



Formulation, Development And Evaluation Of Herbal Hair Conditioner From Fenugreek – A Review

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ABSTRACT : The demand for herbal hair care products has surged as a result of the global movement towards a more natural lifestyle. The goal of this project is to create a herbal hair conditioner that nourishes, hydrates, and protects hair strands by harnessing the power of medicinal herbs. Herbs including fenugreek, aloe vera, amla, hibiscus, and flaxseed, which have been used historically to encourage hair development, lessen hair loss, and enhance hair texture, are blended into the conditioner. All hair types can use the herbal conditioner because it is made to be mild, non-irritating, and eco-friendly. Physical examination, pH testing, filth dispersion testing, cleaning action testing, stability testing, moisturizing time determination, viscosity, and wetting time were all used to assess the product's effectiveness. The findings show that the herbal hair conditioner has a lot of potential as a natural substitute for synthetic ones, offering several advantages for the appearance and health of hair. This initiative demonstrates the expanding significance of herbal hair conditioners in satisfying the growing need for personal care products that are safe, efficient, and eco-friendly.

KEYWORDS: Herbal Hair conditioner, Hair Care , Hair Growth, Herbal .

INTRODUCTION

Nowadays, there is a global trend toward adopting a natural lifestyle and going back to using herbal products. For a healthy lifestyle, people favor natural foods, herbal hair cosmetics, herbal medication formulas, and natural healing methods. Herbal hair care cosmetics are in high demand and have become more accessible to a greater number of people in the specific care system. All of this is a result of the internal use of synthetic chemicals, synthetic-based products, chemical coloring, and their reduced products over the past 150 years; their operations and products create risks with multiple by products that result in a variety of problems. Consumers' increased awareness of herbal products and their superior quality has resulted in an increase in the usage of herbal hair

cosmetics.

Herbal cosmetics are one of the most potent and effective areas of ornamental technology. It's used for beautifying and overall enhancing the mortal personality. Herbal products are characterized by better tolerability compared with other synthetic products.

Herbal products gain fashionability worldwide because it's lack of side goods compared with synthetic products.

[1]

- Herbal products have grown in popularity over the past decade. Currently used by 20-30% of the population.
- Herbal products are made from natural sources such as flowers, stems, bark, seeds, leaves and medicinal plants.
- Hair conditioners are hair care products that condition the hair after shampooing.
- Restores hair to its natural state, leaving it soft, shiny and manageable.
- This product is suitable for all hair types. It restores moisture and smoothes the hair follicle cuticle.
- Hair conditioners with powerful antioxidants can reduce UV damage to your hair, including hair color changes and protein damage. Plant-based conditioners contain chemicals and sulfates.
- Today's conditioner formulations go beyond pure hair cleansing.
- In addition to cleansing power, conditioners have many properties such as Conditioning and hair shine.

➤ HAIR

Hair is a complicated system with peculiar physical and chemical characteristics. It is a complex structure composed of different morphological elements that function as a whole. The three main parts of a mammalian hair shaft are the cuticle, cortex, and medulla. Coarse hair, like thick, bearded, or grey hair, has the medulla, but fine children's hair does not. Compared to Caucasians, Asians have more medulla in their coarser hair.

Because it creates a point of weakness that allows cracks to spread down the fiber's axis, the medulla may play a key role in hair splitting. Similar to roof shingles, the cuticle is a chemically resistant area composed of microscopic overlapping scales called keratinocytes. The orientation and form of the cuticle cells in hair provide the differential friction effect. The cuticle of Asian hair is 6–8 scales thick, while that of Caucasians is slightly thinner and that of African hair is even thinner. [3]

HAIR COSMETICS

One of the most potent and effective categories of ornamental creation is herbal hair cosmetics. It is employed to only enhance and embellish the mortal personality. Better tolerability is a feature of natural items that sets them apart from unique artificial products. This study aims to examine the role that herbal hair products can have in treating common hair conditions such as baldness, alopecia, hair loss, Argentine hair, baldness, and the majority of common dandruff.

[4]

STRUCTURE OF HAIR

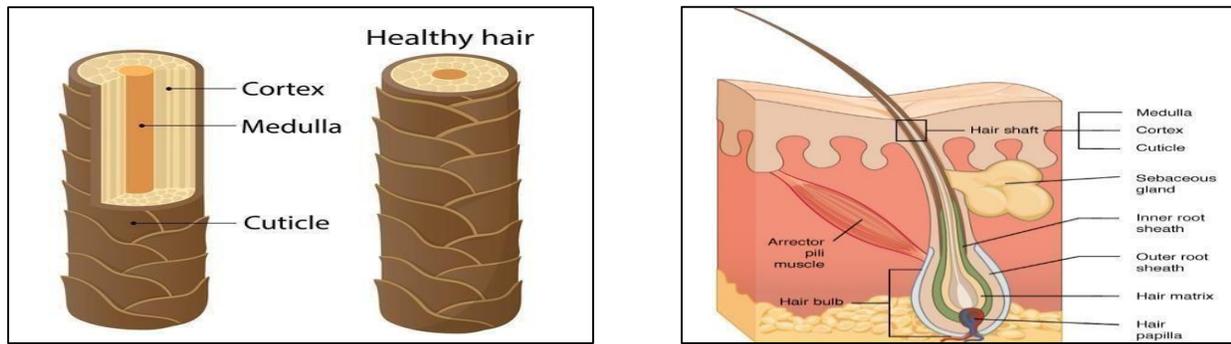


Fig.1. Hair layer

Hair growth cycle:

There square measure 3 phases of hair growth cycle, these square measure as:

- Anagen (Growth section)** – This is often a brief phase as 2-8 years and concerning eightieth of hair is in this phase.
- Catagen (Involution)** – This is often terribly short section 10-14 days and during this section the activity of hair growth will increase so hair moves to subsequent section.
- Telogen (Resting phase)** – During this stage hair is in resting stage and this stage is lasts for 90-100 days. Typically 50-100 hairs square measure shed every which way a day. The telogen section could be a state at that the hairs get in resting state. over a hundred hair per day causes a state of phalacrosis (hair loss), albeit it may be temporar. ^[5]

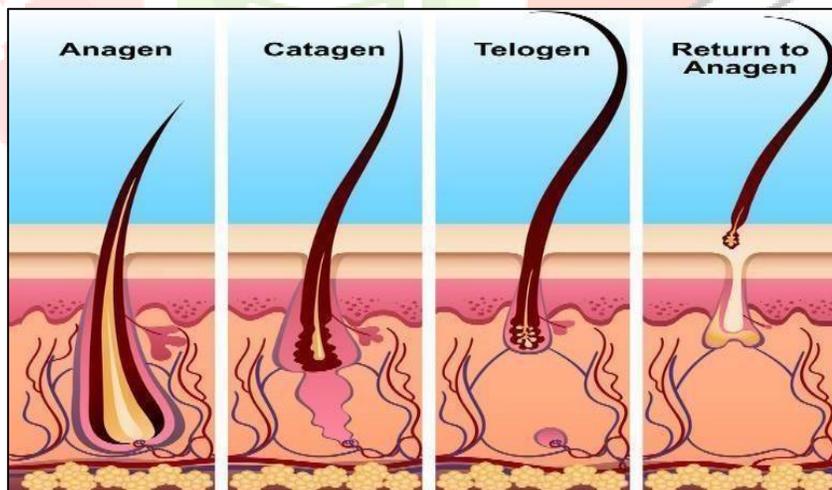


Fig. 3 Hair Growth Cycle

WORLDWIDE HERBAL HAIR CARE COSMETICS CONTAIN: ^[4]

1. Herbal Hair Oil,
2. Herbal Hair Shampoo,
3. Herbal Hair Conditioner
4. Herbal Hair Dyes.

PROBLEMS RELATED TO HAIR:

- Dandruff
- Dry hair
- Split ends
- Oily hair
- Frizzy hair
- Limp hair
- Hair loss
- Heat damage
- Colour damage
- Grey hair ^[6]

HERBAL CONDITIONER

A hair care product called hair conditioner is used to condition hair after shampooing. Conditioning aids in hair restoration and protection. Conditioner is a preparation that is used to make hair better. All hair types benefit from the product. It functions by smoothing the hair follicles' cuticles and replenishing moisture. hair conditioner made of herbs that helps keep hair from breaking and gives it strength and shine. This herbal conditioner for healthy hair, which is made with aloe vera and mint leaves as its main ingredients, keeps hair silky and free of filth. In a nutshell, conditioner helps to smooth your hair and restore moisture after shampoo has cleansed and removed oil, leaving your hair feeling silky, shining, and healthy. It's similar to washing your face and then putting moisturizer on it.

To detangle hair and facilitate simple combing, condition the hair and keep the scalp and hair hydrated (use a wide tooth comb). Hair gets stronger and smoother. It is difficult to break out. All of them keep the hair from breaking unintentionally. Emollients and surfactants, which keep your hair hydrated, are found in hair conditioners. Using a hair conditioner has several benefits, such as reducing frizz, making your hair smoother, and shielding it from additional harm. ^[7]

CHARACTERISTICS of HERBAL HAIR CONDITIONER

The conditioner's basic requirement is to provide the maximum amount of moisture. It needs to be extremely hydrating and restore the natural oils that hair has lost due to frequent shampooing and styling. Emollients and humectants will add moisture and shine. A good conditioner will aid with detangling by adding slip in addition to hydration. Slip is necessary for effective detangling and length retention. Conditioners that are rich, thick, and creamy prefer consistency. ^[7]

The conditioners' functions include:

- 1) Boost compatibility.
- 2) Emulate the natural lipid outer layer of hair.
- 3) Make hydrophobicity whole.
- 4) Close the cuticle.
- 5) Prevent or reduce frizz and friction to offset the appalling rate. ^[17]

Herbal conditioner benefits:

- 1) Provides smoothness and luster to hair.
- 2) Cut down on split ends.
- 3) Make things more manageable.
- 4) Avoid breaking off hair.
Guards against mechanical and chemical damage to hair. ^[8]

Application of herbal hair conditioner: ^[9]

1. To Designed to add shine to your hair.
2. To keep it soft and flowing.
3. To Increase hair growth.
4. To Makes hair more manageable and easier to comb.
5. To Leaves hair soft and moisturized
6. To restore damaged hair.
7. To straightening curly hair.
8. To revitalizes and replenishes hair strands.
9. To Prevents styling from UV rays and heat.
10. Gives hair shine and softness.

11. Reduce split ends.
12. Improve manageability.
13. Prevent hair breakage.
14. Protects hair from chemical and mechanical damage.

Other conditioner on market have the some drawbacks: ^[2-7]

- 1) Generally poisonous and damaging to hair.
- 2) Generates ocular discomfort.
- 3) The principal ingredients of other conditioners are ammonium and sodium laureth sulfates.
- 4) They promote split ends and frizz by drying out the hair shaft.
- 5) Causes eye irritation.
- 6) They dry out the hair shaft and cause split ends and frizz.

How to use a hair conditioner:



Fig.4. How To Use A Hair Conditioner

The benefits of herbs includes :

- ✓ Boost emotional and physical health bolster the immunological system detoxification Aid with digestion and sleep boost endurance and lessen exhaustion, etc.
- ✓ Botanical origin products in cosmetics are another name for herbal or herb based cosmetics.
[10]
- ✓ The Drug and Cosmetic Act 1940 defines cosmetics as any product that is applied to the human body in any way – by rubbing, pouring, sprinkling, or otherwise-with the intention of cleansing, beautifying or enhancing appearance.
- ✓ Cosmetics that contain biologically active principles or plant based substances that have an impact on user are known as cosmetics. Cosmeceuticals are combination of cosmetics and pharmaceuticals designed to improve skin health and appearance.
- ✓ Herbal cosmetics are cosmetics with favourable physiological properties, including healing or smoothing appearance, increasing and conditioning properties because of herbal ingredients.
- ✓ Curcumin is a remarkably powerful antioxidant , helping to fight oxidative damage and boosting the body's own antioxidant enzyme.
- ✓ Herbal items and their cultivation are environmentally beneficial processes. Long term, seemingly uneventful usage of herbal remedies may attest to their effectiveness and safety.^[11]

PLANT PROFILE

1. FENUGREEK:

Kingdom:	Plantae
Order:	Fabales
Family:	Fabaceae
Genus:	Trigonella
Species:	T.Foenum-graecum Part used: Seed



Fig.5 . fenugreek

Biological Source:

It consist of dried ripe seeds of *Trigonella foenum graecum* plantplant.

Chemical Constituent:

Flavonol glycosides found in fenugreek include the alkaloid and volatile compound present are the two main chemical constituents that cause the bitter taste and the odour of the seeds. The major constituents that are present in fenugreek seeds are carbohydrates, proteins, lipids, alkaloids, saponins, vitamins, fibres and minerals

Uses:

1. Fenugreek hair oil helps lessen dandruff and increases blood circulation.
 2. Fenugreek seeds, known for their ability to combat dandruff and hair loss, are high in protein and nicotinic acid.
 3. It also addresses hair thinning, balding, and dryness.^[12]
2. **ALOEVERA:**

Kingdom:	Plantae
Order:	Asparagales
Family:	Asphodelaceae
Genus:	Aloe
Species:	A. Vera



Fig.6. Aloe vera

Biological source:

Dried latex leaves of it. It is also known as curacao aloe, cape aloe and socotriene aloe.

Chemical Constituent:

The aloe leaf gel consists of amino acids, polysaccharides, minerals, organic acids, and phenolic compounds. It also contains anthrones, C-glycosides, and anthraquinones such as aloe-emodin, aloesin, aldehydes, and ketones, etc.

Uses:

- 1) For natural hair, condition and strengthen it.
- 2) Encourage hair regrowth.
- 3) Even out organic curls.
- 4) Keep moisture inside
- 5) inimize flutter.
- 6) Untangle your hair.^[14]



3. JATAMASI

Kingdom:	Plantae
Order:	Dipsacales
Family:	Valerianaceae
Genus:	Nardostachys
Species:	N. jatamansi
Part used:	Root



fig.7. Jatamasi

Biological Source:

Dried root of *Nardostachys jatamansi*

Chemical Constituent:

N. Jatamansi consist of Jatamansi acid, nardol, polylytic enzyme, minerals (Cu, Zn etc.), vitamins, fatty acids, hormones.

Uses:

Insomnia wound healing, antiwrinkles, hair loss, spinal headache, excitement, menopausal symptoms, flatulence, cardiac disease, epilepsy^[13]

EVALUATION:

1. Physical evaluation :

Physical parameter such as color, appearance and consistency are examined.^[15]

2. pH test:

Soak the pH strips in the herbal conditioner solution and wait for the color to change.

Determine the pH by comparing the color of the pH strip to the color chart. 1 □ pH of hair strands: 3.6 to 5.5

□ pH of hair conditioner: 3 to 7

3. Dirt dispersion test:

Two drops of conditioner were added to a large test tube containing 10 ml of distilled water, one drop of Indian ink was added, the test tube was capped and shaken 10 times. The amount of ink present in the foam was rated as none, light, medium, or heavy.

4. **Cleansing action:** 5g of wool yarn was put into the grease and then into 200ml of water with 1g of conditioner in the flask. The water temperature is kept at 350°C. The flask was shaken at 50 times per minute for 4 minutes. The solution was removed, the sample removed, dried and weighed. The amount of fat removed was

weighed.

5. **Stability testing:** Store the herbal hair conditioner at 37°C for 6 weeks and observe changes in color and viscosity.
6. **Moisturizing time determination:** Appropriately sized 1 g, 20 cm 3 size were placed on the surface of 60 ml of various diluted conditioners and the complete sinking time of ball in the conditioner was measured.
7. **Viscosity:** A Brookfield rotating spindle viscometer was used for viscosity testing. To measure viscosity, the measuring body (spindle) is immersed in oil and rotated at a given speed.
8. **Wetting time:** The wettability of surfactants depends on their concentration in the formulation and is commonly tested to assess surfactant effectiveness. Wet time was determined by measuring the time it took for the disc to sink into the conditioner.^[16]
9. **Spread-ability:** Spread-ability indicate the limit of the area in which the gel spreads easily on the skin or the affected part. The biological availability of the functionality to create a gel also depends on the value of the extension. By slides spread-ability two seconds, put the second slide to slide out of jail, it shows below a certain weight. Reduce the time needed to separate the two slides, a good spread-ability.
10. **Grittiness :** The vproduct was checked for the presence of any gritty particles by applying it on the skin.^[18-19]

CONCLUSION:

This comprehensive review highlights the growing popularity and potential of herbal hair conditioners as a natural alternative to synthetic products. These formulas provide numerous advantages for hair health and look without the negative effects of harsh chemicals by utilizing the power of medicinal herbs such as fenugreek, aloe vera, amla, and hibiscus. The carefully chosen plant elements target typical problems including dryness, frizz, and damage while giving hair strands nourishment, moisture, and protection. Crucially, herbal conditioners meet the growing need from consumers for environmentally friendly, safe personal care products. They are appropriate for all hair types and frequent use due to their mild yet efficient nature. Herbal conditioners are set to become increasingly more important in hair care routines as studies continue to reveal the benefits of different botanicals for hair. The future of herbal hair conditioners is bright, even though more research is required to refine formulas and validate claims. Through the integration of contemporary beauty technology and traditional knowledge, these products provide a comprehensive method for attaining naturally gorgeous, healthy hair. The increased demand for efficient, plant-based hair care products is being met by herbal hair conditioners as people become more aware of what they put on their bodies.

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