

**FORMULATION AND EVALUATION OF HERBAL HAIR OIL**

**Apeksha Darekar\*, Darekar Rutuja Bibhishan, Ass. Prof. Garje Mayur, Dr. Hemant Kamble, Machale Shivaranjane Prabhakkar, Kadam Vaishnavi Dilip, Pooja Arvind Kothimbire**

India.

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**\*Corresponding Author**

**Apeksha Darekar**

India.

**ABSTRACT**

Herbal formulations always have lesser or no side effects comparative with synthetic. The aim of present study involves preparation of herbal hair oil using the herbal ingredients like., Amla, Hibiscus, coconut oil, henna leaves, brahmi leaves, mustard seeds, tulsi leaves Curry leaves, Methi,. Based on the above observations, mixture of crude drugs was prepared in the form of herbal hair oil by boiling method. We have used five formulas using different herbal drugs and all the formulation are showing anti-hairfall property with some of other beneficial activities like anti-dandruff activity, improves blood circulation to the scalp and roots, reduce hairpigmentation, anti-fungalactivity, reducing the whitening of the hair. The formulated herbal oil was evaluated by using various parameters such as Organolepticproperties, specificgravity, stability, pH etc. Andthevalueobtainedfromit are found to be similar to that of the standard values like there is no sedimentation, no grittiness and show Ssatisfyingorg a nolepticproporti esandtheresultsweredeterminedandarereported in this work.

**KEYWORDS:** Hairoil, Herbs, Formulation, Preparation, Evaluation, Resultsanddiscussion.

**INTRODUCTION**

Cosmeticsaresubstancesusedtoenhancetheappearanceorodourofthehumanbody.Cosmeticsincludeskin-carecreams, lotions, powders, perfumes, lipsticks, fingernailandtoe nail polish, eye and facial makeup permanent waves, coloured contact lenses, hair colours, hairspraysandgels, deodorants, babyproducts, bathoils, bubblebaths, bathsalts, buttersand many other types of products. A subset of cosmetics is called "make-up," which refers primarily to coloured products intended to alter the user's appearance. Many manufacturers distinguish between

decorative cosmetics and care cosmetics. In the last three-four decades the use of cosmetics has increased exponentially not only among females, but the male populational so indulges in their use. Hair dyes, hair oil, creams are popular with males as well as females. Most countries now have laws to control, manufacturing, label, sale etc of cosmetics in such a way that use of cosmetics harmful to health is prevented.

Herbal hair oils are one of the most well recognized hair treatments. Herbal hair oil not only moisturizes scalp but also reverses dry scalp and dry hair condition. It provides numerous essential nutrients required to maintain normal functions of sebaceous gland and promote natural hair growth. Keeping the point in consideration, the present work was undertaken.

Hair it is a derivative of the epidermis and consists of two distinct parts: the follicle and the hair shaft. The follicle is the essential unit for the generation of hair. The hair shaft consists of a cortex and cuticle cells, and a medulla for some types of hairs. Hair shaft pigmentation Dark hair predominance of eumelanin. Hair shaft diameter and length Vellus: 0.06: mm: 1-2 mm: Hair is made up of a tough protein called keratin. A hair follicle anchors each hair into the skin. The hair bulb forms the base of the hair follicle. In the hair bulb, living cells divide and grow to build the hair shaft.

Hair is a protein filament that grows from follicles found in the dermis. Hair is one of the most important of our body that improves the overall appearance of a person. The hair fall, Dandruff, split ends, grey hair are the major problems associated with hair. To overcome these problems, we meet lots of cosmetics. Among this hair loss (alopecia) is a universal problem having affected both sexes of all traces to different extents for as long as mankind has existed the hair care industry has become aware of this and delivering active products directed towards meeting this consumer demand.

Hair loss, whether it is hair loss in men or hair loss in women, is a common biological problem all over the world, not just in India. The importance of hair in enhancing the overall personality of human being cannot be overestimated.

Hair is first thing that people notice about you. A great hairstyle can give you the personality boost you require in doing well in both personal and professional fronts.

Hair loss, on the hand, can prove to be a real disadvantage for many people. Many young boys and girls start losing their hair early in life. Caused by a variety of genetic, origin. Thankfully,

effective hair treatment can control and even reverse the hair loss process.

Taking care of hair is crucial to having long-lasting hair. However, to understand the importance of hair we need to understand the anatomy of hair so as to demystify the process of hair loss and hair fall. To begin with, hair is not considered a living cell. In fact, they are mostly composed of protein cells called Keratin. The hair has two components- the long shaft and the thicker root that forms part of hair follicle.

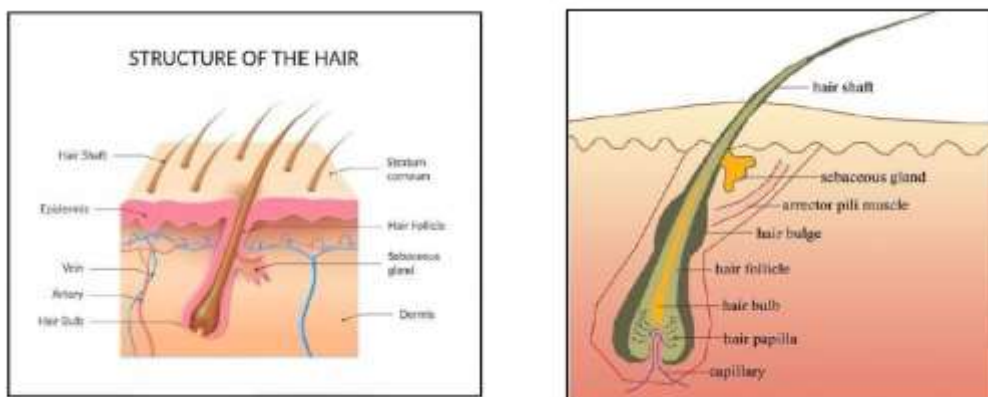
The hair follicle is made from dwelling cells that assist inside the boom of hair. An average human has about one hundred, 1000 to 150, 000 hair strands at the scalp. The human hair grows at a rate of 0.5 inches in a month.

Aside from the scalp, the human hair is observed in all different parts of the frame except lips, the palm of the hand and sole of the toes.

Human hair goes through various stages of development. First, the fetal hair (also known as lanugo hair) forms on the baby's head inside the womb. It falls off after a few months.

Hair is an epidermal derivative which is one of the vital parts increasing the overall elegance of the body. Hair fall is a problem involved with hair faced by human. To overcome this human takes many measures by applying many cosmetics for each. Hair oil is one among them used to solve almost all these problems.

### Structure of hair



**Fig. no. 1: Structure of hair along with anatomy and physiology.**

Basically, terminal hairs are found on scalp, eyebrows, and eyelashes at birth while the rest of the body is covered with vellus hairs. In puberty, some vellus hairs (i.e., beard, trunk, axilla,

and genital area) by the influence of androgens differentiate to terminal hairs, which are long (>2 cm), thick (>60  $\mu\text{m}$ ), pigmented and medullated. The bulb of the terminal hair is located in the subcutaneous fat; however, the bulb of vellus hairs is in the reticular dermis.

Vellus hairs are thin (<30  $\mu\text{m}$ ), short (<2 mm) and mostly non-medullated.

Structural features of the hair follicle have to be considered during the classification process.

Hair shaft diameters, hair follicle density and follicular infundibulum volume are some of them. Hair shaft diameters represent little variations and hairs are found to be thicker in androgen dependent areas. Hair follicle density is much more concentrated in the forehead and follicular infundibulum volume is also bigger. It is important just because of the large follicular infundibular volume that is associated with more follicular reservoir ability.

Hair consists of two distinct structures: Follicle—the living part located under the skin and hair shaft—fully keratinized non-living part above the skin surface. The arrector pili muscle, takes place between the hair bulge area and dermo-epidermal junction. Above the insertion of the arrector pili muscle, sebaceous glands and, in some certain regions, apocrine glands are opened into the follicle. Hair shaft consists of three layers: cuticle, cortex and in certain case medulla. Flat and square-shaped cuticle cells adhere tightly to the cortex cell proximally. Peripheral movements of cuticle cells make the direction of the distal free edge upward and cause extensive overlapping. These imbrications are crucial. By interlocking with cells of inner root sheath, they contribute to the follicular anchorage of the growing hair. These imbricated surfaces also facilitate removal of dirt and desquamated cells from the scalp. Cuticle has so important protective properties and barrier functions against physical and chemical insults.

### **Hairfall**

Hair loss or hair thinning is a hair problem characterized by loss of more than 100-150 strands a day. The amount of hairfall can range from mild, moderate or depending on the amount of hairfall.



**Fig. no. 3: Causes of hairfall.**

Hair loss is typically categorized as scarring (which occurs in discoid lupus, lichen planopilaris, and folliculitis decalvans). The most common cause of such hair loss, female-pattern hair loss, is frequently referred to as androgenetic alopecia; however, the role of androgens in this type of hair loss remains uncertain. This condition is often familial.

Female-pattern hair loss can develop any time after the onset of puberty by 70 years of age, 38% of women have female-pattern hair loss.



**Fig. no. 4: Hair fall.**

### **Aim of practical**

To handle different equipment's apparatus and instruments, which are required for herbal formulation development and standardisation of herbal hair oil.

### **OBJECTIVES**

As per the introduction in abstract of this project, the special focus is on reducing hair fall and some basic requirements for herbal hair oil as per a need such as follow.

- To enhance the growth of hair after applying herbal hair oil.

- To provide nourishment to hair by using herbal oil.
- To improve the thickness of hair.
- To study the causes of hair fall.
- To formulate a herbal hair oil.
- To evaluate the herbal hair oil.

## MATERIAL AND METHOD

### Material

#### Crude drug

1. Curry leaves oil
2. Hibiscus oil
3. Fenugreek seed oil
4. Coconut oil
5. Mustard seeds
6. Henna leaves
7. Brahmi leaves
8. Amla
9. Tulsi leaves

#### Apparatus's

Sr. no.	Apparatus	Requirement/Quantity
1	Beaker	3
2	Measuring cylinder	4
3	Mortar and pestle	1
4	Glass rod	2
5	Separating funnel	1
6	Water bath	1
7	Burner	1
8	Funnel	1
9	Pipette	2

#### Ingredients & Category of herbal hair oil

Table No. 1: Ingredients & Category of herbal oil.

Sr. no.	Ingredients	Category (Used in formulation)
1	Curry leaves oil	Promote hair growth.
2	Hibiscus oil	Protect the scalp from sun.
3	Fenugreek seed oil	Moisturizer.
4	Coconut oil	Natural conditioner.

5	Mustardseeds	Naturalcolorant
6	Hennaleaves	Antidandruff
7	Brahmleaves	Naturalcolorant
8	Amla	HairGrowth
9	Tulsileaves Fenugreekseedoil	Antioxidant

### Curryleaves



**Fig. no. 5: Curryleaves.**

### Morphologyofcurryleave

- **Common Name:** Curry Leaves, kadipattain Hindi, Girinimbain Sanskrit.
- **Partofplant:** Freshaswellasdriedleaves.
- **Botanicalname:** Murraya koenigii
- **Family:** Rutaceae

### Chemicalconstituents

The oils from the curry leaves were found to contain mostly oxygenated monoterpenes. Using GC and GC-MS 33 constituents were found with linalool (32.83%), elemol (7.44%), geranylacetate (6.18%), myrcene (6.12%), allo-ocimene (5.02),  $\alpha$ -terpinene (4.9%), and (E) $\beta$ -ocimene (3.68%) as the main compounds.

### • Uses

1. Bark and root are used as stimulant and externally to cure eruptions and bites of poisonous animals.
2. Green leaves are eaten raw for cure of dysentery, diarrhoea and for checking vomiting.

**Fenugreek seed**

**Fig. no. 6: Fenugreek seed.**

**Synonym**

Fenugreek, Methi.

**Biological name**

*Trigonella foenum-graecum*.

**Source**

It consists of dried ripe seeds of *Trigonella foenum-graecum*.

**Family**

Fabaceae.

**Subfamily**

Faboideae.

**Genus**

*Trigonella*.

**Chemical constituents**

Composition of fenugreek (such as seeds, husk and cotyledons) showed that endosperm had the highest (4.63 g/100 g) saponin and (43.8 g/100 g) protein content. As against this, husk contains high total polyphenols. The extracts of endosperm, husk, and fenugreek seed at about 200 µg concentration exhibit antioxidant activity 72%, 64%, and 56% respectively by free-radical scavenging method.



### Uses

1. Fenugreek contains a large amount of lecithin, which hydrates the hair and strengthens the roots or hair follicles.
2. Fenugreek has a beneficial effect on cleansing the blood and as a phoretic it is able to bring on a sweat and to help detox the body.
3. Due to its pungent aroma of fenugreek, it is used to treat skin and in under-arm perspiration.
4. Fenugreek is also known for its lymphatic cleansing activity though its vital role is to irrigate the cells with nutrients and to remove toxic wastes, dead cells and trapped proteins from the body.
5. Block in the lymphatic system can mean poor circulation of fluid, fluid retention, pain, energy loss and disease, anywhere in the body of a person.

### Coconut Oil



**Fig. no. 7: Coconut oil.**

### Synonym

Coconut oil, Copra oil.

### Biological name

*Cocos Nucifera*.

### Source

Oil derived from the fruit of *Cocos Nucifera*.

### Family

Arecaceae.

Coconut oil contains lauric acid which helps to bind proteins to the hair, protects roots and strands, and prevents them from cracking.

The antioxidant found in coconut oil helps to grow healthy hair.

Coconut oil is known to penetrate hair follicles and protect them from environmental pollution and extreme heat.

### Chemical constituents

Coconut oil is composed of the fatty acids, caprylic acid C-8:0 (8%), capric acid, C-10:0 (7%), lauric acid C-12:0 (49%), myristic acid C-14:0 (8%), palmitic acid C-16:0 (8%), stearic acid C-18:0 (2%), oleic acid C-18:1 (6%) and 2% of C-18:2 linoleic acid.

### USES

- 1) Coconut oil has plenty of fatty acids that bind protein in hair. It prevents hair from breaking from roots to strands.
- 2) Moisture of the hair is the most important way to protect your hair.
- 3) By massaging scalp with coconut oil, your blood circulation in the scalp improves and boosts oxygen and nutrient delivery to your hair.
- 4) Coconut oil is an excellent skin moisturizer and can be used as a catalyst for other essential oils.
- 5) It can also be mixed to create many lotions with moisturizing properties.

### Mustard seed



**Fig. no. 8: Mustard seed.**

### Synonym

Black mustard, Rai.

### Biological name

Brassica juncea.

### Source

Derived from the genera Sinapis and Brassica.

**Family**

Brassicaceae.

**Chemical constituents**

Mustard contains numerous phytochemicals such as: vitamins, minerals, dietary fiber, chlorophylls, glucosinolates (and their degradation products), polyphenols and volatile components (allyl isothiocyanate, 3-butyl isothiocyanate, etc.)

**Uses**

Acts as a natural conditioner. Acts as a natural conditioner. Prevents dandruff.

**Hennaleave**

**Fig. no. 9: Hennaleave.**

**Synonym**

Mehndi, Mendee, Mignonette Tree.

**Biological name**

*Lawsonia inermis*.

**Source**

*Lawsonia inermis* L.

**Family**

Lythraceae.

**Chemical constituents**

*Lawsonia alba* L.) leaves resulted in the isolation of seven compounds; three have been isolated for the first time from the genus, namely p-coumaric acid, 2-methoxy-3-methyl-1,4-naphthoquinone and apiin, along with the previously isolated compounds: lawsone, apigenin,

luteolin, and cosmosiin.

### Uses

- 1) Improves Scalp Health.
- 2) Enhances Hair Color.
- 3) Relieves Oxidative Stress
- 4) Conditions Your Hair.
- 5) Repairs Damage and Strengthens Hair.
- 6) Balances pH And Oil Product

### Brahmleaves

#### Synonym

Birami.

#### Biological name

Bacopa monnieri.

#### Source



**Fig. no. 10.**

Brahmi is the fresh or dried herb of *Centella asiatica* (L.) (syn. *Hydrocotyl asiatica* Linn.)

#### Family

Umbelliferae

#### Chemical constituents

Active fractions of this medicinal plant contain bacoside-A and bacoside-B. A number of other phytochemicals such as alkaloids, glycosides, flavonoids, saponins etc.

**Uses**

- 1) Reduces Hair Fall Brahmi oil is rich in hair-friendly nutrients like vitamin C, saponins, flavonoids, etc.
- 2) Removes Dandruff Dandruff is mainly caused by a lack of oil on the scalp.
- 3) Improves Scalp Health.

**Amla****Fig. no. 11.****Synonym**

Emblica, Indian gooseberry, amla.

**Biological name**

*Phyllanthus emblica*

**Source**

This consists of dried, as well as fresh fruits of the plant *Emblica Officinalis* Gaertn (*Phyllanthus emblica* Linn.)

**Family**

Phyllanthaceae.

**Chemical constituents**

Fruit seeds were found to contain fixed oil (~16%) with some fatty acids like linoleic acid (44%), oleic acid (28.4%), linolenic acid (8.8%), palmitic acid (3%), stearic acid (25.5%)

**Uses**

Massaging the scalp with amla oil strengthens the follicles, provides lustre while Vitamin C prevents premature greying.

**a) The procedure of hair oil****Methodology**

- i. The various ingredients used in the preparation of herbal oil shown in table 1.
- ii. Take a 5gm Hibiscus flower, 3gm Fenugreek seed, 3gm of mustard seeds, henna leaves, brahmileaves, 3gm of amla powder, 5gm of tulsi leaves boiled with 15 ml Coconut oil.
- iii. Filter above mixture two to three times.
- iv. Take a beaker and mix the filtrate with curry leaves oil.
- v. Add perfume and preservatives.
- vi. Mix well and transfer to an airtight container.
- vii. Herbal hair oil is ready for use.

**b) Formulation for hair tonic**

Sr. no.	Ingredients	Quantity taken
1	Curry leaves oil	2ml
2	Hibiscus Flower	5gm
3	Fenugreek seed	3gm
4	Coconut oil	20ml
5	Mustard seeds	3gm
6	Henna leaves	Handful
7	Brahmleaves	Handful
8	Amla powder	3gm
9	Tulsi leaves	5gm
10	Rose oil	q.s
11	Ethylhexyl glycerin	qs

**Evaluation parameters of herbal oil**

Herbal hair oil formulation is tested for parameters such as pH, sensitivity test, and organoleptic parameters.

**1. Organoleptic parameters**

Colour, smell, irritation of the skin was determined directly. The oil is rubbed on the hand and exposed to the sun for 5 minutes to check for any irritation of the skin.

**2. Sensitivity testing**

Prepared herbal hair oil is applied to the skin of 1 cm. hand and placed in the sun for 4-5 minutes.

**3. PH**

The pH of the herbal hair oil was determined using a pH meter.

#### 4. Specific gravity

A bottle of gravity is rinsed with distilled water, dried in a hot oven for 15 minutes, cooled covered, measured and marked (a) Now the same magnetic field bottle was filled with a sample, capped and weighed (b) The sample per milliliter is determined by subtraction (b-a).

### RESULTS

The result of an Herbal hair oil can be influenced by various factors, including concentrations of ingredients, and the intended purpose of the hair oil.

However, here is a general description of the outcomes:

Sr. no.	Evaluation parameter	Observation
1	Colour	Pale yellow
2	Odour	Characteristic
3	Irritation test	No irritation
4	Sensitivity Test	No sensitivity
5	pH	5.2
6	Specific gravity	0.922

### CONCLUSION

In recent years, Herbal drug formulation will be used extensively to get better patient compliance and at least side effects.

All the parameters showed that they are within the limits and since all the ingredients added have many advantages. Based on the results, we can suggest that the formulation shows more efficacy among other formulations; this oil will help in maintaining good growth of hair and results in lustrous looking hair.

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