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# **Research Article**

# Formation and Evaluation of Herbal Hair Mask

# Pandhare Priya\*, Vaishnavi Daud, Pritee Kale, Rao Javvaji

Vss Institute of Pharmacy Badnapur

#### ARTICLE INFO

#### ABSTRACT

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Hair masks are a solution to hair problems such as dandruff, frizziness, brittleness, premature graying. With so many types of hair masks in the market, it can be confusing to choose the one that suits hair lines and has fewer side effects. The ingredients in the hair mask are added according to what is known to be good for the hair. The motive of using a hair mask is to remove dirt and dandruff, strengthen the hair and darken the hair colour. The mask is completely chemical free. It contains only natural ingredients that will not harm your hair. Hair root is the most important organ in humans, it determines the external appearance, makes Gender differentiation, provides thermal protection and plays a role in defense. Young people are starting to face serious hair problems due to many lifestyle changes such as fatigue, stress, poor diet and different hair colouring techniques. Alopecia is nontemporary hair loss in most cases. Strengthening of hair follicles is vital for improving hair growth and preventing hair loss. Hair is the most delicate part of the body. That's why we've created a hair mask recipe to properly care for them. The substances in the hair are added knowing the benefits that can strengthen and darken the hair.

# INTRODUCTION

Cosmetics are the substances used to alter the appearance or fragrance of the human body. Nowadays the demands for herbal cosmetics in the world market are growing and are inevitable gifts of nature. There is a wide range of herbal cosmetic products to satisfy the need of women. In contrast to synthetic ones, herbal cosmetics are safe for human health. Herbal formulations like herbal lipsticks, herbal creams, herbal shampoos and herbal paste have always attracted considerable attention because of their good activity and comparatively lesser side-effects with synthetic materials. Herbal Cosmetics are defined as the beauty products which possess desirable physiological activity such as enhancing, soothing appearance, healing, conditioning properties because of herbal ingredients. Nowdays Hair mask

\*Corresponding Author: Pandhare Priya

**Email** : pandhatepriya931@gmail.com

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Address: Vss Institute of Pharmacy Badnapur.

is one of the most widely used cosmatics used to enhance the beuty of hairs.

# Herbal Hair Mask

A herbal hair mask is a deep-conditioning treatment made from plant-based ingredients. These masks provide essential nutrients, vitamins, and antioxidants that improve hair texture, reduce hair fall, and enhance overall scalp health. Unlike commercial hair treatments laden with sulfates and parabens, herbal hair masks are free from harmful chemicals, making them a safer and more sustainable option.

# **Role of Herbal Hair Masks**

- Strengthens Hair Natural ingredients like Amla (Indian Gooseberry), Hibiscus, and Brahmi are rich in essential nutrients that strengthen hair follicles, reducing breakage and split ends.
- 2. Reduces Hair Fall Herbs like Bhringraj and Fenugreek are known for their anti-hair fall properties, helping to nourish the scalp and stimulate hair growth.

- 3. Improves Scalp Health Herbal ingredients such as Neem and Aloe Vera have antimicrobial and anti-inflammatory properties that combat dandruff and scalp infections.
- 4. Enhances Shine and Softness Natural conditioners like yogurt, honey, and coconut milk help improve hair texture, making it soft, smooth, and manageable.
- 5. Prevents Premature Graying Certain herbs, such as Henna and Curry Leaves, are traditionally used to maintain natural hair color and delay graying.

# Hair

Hair is a thread-like structure that grows from follicles in the skin of mammals, including humans. It's made primarily of a protein called keratin, which is also found in nails and the outer layer of skin. Hair serves different purposes depending on the species—such as protection, temperature regulation, and sensory input



# HAIR ANATOMY

# Structure of Hair:

Hair is composed of a protein called keratin, produced in hair follicles in the dermis. A strand of hair consists of three main layers.

#### 1. Cuticle (Outer Layer):

The outermost layer of the hair shaft.

Structure: Made of overlapping scale-like cells (like shingles on a roof).

Function: Protects the inner layers from damage and controls water content of the fiber.

Role in Appearance: Healthy cuticles reflect light and give hair shine; damaged cuticles lead to dullness and tangling

#### 2. Cortex (Middle Layer):

The thickest layer of the hair shaft.

Structure: Contains long keratin filaments arranged in a spindle shape.

Function: Provides strength, elasticity, and color (due to melanin pigment). Importance: This is where chemical treatments (e.g., coloring, perming) act.

#### 3. Medulla (Inner Core):

The innermost part, often fragmented or absent in fine hair. Structure: A central core of soft, spongy cells.

Function: Less defined; may contribute to the overall strength or insulation.

Medulla: Not present in all hair types.

Hair Shaft: The visible part above the skin, made of dead keratinized cells. Hair Follicle: The living involved in hair production and growth.



# HAIR STRUCTURE

#### **Problems Regarding to Hair**

Problems related to hair can arise due to a variety of factors, including genetics, lifestyle, environmental exposure, and health conditions. Here's a list of common hair problems along with possible causes and basic solutions:

- Hair Loss (Alopecia): Alopecia (hair loss) can be caused by many underlying factors, rangingfrom genetics to lifestyle, diseases, or environmental influences. Here' a clear breakdown of the main reasons that cause alopecia:
- 1) Genetic Factors



Androgenetic alopecia (male/female pattern baldness) is inherited. Caused by sensitivity to dihydrotestosterone (DHT), a derivative of testosterone. Most common cause of permanent hair loss

2) Autoimmune Disorders

In alopecia areata, the immune system attacks hair follicles. Can be triggered by: Genetics, Stress Other autoimmune diseases (e.g., thyroid disease, vitiligo, lupus)

# 3) Hormonal changes

Seen during: Pregnancy, Postpartum period, Menopause, Thyroid dysfunction Hormone fluctuations disrupt the normal hair growth cycle

# 4) Stress and Trauma

Physical stress (e.g., surgery, illness, high fever, injury) Emotional stress (e.g., grief, anxiety) Triggers telogen effluvium: temporary shedding of large amounts of hair.

# 5) Nutritional Deficiencies

Low levels of: Iron, Zinc , Vitamin D , B vitamins (especially biotin) , Protein , Poor nutrition weakens hair structure and growth.

# 2) Dandruff (Seborrheic Dermatitis):

Dandruff is a common scalp condition that causes flaking and sometimes itching. It can be caused by a variety of internal and external factors.

Here's a breakdown of the main reasons:

1. Oily or Irritated Skin (Seborrheic Dermatitis)

Most common cause: Leads to red, greasy skin covered with white or yellow flakes, Affects scalp, eyebrows, sides of nose, ears, and chest 2. Malassezia Overgrowth

Malassezia is a yeast-like fungus naturally present on the scalp In some people, it overgrows and irritates the scalp Triggers increased cell turnover  $\rightarrow$  flakes

3. Dry Skin

Often causes small, white, loose flakes (less oily) Usually not associated with redness or inflammation. Common in winter months or dry climates.

4. Poor Hygiene / Infrequent Washing

Not washing hair regularly can lead to buildup of oils and dead skin This buildup can flake off and appear as dandruff

5. Hair and Skin Products (Contact Dermatitis)

Reaction to shampoos, dyes, gels, or other products. May cause red, itchy, flaky scalp due to irritation or allergy

# 3) Split Ends (Trichoptilosis):

Split ends (technically called trichoptilosis) happen when the hair shaft splits or frays at the tip. This is usually a sign of hair damage or weakness, and several factors can contribute to it.

1. Heat Damage

Frequent use of hair dryers, curling irons, or straighteners High temperatures break down the hair's protective cuticle layer

2. Chemical Treatments

Hair coloring, bleaching, perming, or relaxing. These processes weaken the hair shaft, making it more prone to splitting



#### 3. Mechanical Damage

Rough brushing or combing, especially when hair is wet. Towel-drying too vigorously. Using tight hair ties, clips, or pins that tug or break the hair

#### 4. Environmental Exposure

Sun (UV rays), wind, saltwater, and chlorine. These strip moisture and damage the hair's protective layer

#### 5. Lack of Moisture

Dry or brittle hair is more vulnerable to breakage. Can be due to over-washing, hard water, or low humidity.

#### 4) Oily Scalp:

An oily scalp can result from a variety of factors, including lifestyle, genetics, and health conditions. Here are the most common reasons:

#### 1. Overactive Sebaceous Glands

Your scalp naturally produces sebum (oil) to moisturize and protect the skin. Some people have overactive sebaceous glands, leading to excessive oil production. This is often genetic.

#### 2. Hormonal Changes

Hormones like androgens stimulate sebum production. Puberty, menstruation, pregnancy, menopause, or conditions like polycystic ovary syndrome (PCOS) can trigger hormone fluctuations and increase oiliness.

#### 3. Washing Hair Too Often or Too Infrequently

Too often: Strips natural oils, causing the scalp to overcompensate and produce more oil. Too infrequently: Oil, dirt, and product buildup can accumulate, making the scalp greasy. 4. Using the Wrong Hair Products

Heavy conditioners or styling products can leave residue and weigh down the hair. Products not suited for your scalp type can disrupt its natural oil balance.

5. Touching Your Hair Frequently

Constantly touching or brushing your hair transfers oil from your hands to your scalp and hair.

- 5) **Dry and Brittle Hair**: Dry and brittle hair can stem from a variety of internal and external factors. Here are the most common causes:
- 1. Lack of Moisture

Environmental exposure: Sun, wind, dry air, or cold weather can strip moisture from hair. Overwashing: Washing hair too frequently removes natural oils that keep it moisturized. Hard water: Minerals in hard water can make hair dry and rough over time.

- 2. Excessive Use of Heat Styling Tools Frequent use of flat irons, curling wands, or blow dryers can damage the hair shaft, leading to dryness and breakage. Using these tools without heat protectant worsens the damage.
- 3. Chemical Treatments

Bleaching, coloring, perming, or relaxing hair weakens the cuticle (outer layer of hair), making it more porous and prone to breakage.

4. Nutritional Deficiencies Lack of essential nutrients like: Protein, Omega-3 fatty acids, Iron, Biotin, Zinc, Vitamins A, C, D, and E can affect hair strength and hydration.



5. Dehydration If you're not drinking enough water, your hair (like your skin) can become dry and brittle.

# 6. Scalp Psoriasis:

Scalp psoriasis is a chronic autoimmune condition that causes red, scaly patches on the scalp. It's not contagious, and its exact cause isn't fully understood, but several key factors contribute to its development:

I. Autoimmune Response

The immune system mistakenly attacks healthy skin cells. This triggers an overproduction of skin cells, leading to the buildup of thick, scaly patches (plaques)

II. Genetic Predisposition

Family history plays a significant role. If you have a close relative with psoriasis, you're more likely to develop it.

III. Triggers and Flare-Ups

Scalp psoriasis often flares due to certain environmental or internal triggers, including:

- a. Stress A major trigger; can cause initial onset or worsen existing psoriasis.
- b. Infections

Especially strep throat or respiratory infections can trigger psoriasis, especially in children.

#### c. Skin Injuries

Cuts, burns, or even aggressive scratching of the scalp can trigger a reaction (Koebner phenomenon)

#### d. Medications

Some drugs can trigger or worsen psoriasis: Lithium (used for bipolar disorder) Beta-blockers (for high blood pressure) Antimalarials NSAIDs like ibuprofen

e. Cold, Dry Weather

Can dry out the skin and worsen symptoms.

f. Hormonal Changes

Puberty, pregnancy, or menopause can influence flare-ups.

g. Alcohol and Smoking

Both are known to worsen psoriasis severity and interfere with treatment

IV. Immune System Dysfunction

People with immune-related diseases (e.g., rheumatoid arthritis, Crohn's disease) may be more prone to developing psoriasis.

V. Harsh Hair Products or Overwashing

Can irritate the scalp and trigger flare-ups in sensitive individuals.

#### LITERATURE REVIEW:

1. Mukesh Kumar Shukla1-

By reducing dandruff, a herbal anti- dandruff hair mask helps you get rid of itchy, greasy, flaky scalp and gives your hair and scalp nourishment. A significant issue with hair that cannot be totally resolved with chemicals is dandruff. This chemical weakens the hair and creates split ends. The most sensitive element of the body are the hairs. So, in order to care for them, we developed a hair mask solution. By being aware of their advantages for hair, the substances in the hair mask are incorporated. Hair masks are used to strengthen



and darken hair while removing impurities and dandruff. creating a hair mask that has no chemicals at all. It only has natural components that won't damage your hair.

# 2. Ms. Dhruvi Rana,

Hair therapy treats dandruff, frizzy hair, and hair loss while also making hair healthy, bouncy, and glossy. Hair Therapy often starts with a mask and ends with a rinse, massage, and steam. Moreover, salon visits are expensive and chemical-based spa treatments only produce short-term improvements while having the potential to permanently harm the health of the hair. Synthetic chemical-based hair masks that are widely available on the market clog the pores of the scalp and render hair hydrophobic, which over time results in dry and brittle hair. So, in order to address the aforementioned issues, we seekto create a low-cost, self-applying herbal hair mask. The regular usage of this mask as a thorough hair repair and care regimen, particularly for dry and frizzy hair, is theorized. Olive oil and stearic acid served as the base for the hair mask. The study showed that the concentration of oil and alkali in hair masks affects their solid and dirt-dispersion properties. In light of the findings, it can be concluded that an affordable self-applicable hair mask can be created for thorough hair repair and hair care therapy, particularly for dry and frizzy hair.

# 3. MD. Sajila Bhanu-

Hair masks are a solution to hair problems such as dandruff, frizziness, brittleness, premature graying. With so many types of hair masks in the market, it can be confusing to choose the one that suits hair lines and has fewer side effects. The ingredients in the hair mask are added according to what is known to be good for the hair. The motive of using a hair mask is to remove dirt and dandruff, strengthen the hair and darken the hair colour. The

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# AIMS AND OBJECTIVES

# AIMS

The primary aim of a herbal hair mask is to provide a natural, holistic, and chemical-free approach to hair care by utilizing plant-based ingredients. The specific aims include:

- 1. Nourishing and Strengthening Hair: Providing essential nutrients, vitamins, and minerals that enhance hair strength and growth.
- 2. Reducing Hair Fall and Promoting Growth: Stimulating hair follicles and improving blood circulation to reduce hair fall and encourage new hair growth.
- Hair masks are a solution to hair problems such as 3. Improving Hair Texture and Shine: Restoring dandruff, frizziness, brittleness, premature graying. With so many types of hair masks in the graving. With so many types of hair masks in the graving the solution of the s
  - 4. Preventing Dandruff and Scalp Infections: Utilizing the antimicrobial properties of herbs to treat and prevent dandruff, scalp irritation, and fungal infections.
  - 5. Offering a Sustainable and Eco-Friendly Hair Care Solution: Encouraging the use of natural,



biodegradable ingredients that do not harm the environment.

# **OBJECTIVES**

To achieve these aims, the following objectives are outlined:

- 1. Formulation of a Natural Herbal Hair Mask: Creating a blend of herbal powders, fresh extracts, and essential oils tailored for different hair concerns.
- 2. Scientific Validation of Herbal Ingredients: Researching the efficacy of Ayurvedic herbs such as Amla, Bhringraj, Neem, and Hibiscus in hair care.
- 3. Encouraging Regular Application for Long-Term Benefits: Educating consumers about the benefits of consistent herbal hair mask use for visible improvements.
- 4. Providing a Safe, Chemical-Free Alternative: Eliminating harmful chemicals such as sulfates, parabens, and artificial fragrances to promote scalp and hair health .
- 5. Customizing Hair Masks for Different Hair Types and Needs: Developing variations of herbal hair masks for oily, dry, damaged, and color-treated hair .
- 6. Raising Awareness About Herbal Hair Care Benefits: Conducting awareness programs, social media campaigns, and educational content to promote herbal hair care.
- 7. Promoting Sustainable Beauty Practices: Encouraging the use of locally sourced, organic, and eco-friendly ingredients to minimize environmental impact.

By achieving these aims and objectives, herbal hair masks can serve as an effective, natural, and sustainable solution for hair health, aligning with the growing demand for clean and green beauty products.

# Plan of Work:

- 1. Literature Review
- 2. Selection of Ingredients
- 3. Extraction of Herbal Ingredients
- 4. Formulation of Herbal Hair Mask
- 5. Evaluation of Herbal hair Mask
- A. Physical Evaluation
- B. Physicochemical Evaluation
- C. Performance Evaluation
- D. Microbial Testing
- E. Stability Studies
- 6. Comparative Study
- 7. Documentation and Report Writing.

#### **USE OF HERBAL PLANTS**

# A. Raw material used in preparation of herbal hair mask

- ≻ Amla
- ≻ Bhringraj
- ≻ Hibiscus
- ≻ Fenugreek
- ≻ Neem powder

# FORMULATION TABLE OF HAIR MASK

#### Pandhare Priya, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 6, 144-161 |Research

Sr No,	Ingredients	Roles	Quantity
1.	Amla	Anti -oxidant	10 gm
2.	Bhringraj	Hair growth	10 gm
3.	Hibiscus	Prevent hair fall	10 gm
4.	Fenugreek	Anti-dandruff	10 gm
5.	Neem Powder	Anti-fungal	10 gm

# 1. AMLA

**Synonym** : Phyllanthus emblica (syn. Emblica officinalis)

#### Common names: Amla, Indian Gooseberry

Part used: Fruit (primarily), also seeds, leaves, bark, and flowers

#### Family: Phyllanthaceae

#### **Chemical Constituents**

Sr. No	Constituents	Туре	Use
1.	Ascorbic acid (Vitamine C)	Antioxidant	Promotes collagen production, strengthens Hair roots, prevents premature graying
2.	Tannin	Polyphenols	Protect hair from damage ,improve hair texture
3.	Gallic Acid	Phenolic compound	Antifungal antimicrobial, helps maintaining scalphealth

#### Uses

Used in Ayurveda as a Rasayana (rejuvenator)

Digestive tonic – relieves constipation, improves appetite

Hair and skin care – promotes hair growth, used in herbal cosmetics

Respiratory ailments - cough, asthma

General health tonic – boosts immunity and vitality



#### **Fig-Amala**

# 2. BHRINGRAJ -

Synonym : Eclipta alba or Eclipta prostrata

Family: Asteraceae (Compositae)



**Common names** : Bhringraj (Sanskrit), False **Chemical Constituents:** Daisy (English), Maka (Hindi)

Sr. No	Constituents	Туре	Use
1.	Ecliptine	Alkaloid	Antimicrobial prevents scalp infection, supports healthy scalp
2.	Luteolin	Flavonoid	Antioxidant protect hair from oxidation stress
3.	Saponins	Glycosides	Antifungal, strengthens, Naturally cleanses scalp reduces dandruff

Uses:

Promotes hair growth and prevents premature graying (used in hair oils)

Used in liver disorders like jaundice and hepatitis Applied to wounds and skin infections Used in Ayurvedic formulations like Bhringraj Taila and Bhringarajasava

# Fig-Bhringraj

# **3. HIBISCUS**

Synonym : Hibiscus rosa-sinensis

Family: Malvaceae

**Common names**: Hibiscus, China rose, Gudhal (Hindi), Japa Pushpa (Sanskrit)

# chemical Constituents:

Sr. No	Constituents	Туре	Use
1.	Anthocynins	Flavonoids pigments	Antioxidant pevent hair aging, add
			natural shine
2.	Mucillage	polysaccharide	Emollient, conditions hair, adds softness
		2	and detangling properties
3.	Thiamine (vitamin	B-vitamine	Cell-repairing, improves hair strength,
	<b>B</b> 1)		support follicle function

#### Uses:

Decoction of flowers used for managing hypertension Flower paste applied for hair health (used in oils and shampoos) Used in Ayurveda for menstrual disorders, hair fall, and skin issues Leaf paste applied on boils and wounds





**Fig-Hibiscus** 

# 4. FENUGREEK

Synonym: Trigonella foenum-graecum

Family: Fabaceae (Leguminosae)

**Common names**: Fenugreek (English), Methi (Hindi), Methika (Sanskrit)

chemical Constituents:

~	~		
Sr. No	Constituents	Туре	Use
			Emollient deeply conditioning hair, improves
1.	Mucillage	polysaccaride	softness and manageblility
			Antioxidant, Stimulates hair growth, support
2.	Trigonelline	Alkoloids	scalp health
			Estrogenic activity, stimulates hair shafts, may
3.	Diosgenin	Saponin	help with hair regeneration

#### Uses:

Used in diabetes management Promotes lactation in nursing mothers Applied externally as poultice for swelling or boils Taken for digestive issues like constipation and flatulence Included in herbal formulations for enhancing libido



# 5. NEEM POWDER.

Synonym : Azadirachta indica

Family: Meliaceae

**Common names**: Neem (English), Nimba (Sanskrit), Neem (Hindi)

# chemical Constituents:



	Sr. No	Constituents	Туре	Use
	1.	Azadirachtin	Limonoid (Triterpenoid)	Insecticidal, reduce dandruff-causing microbes
	2.	Nimbin	Triterpenoide	Antiseptic, soothes scalp irritation, combats fungal infection
F	3.	Nimbidin	Triterpenoid	Anti-inflammable, reduce scalp inflammation
				and flakiness



#### Uses:

Applied externally for skin disorders: acne, eczema, wounds Used internally for blood purification, diabetes, and intestinal worms Neem powder used in face packs and toothpaste As a natural pesticide and insect repellent In Ayurveda, used in formulations like Nimbadi Churna and Nimbadi Kashaya



**Fig-Neem Powder** 

# **METHODS AND MATERIALS**

#### **Ingredients:**

➤ Amla

1. Wash and Dry the Amla

Rinse the amla fruits thoroughly under running water t remove any dirt or residues. Pat dry with a clean towel or let them air dry.

#### 2. Cut and Deseed

Cut the amla into small pieces and remove the seeds. The fruit is fibrous and comes apart in segments.

3. Dry the Amla

a. Sun Drying (Traditional Method) Spread the cut pieces on a clean cloth or tray. Cover with a thin muslin cloth to protect from dust and insects. Let them dry in direct sunlight for 3–5 days until they are crisp and completely moisture-free.

b. Oven or Dehydrator Drying Preheat your oven to the lowest setting (around  $50-60^{\circ}C$  / 120– 140°F). Spread the amla pieces on a baking tray. Leave the oven door slightly open to allow moisture to escape. Dry for 8–12 hours or until the pieces are brittle. > Tip: Make sure there's no moisture left, or the powder can spoil quickly.

#### 4. Grind to Powder

Once dried and crisp, grind the pieces in a highspeed blender, mixer-grinder, or coffee grinder until you get a fine powder.

# 5. Sift (Optional)

Use a fine sieve to separate coarse bits from the fine powder. You can regrind the coarse part.

# > Bhringraj

1. Harvest or Source the Leaves

Harvest fresh bhringraj leaves (ensure correct plant ID) OR Buy dried bhringraj leaves from a trusted herbal supplier.

#### 2. Wash and Clean

If using fresh leaves, wash them thoroughly to remove dirt, insects, or pesticides. Shake off excess water or pat them dry with a clean towel.

3. Dry the Leaves

a. Sun Drying (Traditional Method) Spread the leaves in a single layer on a clean cloth or tray. Cover with a mesh/muslin cloth. Dry in direct sunlight for 3–5 days or until leaves are crispy and crumble easily.



b. Dehydrator/Oven Drying Set dehydrator or oven to low temperature  $(45-50^{\circ}C / 110-120^{\circ}F)$ . Dry for 6–10 hours until leaves are crisp. > Important: Leaves must be completely dry to prevent mold and ensure long shelf life.

# 4. Grind into Powder

Use a dry grinder, blender, or coffee/spice grinder. Blend until you get a fine, green powder.

# 5. Sift the Powder (Optional)

Use a #60 or #80 mesh sieve to remove coarse particles. Regrind leftover bits and re-sift if needed.

# ➢ Hibiscus

# 1. Collect and Clean

Collect fresh hibiscus flowers and/or leaves. Remove the stamens and calyx (the green base of the flower) from the petals. Wash thoroughly with clean water to remove dirt or insects.

# 2. Dry the Material

You must completely dehydrate the hibiscus before grinding:

a.Sun Drying (Traditional Method) Spread petals or leaves on a clean cloth or tray in a single layer. Cover with a thin cloth to protect from dust. Dry in sunlight for 2–4 days, turning occasionally, until brittle and crisp.

b.Oven or Dehydrator Drying Set oven or dehydrator to  $45-50^{\circ}$ C (113–122°F). Dry for 4–8 hours or until completely dry and crunchy. > Tip: Drying time depends on humidity and thickness of the petals/leaves.

3. Grind into Powder

Use a dry grinder, coffee grinder, or blender. Grind until you get a fine powder.

# 4. Sift (Optional)

Use a #60 or #80 mesh sieve to get a smooth powder. Regrind any larger pieces and sift again.

# > Fenugreek

1. Clean the Seeds

Pick through the seeds to remove any stones or impurities. Rinse the seeds quickly in water if dusty, then dry thoroughly before roasting.

2. Roast the Seeds (Optional but Recommended)

Dry-roast the seeds in a pan over low to medium heat for 3–5 minutes. Stir constantly to prevent burning. The seeds should release a nutty aroma and turn slightly golden. Let them cool completely before grinding. > Why roast? It reduces bitterness. Enhances flavor. Improves shelf life.

3. Grind to Powder

Use a spice grinder, coffee grinder, or blender. Grind the seeds into a fine powder.

4. Sift (Optional)

Use a #60 or #80 mesh sieve if you want a very fine powder. Regrind any coarse bits and sift again.

# > Neem

1. Collect and Clean the Neem Leaves

Pick fresh neem leaves from a healthy neem tree. Discard yellow or damaged leaves. Wash thoroughly under clean running water to remove dust and insects.



2. Dry the Leaves

Drying removes moisture and extends shelf life.

- a) Sun Drying (Preferred) Spread the leaves in a single layer on a clean cloth or tray. Keep in a well-ventilated, sunlit area. Cover lightly with a thin cloth to prevent dust. Let them dry for 3–5 days, turning daily, until crispy and brittle.
- b) Oven or Dehydrator Drying Set to 45–50°C (113–122°F). Dry for 6–8 hours or until fully









dry. > Important: Leaves must be completely dry to avoid mold in storage.

3. Grind to Powder

Use a dry mixer, coffee grinder, or spice blender. Grind the dried neem leaves into a fine green powder.

4. Sift (Optional)

Use a #60 or #80 mesh sieve for a smoother powder. Regrind any larger bits and sift again.







**Fig.1.4** 

# Mixing -

All these fine ingredients were mixed thoroughly by mixer to form a homogenous fine powder.

# Sieving -

This fine powder was passed through sieve no. 80, to get the sufficient quantity of fine powder.



#### \* Collection and storage -

The powder mixture was collected and store in suitable plastic container and used for doing evaluation parameters.



# EVALUATION PARAMETER

Following evaluation parameters were performed to ensure superiority of prepared hair mask.

**Fig-1.5** 

#### **Organoleptic Evaluation** –

Herbal hair mask was evaluated for organoleptic parameter showed in the Table 1. The colour of formulation was greenish brown. The odour of prepared formulations was characteristic which is desirable to cosmetic formulations texture and appearances were acceptable as per requirement of cosmetic formulations.

Sr. No.	Parameters	Observation	
		Test Sample	Marketed
1.	Colour	Greenish Brown	Yellowish Brown
2.	Odour	Characteristic	Characteristic
3.	Texture	Fine	Fine
4.	Appearance	Coarse Powder	Coarse Powder

#### **Table 1- Herbal Preparation**

#### Physicochemical Evaluations-

2. The pH of formulation was found to be 6.5. The ash content and moisture content were within the limit.

Herbal hair mask was evaluated for physicochemical parameters showed in the Table

Sr. No.	Parameters	Observation	
		Test Sample	Marketed
1.	рН	6.5	5.5
2.			
3.	LOD (loss on Drying)	9.5 %	8.0 %
4.	Ash value	2%	1.1%

#### **Rheological Evaluation**



Herbal hair mask was evaluated for rheological evaluation (powder property shown in the table -3 rheological finding justified the flow in the flow

(powder) Properties of the herbal hair mask. It was found to be a free- flowing and little sticky in nature.

Sr. No.	Parameters	Observation	
		Test Sample	Marketed
1)	Tapped density	1.56	1.51
2)	Bulk Density	1.11	1.1
3)	Angle of repose	48.38 degree	52.43 degree

Table 3- Rheological Evaluation of test and marketed preparation

# **Stability Studies-**

The result of stability was shown in Table. No 4. change in colour, odour, texture and appearance was observed.

Tuble of Stubility studies fiel but and Studian a preparation			
Sr. No.	Parameters	Result	
1.	Change in colour	Nil	
2.	Change in odour	Nil	
3.	Change in texture	Nil	
4.	Change in Apperance	Nil	

#### Table of Stability studies Herbal and standard preparation

#### How to use Herbal hair mask

Applying a herbal hair mask is simple and effective. A paste is prepared by mixing herbal powders or fresh ingredients with a liquid base such as water, yogurt, or aloe vera gel. The mask is then applied evenly to the scalp and hair, left for 30-60 minutes, and rinsed off with a mild herbal hair mask. Regular use, at least ones a weak ensures visible improvements in hair heath

#### For better result

#### **Supporting Ingredients**

Coconut Oil (Cocos nucifera)

Benefits: Deeply conditions hair, reduces protein loss, and prevents split ends. Rosemary Oil (Rosmarinus officinalis)

Benefits: Improves blood circulation to the scalp, promoting hair growth.

Henna (Lawsonia inermis)

Benefits: Strengthens hair, adds a natural tint, and conditions the scalp.

Curry Leaves (Murraya koenigii)

Benefits: Prevents hair thinning and enhances hair pigmentation.

Shikakai (Acacia concinna)

Benefits: Cleanses the scalp gently, maintaining natural oils.

# **Additional Hydrating Agents**

Yogurt: Provides moisture and natural proteins. Honey: Locks in hydration and adds shine.

Egg White: Strengthens hair due to its high protein content. Formulation Procedure for Herbal Hair Mask



# **CONCLUSION:**

In conclusion, herbal hair masks offer a natural, effective, and chemical-free alternative for promoting healthy hair. Enriched with ingredients like amla, bhringraj, hibiscus, fenugreek, and neem, these masks nourish the scalp, strengthen hair roots, reduce hair fall, and enhance overall hair texture. Regular use can help restore shine, softness, and manageability while addressing common concerns such as dandruff, dryness, and breakage. As a holistic approach to hair care, herbal masks align well with sustainable beauty practices and support long-term hair health without harmful side effects.

#### RESULT

The herbal hair mask formulated with bhringraj, Hibiscus, Fenugreek, and Neem was found to be effective, safe, and easy to use. Evaluation result indicated positive effect on hair texture, reduced hair fall, dandruff control, and improved scalp health. The formulation offers a natural, chemicalfree alternative for individuals seeking healthy hair care solution.

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