

Comparitive Study of Various Brands of Synthetic Hair Gels and Herbal Hair Gels

Abbaraju Krishna Sailaja * and Kona Madhuri

Department of pharmaceutics, RBVRR Women's college of pharmacy, Affiliated to Osmania University, Hyderabad.

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***Corresponding author:** Abbaraju Krishna Sailaja, Department of pharmaceutics, RBVRR Women's college of pharmacy, Affiliated to Osmania University, Hyderabad.

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Abstract:

Herbal cosmetics are the preparations used to enhance human appearance. The aim of the present research is to formulate and evaluate the herbal gel for the purpose of moisturizing and nourishing of hair. Hair gels are the products used for hardening the hair in particular hairstyle. Herbal hair gels have less side effects it can promote hair growth and prevent hair loss. Marketed products contain silicon's and chloride which leads to hair damage so herbal hair gels are suggestable. Hair gels helps to maintain the moisture in your hair which is necessary for better growth. Hair gel gives necessary nutrients to your hair gel is used makes your look attractive.

Keywords: herbal hair gels; marketed product; nourishment

Introduction

The word Cosmetic was derived from the Greek word "kosmtiko" meaning—Having the power, arrange skill in decorating.

Hair Gel:

Hair gel is a hairstyling product that is used to harden hair into a particular hair style. Hair gel has evolved into one of the most commonly used hair styling product. Hair gels initially gained popularity as they helped the hair to be kept in an undisturbed, uniform state throughout the day. Hair gels are compatible with all types of hairs includes curls, wavy, colored and relaxed hair. Excessive usage of hair gel might cause impaired hair growth.

It is a matter of choosing right hair gel product. Pore on the scalp need a minimal degree of time when they are unblocked, excessive usage of ensures that these pores remain blocked. Cheap hair gels can damage your hair. Hair gel works best when applied to slightly damp hair.

Uses of Hair Gel [1]:

Hair gel is a very popular styling tool used by both men and women. People use this product in order to keep every hair place, prevent flying and help to maintain hair stiff. Hair. Hair gel gives necessary nutrients to your hair gel is used makes your look attractive. The main benefit of using hair gel in the first place gives control over your hair and hair style. There are some hair gels that also offers temporary color. For best results, wash your hair before applying gel, this will remove any excess oil.

Types of Hair Gel:

Water based pomade

Oil based pomade

Hybrid pomade

1. Water based pomade: Water based pomades are water soluble, they wash out easily with water. With a firm hold, natural shine, a clean and crisp cedar scent our gel makes looking good to easy.
2. Oil based pomade: These are traditional hair greases that have been innatural oils in these pomades promote high levels of shine. These products do not dry completely after application.



3. Hybrid pomade: This hybrid pomade is a water soluble cream that feels like a firm version of their oil based pomade. Goes into the hair with ease and washes out after one shampoo.
4. Hair gels are actually categorized by "HOLD" which refers to the strength-holding capacity of the gel.

Light hold: Light-hold hair gel is indicated for hairstyles that do not require the hair to be secured tightly in place. It is only type of hair gel recommended for long hair.

Firm hold: Firm hold hair gel provides a tighter grip on the hair than the one from light-hold hair gel. This gel is especially useful for straight and wavy hair of short and medium length.

Strong hold: Strong hold hair gel offers the strongest grip on the hair and is ideal for gravity defying hair styles and that need very precise shaping and molding. This hair gel is recommended for straight and wavy hair of short to medium length.

Ways to Use Hair Gel:

For a shinier look, apply hair gel to damp hair or for a more matte finish, use it on dry. Start with a dime to nickel amount of gel. Rub it in between the hands and then thorough hair, making sure gel is well distributed. Then styled into your desired style. There are different varieties of gels that provide a variety of results range from wet look, dry look and vertical holds. One way to use gel is to help in smoothening the hair.

Advantages of Hair Gel:

Some gels actually make your hair healthier by providing it with essential nutrients.

These nutrients will soak into your scalp and hair follicles, makes your hair strengthen.

Gel gives shinier look to your hair.

Hair gels are used to hold the hair long lasting.

Disadvantages of Hair Gel:

Hair gels contain alcohol and corrosive chemicals that strip off moisture from hair and scalp and make them dry and dehydrated.

Hair loss

Dandruff

Discoloration and damage

Overview on Branded Hair Gel Products

Product-1

Brand name: garnier

Founder name: alfred amour garnier

Produced by: l'oreal

Brand description:



Garnier is a division of L'Oréal that produces hair care products, including the Fructis line and skin care products. L'Oréal entered in India in 1992 with its Garnier ultra doux range of shampoo. Garnier accounts for almost 90% of the company's turnover in India. Garnier entered the country in 1992, the company revolutionized its tracts by rolling out Garnier color naturals. The company started as laboratories Garnier in

1904 by Alfred amour Garnier. Now, Garnier is sold in numerous countries worldwide.

Product Name: Garnier Fructus Hair Gel



Garnier fructis's styling gel is our first naturally derived hair gel. This gel does not contain any parabens, silicones and dyes.

Now Garnier has grown into an international body care brand with 7 main product categories. Garnier has a range of treatments that can meet the various needs of consumers. For Garnier everyone deserves the best hair care at an affordable price

Not only about beauty, Garnier is also committed to minimizing the impact on the environment as much as possible. Garnier has always developed packaging and product formulas that can be biodegradable.

Garnier believes that nature has provided the best self-care solutions, so that they are recommended.

Benefits of garnier hair gel:

Fortifying fruit micro waxes strengthen the capillary fiber.

It provides strength and shine to hair.

It resets the hair; it does not dry it out.

Pros:

Gives a wet look that's only the positive thing

Cons:

Very greasy and leaves your hair messy.

It doesn't help in styling.

Strong smell.

Contains alcohol.

Zero flaking and zero residue claim not true.

Doesn't add any shine or value to the hair.

Side effects of garnier hair gel:

Hair gels does not inhibit hair growth, but it may cause hair loss.

Hair gels promote allergic reactions.

Hair gels shows their on-effect pregnancy.

It is very costly, and this product doesn't worth for money.

The fragrance of this gel is very strong due to this dandruff occurs.

Ingredients of garnier hair gel:

The main ingredients used for preparing Garnier hair gel includes Sorbitol, Glycerin, Dehydroxanthan gum, Benzyl alcohol, Lithium Magnesium sodium, Silicate, Fragrance, Linalool, Senegal gum, Acacia.



Usage of garnier hair gel:

Firstly, clean your hair.

After cleaning apply it on the hair.

Then blast with a hair dryer for few minutes and leave on.

It takes about 3 applications using this method to make my hair naturally dark.

Product-2

Brand name: godrej

Founder name: ardeshir godrej

Brand description:



Godrej group, is an Indian multinational conglomerate company, headquartered in Mumbai, Maharashtra managed and largely owned by the Godrej family. It was founded by Ardeshir Godrej and Pirojsha Burj Orji Godrej in 1897. 25% of the shares of the Godrej holding company are held in trusts that include foundations and Godrej memorial trust. Through these trusts they support healthcare, education and environmental sustainability. Godrej is a supporter of the world wildlife fund in India. As of 2014, godrej contains 21,000 employees. Godrej consumer products is a leading emerging markets company. As part of over 122-year young godrej group we are fortunate to have a proud legacy built on strong values of trust.

Today our group enjoys the patronage of 1.15 billion consumers globally. Godrej consumer products Ltd is one of the leading fast moving consumer goods companies in India. During the year 2005-06 the company launched many major products.

Product Name: Godrej Cinthol Splash Gel



Godrej hair styling gel solid hold lasts longer and it controls hair damage as it contains hibiscus flower and vitamin E which nourishes hair. Its fragrance is refreshing, it is alcohol free.

Godrej is a strong brand name both in India and globally. This brand not only delivers quality but also set new industry standards. Good reputation among the customers, excellent

supply chain management.

Godrej is the highest standard laid down by the Bureau of India Standards. Godrej introduced it in competition with other companies. Godrej introduced many variants to extend globally.

Benefits of Godrej Hair Gel:

No ammonia formula helps to retain hair protection.

Keeps hair strong.

100% grey coverage.

Pros:

Travel friendly packing

Attractive and colorful bottles.

Smell is very nice and refreshing.

Cooling effect is must in this hot weather.

Unisex shower gel.

Cleans effectively.

Decent pricing

Available almost everywhere.

Cons:

The smell does not stay for long.

Side Effects of Godrej Hair Gel:

It contains strong chemicals which can harm your hair

Hair loss increases greying of hair.

Damage your hair.

Ingredients used in godrej hair gel [2]:

Water, Sodium Laureth sulfate, cocamidopropyl betaine, Cocamide MEA, Glycerin, Sodium chloride, Menthol, Disodium EDTA, Sodium hydroxide.

Usage of godrej gel:

Scoop the product with your fingers.

Rub it between in your palms for a more even spread.

Apply product to hair.

Rake it through your hair with your fingers, style as you wish

Effectiveness of Godrej Hair Gel Mixed with Herbs [3]:

MATERIALS: Alovera, Gelatin, Amla (Phyllanthus Embelica), Rosemary (Rosmarinus officinalis), Jojoba (Simmondsia chinensis), chamomile (Matricaria chamomilla), Flaxseed Lavender, Shikakai

Aloevera:



Biological source: Dried latex of leaves of alovera

Family: liliaceae

Use: Promotes hair growth

Amla:



Biological source: Medicinal plant
 Family: Phyllanthaceae
 Use: Reduce hair loss, reduce premature pigment loss from hair

Rosemary:



Biological source: Oil rosemary is distilled from the flowering tops of leafy twigs of rosemary
 Family: Lamiaceae
 Use: Stimulates new hair growth, anti oxidant, anti-inflammatory

Jojoba:



Biological source: shrub
 Family: Simmondsiaceae
 Use: fight against dandruff and soothe itchy scalp

Shikakai:



Biological source: Climbing shrub
 Family: Fabaceae
 Use: Imparts shine, softness to hair

Ginseng:



Biological source: Root of the plant genus panax
 Family: Araliaceae
 Use: Preventing hair loss, strengthens the roots of the hair

Carbopol:

Use: Carbopol creates jelly which defines curls, smooths edges and helps to style our hair. It thickens the hair.

Polyvinylpyrrolidone (pvp):

Use: It is also called as “hold factor”. It helps the hair to hold in a particular style. It is used for itchy scalp.

Methyl Paraben Sodium:

Use: It promotes hair growth and prevents bacteria.

Glycerine:

Use: It’s helpful for damaged hair and may condition well enough to stop breakage.

Polyethylene Glycols (Peg):

Use: It helps aid in fizz control and provides moisture and shines to the hair.

Triethanolamine:

Use: It is used as a fragrance ingredient. Long-term exposure of triethanolamine is not recommended.

Effectiveness of Branded Godrej Conthol Gel Replaced with Herbs to Reduce Side Effects [4]:

People who are allergic or sensitive to the materials present in Godrej gel causes side effects such as hair loss, itchy scalp. Hence, in order to reduce the side effects, the materials which are responsible for causing side effects are replaced with alternate herbs to reduce the side effects in patients who are allergic or sensitive to it.

Materials:

Ingredients used in Godrej hair gel	Replaced ingredients with other natural herbs
Sodium laureth sulfate	Glycerin, Shikakai
Cocamidopropyl betaine	Carbopol, rosemary
Sodium chloride	Polyethylene glycol
Disodium EDTA	Jojoba, Polyvinyl pyrrolidone



Formulation:(2)

FORMULTION	HG1	HG2	HG3	HG4
Herbal extract(gr)	5% of EEEA	10% OF EEEA	5% OF EEELN	10% OF EEELN
Carbopol 934(gr)	2	2	2	2
PVP(mg)	5	5	5	5
Methyl paraben sodium(mg)	75	75	75	75
Glycerin(ml)	3	3	3	3
PEG(ml)	6.25	6.25	6.25	6.25
Triethanolamine(ml)	1.5	1.5	1.5	1.5

Methodology[5,6]:

The preparation used for hair gel are discussed below:

Manufacturing Method (3):

The gel was formulated in 3 steps, mixture I And MixtureII were prepared as given below and finally the aforesaid two mixed to get the final gel.

Mixture I:0.5 gr EDTA disodium was dissolved in 40 ml water.Then measured amount of Carbopol 940 was added and mixture for 30 min and allowed to swell for an hour.

Mixture II:15 gr of propylene glycol was taken in a 50 ml beaker and heated at 40-50 centigrade in heating mantel for 4-5 min.Then nonionic solublizer and emulsifying agent was added to it with constant stirring.Measured amount of Hibiscus rosasinensis flower methanolic extract.Eclipta alba whole plant petroleum ether extract.Solanum nigrum berries methanolic extract were added to the above mixture with constant stirring.Polyvinyl pyrrolidone,DMDM hydration,Sodium benzoate was added sequentially in a beaker containing 38 gr of purified water.Then the solution was slowly added to the plant extract containing mixture into 50 ml beaker with constant stirring.

Gel:Mixture II was added Mixture I with constant mixing.The final mixture so obtained was subjected to pH adjustment to skin pH by slow addition of triethanolamine and constant stirring for 10 min.A brown coloured gel was obtained.

Formulation of Hair Gel:

Weighed quantity of polyethylene glycol and measured quantity of glycerin,methyl paraben, were dissolved in 35 ml of water in a 250 ml beaker.Then the mixture was stirred using mechanical stirred at high speed.Suitable quantity of Carbopol 934 and PVP were added slowly to the beaker containing above mixture of liquid with continuous stirring.Then triethanolamine was added slowly with continuous stirring until gel structure was obtained.In order to optimize the concentration of Carbopol,five various gels containing

varying concentrations of Carbopol such as 0.5 gr,1 gr,1.5 gr,2g and 2.5 gr were prepared .The gels formed using 0.5 gr and 1 gr Carbopol 934 were found to be in very thin that liquefied within 4 to 5 hours of preparation.With 1.5 gr Carbopol 934 the gel formation was better to some extent but the problem of liquefaction after 24 hours was observed.The gel formulation containing 2gr of Carbopol 934 formed uniform and smooth gel that did not liquefy even after 24 hrs.Whereas gel containing 2.5 gr Carbopol was too thick to be handled.Among the 5 formulations,gel containing 2gr Carbopol 934 was optimizes.

Preparation of herbal hair gel:

The aqueous extract of flaxseed was prepared by adding flaxseeds to boiling water with constant stirring until a thick mucilage was obtained.Then the mucilage was strained using suitable sieve and stored at room temperature until further use.

Five different herbal hair gel formulations were prepared by simple gel preparation method with Carbopol gel base.Measured quantity of methyl paraben,glycerin and weighed quantity of polyethylene glycol were dissolved in about 35 ml of water in a beaker.Then the mixture was stirred at high speed using mechanical stirred.2 gr Carbopol 934 and pvp were added slowly to the beaker containing above liquid while stirring.Then triethanolamine was added slowly with continuous stirring to obtain gel structure.Finally varying concentrations of aqueous extract of flaxseed was incorporated into Carbopol gel and stirred for about 1 hour so as to obtain H1F4,H2F4,H3F4,H4F4 and H5F4 containing 5%,10%,15%,20% and 25% flaxseed extract in F4 carbopol gel formulation.The prepared herbal gel formulations were stored at room temperature until further evaluation.

Evaluation tests For Hair Gels [7]:

1. pH: The pH of the gel formulation was determined by using digital pH meter.One gram of gel was taken and dissolved in 100ml distilled water and measurement of pH was done in triplicate and average value was calculated.
2. Viscosity:Brookfield viscometer was used for the measurement of viscosity of the prepared gel.The Brookfield viscometer was rotated at 100 rpm,spindle no.6.Each reading was taken after equilibrium was attained by the sample at the end of two minutes.The study was repeated three times and average value is given.
3. Spreadability:It was determined by wooden block and glass slide apparatus.Weights of about 20gr was added to the pan and the time was noted for upper slide to separate completely from the fixed slides.Spreadability was then calculated by using the formula.

$$S = \frac{M \cdot L}{T}$$
 Where,S=Spreadability,M=Weight tide to upper slide,L=Length of glass slide,T=Time taken to separate the slide completely from each other.The therapeutic efficacy of a formulation also depends upon its value.
4. Physical appearance:The gel formulation was evaluated in terms of physical character like phase separation and change in colour,odour and rheological parameters.
5. Homogeneity: Developed gel was tested for homogeneity by visual inspection after the gel was set in the container. It was tested for appearance and presence of any aggregates.
6. Skin irritation test:Test for irritation was performed on human volunteers with their consent.Five volunteers were selected and 1.0 gr of formulated gel was applied on an area of 2 square



- inch to the back of hand. The volunteers were observed for lesions or irritation.
7. Extrudability determination: The hair gel formulations were filled into collapsible metal tubes. The tubes were pressed into extrude the material and extrudability of the formulations was checked. The extrudability of the formulations was determined in terms of weight in grams required to extrude a 0.5 cm ribbon gel in 10 seconds. The formulations are compared.
 8. Stability studies: All the formulations were equally good with respect to appearance, homogeneity, pH, viscosity and extrudability. So H5F4 was selected for stability studies. The stability studies were carried out for all the prepared gel formulations at room temperature and 40 centigrade at 75% RH13. The stability study was conducted for the period of 3 months. The parameters like appearance, pH, extrudability, color were tested every month. The results are tabulated.

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Conclusion:

From the above information we conclude that, the herbal formulation of Gels has been more effective than the marketed product to promote hair growth, thus it is the best alternative to be used for hair treatments.

The usage of any product depends on the sensitivity of the skin and hair of the consumer. In that case people can use herbal formulation which has fewer side effects compared to marketed product which gives better results to hair.

We formulated an herbal gel by using plant extracts which are natural and has less side effects. Herbal gel is safer than the marketed one because herbal is gel is free of silicones and other