
Ginger powder	0.5 gm	1 gm	0.5 gm
Papaya powder	1.5 gm	1 gm	2 gm
Beeswax	3 gm	2.8 gm	3.5 gm
Liquid paraffin	6 ml	8 ml	10 ml
Orange oil	Q.S	Q.S	Q.S

EVALUATION OF CREAM:-

Organoleptic

cream the purpose of the evaluation was to see the physical appearance of the cream, which includes colour, smell and texture.

- a) Colour Composition and colour were studied on a white background.
- b) To smell the smell of the cream is controlled by smell.
- c) Structure Applying to the skin helped the texture.

Determination of pH

pH was measured using pH paper.

Determination of homogeneity

After the gels are placed in the container, all created creams are visually inspected to determine their homogeneity. They are examined to look for aggregates and evaluate their appearance.

Determination of Viscosity

Viscosity of the formulated cream was determined using Brookfield Viscometer Spindle no. 5 and spindle speed 10 rpm at 25°C was used for cream, the corresponding dial reading on the viscometer was noted.

Determination of Washability

After applying the formulation to the skin, the extent and simplicity of water washing were manually assessed.

Spreadability:

The applicator was used to measure preparations and #039; spreadability 500 mg of the sample preparation was placed between two 6 x 2 cm slides. The apparatus and table held the lower slider in place, while the upper slider was attached to a stiff cord to which a 20 g weight was applied by a straight forward pulley. Under the pressure of the weight, it takes a certain time for the upper slide to move 6 cm and separated from the lower slide. The following equation was used to determine prevalence:

spreadability = $w \cdot l = t$ where w is the weight attached to the upper slide, l is the length of the glass plate, and t is the time in seconds.

Determination Of Pharmacological Activity

All the formulation are checked on the hand and effect of cream on hair was noted.

F1- The F1 depilatory cream shows no any side effect, irritation or itching. the hair removing process of this batch is slow due to its pH 10.5.

F2- The F2 depilatory cream shows side effect like redness, itching and irritation due to its pH.

12.7. And the hair removal process of this batch is fast.

F3-. This batch removes hairs very smoothly due its normal pH 11.7. It doesn't show any side effect on hands.

III. DISCUSSION

The Different concentrations of cetyl alcohol, liquid paraffin, water and perfume were used in the preparation of the potent base. Neem and Tulsi extract were added to the cream base. Turmeric, papaya and ginger powder are also added to the creamy base. Thioglycolic acid was used to speed up the action and an herbal hair removal cream was successfully prepared. The formulas were all green in colour and smelled strongly of orange oil. Set F3 had a pH of 11.7, which was suitable for normal skin physiology. Spreadability indicated the extent of the area to which the cream spreads easily when applied to the skin or affected area. The cream spread smoothly and evenly. The homogeneity of the cream is good. The cream does not show side effects and removes hair. It was claimed that the cream and its removal properties were there.

IV. CONCLUSION

Herbal substances and plants in daily life have greatly improved. Herbs contain phytoconstituents with potential healing and depilatory properties. All preparations were evaluated for their physicochemical properties and pharmacological activity. From the above results it is concluded that herbal hair removal cream is prepared by combining chemical ingredients and herbs, i.e., thioglycolic acid, turmeric, neem etc., which have acceptable properties like colour, pH, spreadability. The F3 formula has the best properties of the other

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