

Formulation and Evaluation of Herbal Hair Oil

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Abstract:

Herbal preparations always have less or no side effects compared to synthetic preparations. Pharmaceutical factories are used to manufacture and produce countless medicines. In addition, herbs are used to beautify the body in the preparation of cosmetics, flavors and dyes. The purpose of this review is to study the parameters regarding Formulation of herbal hair oil, using scientific research to make herbal hair oils using herbal ingredients like amla, hibiscus, curry. leaves, coconut oil. Based on the above observation, a crude herbal mixture was prepared in the form of herbal hair oil using the boiling method. The preparation has anti-hair loss and other useful properties such as anti-dandruff effect, improves blood circulation of the scalp and roots, reduces hair pigmentation, anti-fungal effect, reduces hair graying. The formulated vegetable oil was evaluated and parameters such as acid content, viscosity, saponification value pH, skin irritation etc. were determined and described in this paper.

Keywords: Hair oil , herbs, Compositio and Evaluation.

Introduction:^[1-3]

Pharmacognosy is defined as the history of their cultivation, collection, preparation for marketing and preservation. a word "Pharmacognosy" was introduced by the German scientist C. A. Seydler in 1815 in his Analecta. Pharmacognostic. The name pharmacognosy is derived from two Greek words viz. Pharmakon (medicine) and Gignosco (for information). It deals with naturally occurring substances that have therapeutic effects. raw medicines are natural products obtained from plant, animal or mineral sources and used in nature Compound preparations are referred to as "crude" either individually or in combination. Unprocessed drugs are referred to natural products whose condition or value has not been improved by other treatments or processes what is necessary to pack it and prevent it from spoiling. The term Ayurveda consists of two words; Ayur means life and Veda means science. So Ayurveda is "life science". In Ayurvedic medicine, herbs are used as an integral part of the health system. As the main goal Ayurveda is about maintaining and promoting positive health and treating illness through medicine and dietary restrictions and a regulated lifestyle. Herbal medicines derived from plants are believed to be safe in the treatment of various diseases.

The word cosmetic is derived from the Greek word "kosmtikos" which means power, order, skill

decoration Cosmetics are defined as “for use in the human body to clean, beautify, promote attractiveness or changing appearance without affecting body structure or function’. Cosmetics are substances used to improve the appearance or smell of the human body. Cosmetic products include skin care creams, emulsions, powders, perfumes, lipsticks, nail polish and toe polish, eye and face make-up, permanents, colored contact lenses, hair color, hair sprays and gels, deodorants, baby products, bath oils, bubble baths, bath salts, butter and many other types of products. Cosmetics are called make-up, which mainly refers to colored products intended for transformation user aspect Hairs are protein filaments that grow from follicles in the dermis. Hair is one of them characteristics of mammals. The most common interest in hair focuses on hair growth, hair types and hair care but hair is also very important biomaterial,consisting mainly of proteins,especially alpha-keratin. Vegetable oil not only moisturizes the scalp but also changes the condition of dry scalp and dry hair. This provides many important nutrients necessary to maintain the normal function of Sebaceous Gland and promotes normal hair growth. The plant parts used are highly enriched with flavonoids, polyphenols, saponins, tannins, vitamins, proteins and minerals, ricinoleic acid etc. And these ingredients contribute to hair growth and also offers many benefits for hair Herbal hair oils help strengthen the hair improve its structure. It also offers much more moisture to the scalp, which helps release dandruff It smoothes the hair and makes it perfect to shine Oiling the hair increases blood circulation blood circulation in the scalp and thus improving it damaged hair. Hair oiling also regularly reduces moisture fatigue or swelling hair drying It also protects the follicle surfactants, filling the space between cuticle cells and it contributes to the health of the scalp. Scalp oil helps with exfoliation and sometimes helps reduce hair loss.

HAIR FOLLICLE & HAIR STRUCTURE

Human hair is divided into two parts. Hair root - (the roots are subterranean) - located under the epidermis. Hair stem lies above the epidermis.

1.1 Hair root: - Hair sheath pocket in skin or the scalp, which contains the hair root.Hair bulb - the lowest part of the hair; thickened, club-shaped.

Cutaneous papilla - a small cone-shaped bump located at the base of the hair follicle, which fits into the hair follicle.

Hairball Arrector pili muscle- small, involuntary the muscle at the base of the hair follicle. When it shrinks, we get goosebumps.

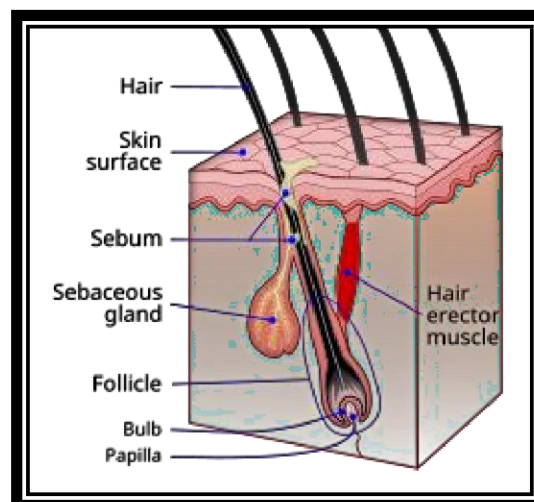


Fig.1: Hair roots

Sebaceous Glands - thick glands of the skin that are connected to each other hair follicles; secretes sebum (greasy, oily substance)

1.2 The Bow- is the part of the hair that consists of three layers of keratin. These layers are

1. Inner layer: Also called marrow. Depending on the type of hair, the core is not always present .
2. Middle layer: This is called cortex which makes up most of the hair.
3. Outer layer: also called cuticle which is densely packed scales form one above the other a structure similar to thatched roof.

HAIR GROWTH CYCLE:

There are three stages of hair growth -

- a) **Anagen phase:** Anagen phase is growth hair stage The anagen phase lasts from Between 2-6 years. New hair pushes new hair which grows and emerges from the follicle.
- b) **Catagen phase:** Catagen phase is a in the transitional phase and 3% of all hair is in this stage whenever, This stage lasts.
- a) **Telogen phase:** Telogen phase is a resting phase a phase that lasts about 2-3 months. While in the telogen phase, the hair follicle is at rest and Club hair is fully formed.

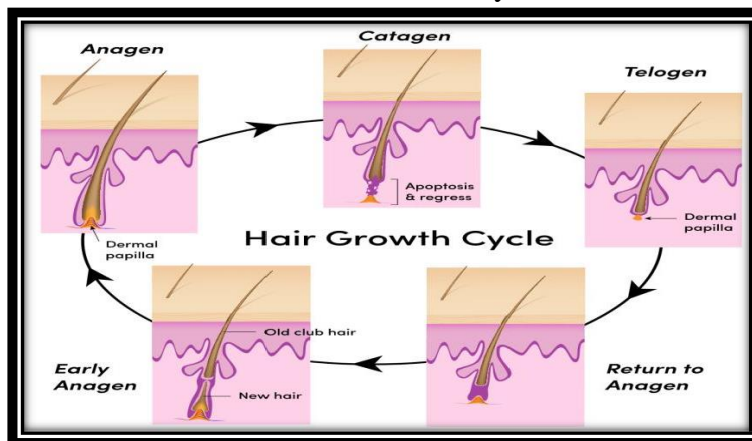


Fig.2 Hair Growth Cycle

TYPES OF HAIRS:

Hair type is based mainly on the pattern of hair curls. The number of curls in hair determined by hair follicles Hair type is determined by genetics. Andre Walker, known for decades as Oprah Winfrey's stylist, is credited with developing the system. Which classified hair into four types are as follows:

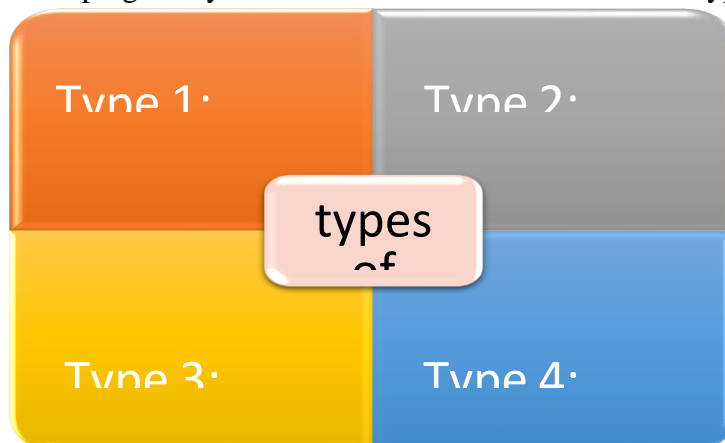


Fig.3 Types of Hair

5. HAIR DISEASE:[34]

Hair loss is a widespread problem worldwide and affects both men and women. Women may notice significant hair thinning in their 40s and 50s, while men may notice hair loss for the first time as early as their 20s.

Symptoms of hair follicle diseases: [5-10]

- Hair loss, thinning or restricted hair.
- Pimples, fluid-filled pimples or spots skin.
- Edema (inflammation).
- Itchy rash.
- A wound that does not heal with a yellow crust or discharge of white-yellow fluid (infection).

There are many causes of hair loss, but there are also many different ways to treat it. Before hair loss can be successfully treated, it is important to understand what is causing the problem.

1. Androgenic alopecia
2. Alopecia Areata
3. Traction Alopecia
4. Telogen Effluvium
5. Anagen Effluvium
6. Breakage of hair shaft

1. Androgenic alopecia :

Commonly known as pattern baldness, it refers to genetic (or hereditary) hair loss, which accounts for more than 95 percent of cases. It occurs in somewhat predictable stages in men and women and has been shown to be more advanced as a person ages. Male pattern baldness usually starts at the seam, so the hairline forms an M shape. This type of hair loss also causes baldness on the top of the head. Female hair loss usually begins with thinning and mild baldness, during which the hair falls out. This can lead to thinning of hair all over the head.

1. Alopecia areata

Also known as alopecia areata, this is an immune disorder in which your body attacks your own hair follicles. It causes sudden hair loss in small patches around the scalp, face or other areas of the body.

Alopecia totalis is the scientific name for an advanced form of this disease, in which all the hair on the head disappears. Alopecia universalis means loss of all body hair.

2. Traction Alopecia

This means hair loss due to constant pulling, which can be caused by tight braids, ties, threads and other hair accessories that can stress the follicle. It can also be caused by anxiety, a nervous habit, or compulsive hair pulling due to impulse control disorder.

3. Telogen Effluvium

A very stressful experience can cause temporary hair loss. This is because stress causes many hair follicles to enter the otherwise natural telogen (shedding) phase. Fortunately, normal hair growth continues with the next hair growth cycle.

4. Anagen Effluvium

This refers to the sudden loss of hair follicles in the anagen (active or constantly growing) phase. This is a common occurrence in people receiving chemotherapy or radiation therapy for cancer. This is because

the treatment aims to kill rapidly dividing and growing cells, such as cancer cells, but hair cells also tend to divide and grow rapidly. Sudden and severe hair loss over several months or years can also be a side effect of certain medications, such as blood thinners, diuretics, acne medications, and birth control pills.

5. Breakage of the hair shaft

This happens when some of the hair breaks off, but the growing head remains in the follicle and continues to grow, resulting in thinner hair. Breakage of the hair shaft can be caused by excessive styling methods, chemicals used in hair care (such as coloring, straightening or perming), excessive exposure to sunlight, chlorine in swimming pools or nutritional deficiencies.

6. HAIR OIL:^[11-18]

Hair oils are hair care product. Hair care product are defined as formulation used to clean, restructure, nourish and maintain the healthy appearance of hair. Hair oil is hair care product used to condition hair. Hair oil for hair diseases such as baldness, graying of hair, hair loss, dry hair and also helps to nourish hair. Herbal cosmetics are in demand due to increasing interest of mankind and herbal cosmetics are also more effective with few side effects and ingredients are readily available. Herbal hair oil is an important part of herbal cosmetics. Herbal oil is preferred and is used in many hair salons. They not only promote hair growth, but also provides the necessary moisture to the scalp, making hair beautiful. Legume oils containing herbal medicines are known as hair tonics. Legume oil contains several essential nutrients that are important for hair care. The normal functioning of the sebaceous glands and promotes natural hair growth. They are one of the most well-known hair care products. The use of hair oil increases every day with the improvement of people's living standards. To give hair oil natural flavors and colors, herbal essences and perfumes are added to it.

6.1 Benefits of Hair Oil^[19-25]

- It gives natural beauty to the hair. Vegetable oil contains vitamins and minerals nutrients that act as hair nourishment
- Hair oil helps prevent hair loss and reduces frizz. The ends of the hair need special care, and vegetable oil pampers them throughout the diet
- Regular use of hair oils and hair oils cures the problem of premature grey hair
- Keeps scalp moist
- Improves hair growth
- Prevents dandruff
- Gives shine.
- To relieve stress
- For longer and stronger hair
- preservation of hair color
- maintaining hair health .

6.2 Ideal Characteristics of Hairs:^[33]

- Nourishing
- Moisturising
- Antioxidants properties
- Protect from damage
- Texture

- Density
- Porosity
- Elasticity
- Tenacity
- Formation

6.3 Various herbal oils are available in the market

1. Amala Hair Oil
2. Coconut Hair oil
3. Bhringraj hair oil
4. Jasmine hair oil
5. Brahmi Hair Oil 6.Cantharidin hair oil7.Onion hair oil

7. COMMON CRUDE DRUGS USED IN HAIR OIL:

SR. NO.	COMMON NAME	TANICAL NAME	FAMILY	CHEMICAL CONSTITUTES
1	Amla	nyllanthusEmblica	Euphobiaceae	Ascorbic Acid, Ellagic Acid, Gallic Acid
2	Hibiscus	Rosa-Sinesis	Malvaceae	Polyphenols ,Anthocyanins Terpenoids ,Steroids, Polysaccharides, Amino Acids,Lipids
3	Neem	Azdirachta Indica	Meliaceae	abin, Sodium nimbinateSalannin
4	Aloe Vera	Aloe Vera	Aphodelaceae	loesin ,Emodin ,Isobarbaloin.Chromone, Saponin .,Phenol
5	Shikakai	Senegali ruguta	Fabaceae	Lupeol,Spinasterol .,Acacic Acid. Lactone ,Glucose
6	Tulsi	Ocimum tenuiflorum	Lamiaceae	Cirsilineol.Circimaritin.Isothymusin.Aapigenin. Eugenol
7	Coconut Oil	Cocos nucifera	Arecaceae	Glucose, AminoAcid ,Electrolytes,Calcium, Potassium
8	Onion	Allium cepa	Amrarilylidaceae	Allicin, Quercetin, Fisetin, Quercetin glycosides.
9	Curry Leaves	Murraya,Koenigii	Rutaceae	Elemene, Jasmone, Viridiflorol, Thujene.

10	Fenugreek	Trigonella foenum-graecum L.	Fabaceae	Carbohydrates, Proteins, Lipids, Alkaloids, Saponins, Steroidal Saponins, Vitamin.
11	Betel Leaves	Piper betle L.	Pieraceae	Arecoline, Guvacoline, Guvacine, Estragole Cellulose diacetate.
12	Nagarmotha	Cyperus scariosus	Cyperaceae	Cyperene, Longifolin, Caryophyllina oxide Longiverbenone.
13	Drumstick	Moringa Oleifera	Moringaceae	Flavonoids, Saponins, Tannins, Catechol Tannins, Anthraquinones, Alkaloids.

7.1 Amla :[4]



Fig . 4 Amla

Phyllanthus emblica is an important medicinal plant in Indian traditional medicine. The tree is 1-8 meters tall. The leaves are simple and closely spaced next to the branch leaves. The flowers are greenish-yellow in color. The fruit is almost round and hard looking.

Roles:

- Stimulate hair growth .
- Reduce hair growth.
- Reduce Premature Pigment loss from hair, or greying.

7.2 Hibiscus:[4]



Fig .05 Hibiscus

The leaves are alternate, oval or lanceolate, often toothed or serrated. The flowers are large, showy, trumpet-shaped, with five or more petals. This plant is widely cultivated as an ornamental plant in tropical

and subtropical regions . This plant is commonly found throughout the tropics and as a houseplant worldwide .

Roles:

- Improve hair growth.
- Cures dandruff and itchiness.
- Prevents premature greying.

7.3 Neem :[4]

Fig -06 Neem

Neem trees are commonly found in India, Africa and America. Thanks to its healing properties, it has been used in Ayurvedic medicine for 4000 years. It is a fast growing tree and can reach a height of 15-20 meters. The Sanskrit name of Neem is Arista. The US National Academy of Sciences recognized the importance of the neem tree and published a report in 1992, The Neem Tree for Solving Global Problems. Leaves, bark and gum are wood products.

Roles:

- Condition your scalp
- Temporarily seal hair follicles
- Reduce dandruff

7.4 Aloe Vera :[4]



Fig.07 Aloe vera

Aloe Vera is a sensitized or very short stem plant that grows to a height of 60-100 centimeters. The leaves are thick and fleshy, grey-green. Aloevera is a species of aloe known primarily for its medicinal properties. Aloe species are common on the continents of Eastern Europe and spread almost everywhere in the world.

Roles:

- Promoting healthy cell growth and shiny hair.
- Hair growth.
- Deep cleans oil hair.
- Treatment and prevention of dandruff.
- Increases hair growth .

7.5 Shikakai :[4]



Fig -08 Shikakai

Shikakai is a woody climber, a shrub up to 5 meters tall. The leaves are double sided. Shikakai has a naturally mild pH that gently cleanses hair without stripping it of natural oils. Areas with dry hot weather like South India are best suited for these trees. An extract from the bark and leaves of Shikakai is used as

a hair cleanser[15]. Shikakai is traditionally used in hair growth shampoos .

Roles:

- Controlling hair fall and Dandruff.
- Makes hair Soft and Shiny.
- Works as natural hair Cleaner.
- Boosts Hair growth .

7.6 Tulsi :[4]

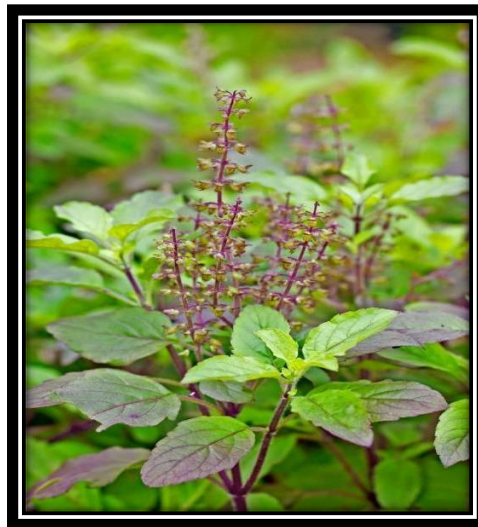


Fig . 09 Tulsi

Tulsi is one of the best-known herbs in the Lamiaceae family, native to the Indian subcontinent and used in Ayurvedic medicine for over 3,000 years. Holy basil is an upright, 30-60 cm tall, branchy, hairy undershrub. The leaves are green or purple. Tulsi plant has many medicinal properties. Tulsi leaves are a nerve tonic, a nerve tonic and also sharpen the memory .

Roles:

- Promote hair Growth.
- Reduce hair fall.
- Giving you Healthy and Problem free Hair.
- Repair hair damage.

7.7 Coconut oil :[4]



Fig .10 Coconut

Coconut oil is obtained from the milk of the fruit of the coconut palm. Coconut oil is used as an edible oil

and is used in industrial applications to produce cosmetics and detergents.

Roles:

- To prevents dandruff
- Makes hair look shinier
- Moisturizers dry hairs.

7.8 Onion:[4]



Fig .11 Onion

When onion juice is added to the hair and scalp, it can provide extra sulfur to support strong, thick hair, preventing hair loss and promoting hair growth. Sulfur in onions can also promote collagen production. Collagen, on the other hand, contributes to the production of healthy skin cells and hair growth.

Role :

- Combats hair loss.
- Improve hair texture and health.
- Adds shine. No Spli
- No Split-Ends

7.9 Curry Leaves :[4]



Fig . 12 Curry Leaves

Curry leaves are rich in protein, which is essential for hair growth and maintaining the overall health of the mane. They also contain beta-carotene and amino acids that help strengthen hair follicles, revive dormant follicles and promote new hair growth by reducing hair loss.

Role

- Help moisturize the scalp
- Remove the dead hair follicles
- Preventing hair loss and thinning of hair
- Reducing hair loss

7.10 Fenugreek :[4]**Fig.13 Fenugreek**

Fenugreek oil penetrates deep into the scalp and hair, moisturizing, stimulating hair growth, strengthening wrinkles and softening the overall texture. Fenugreek also has anti-fungal, anti-inflammatory, anti-bacterial and anti-pesticide properties that promote overall hair health.

Role

- Increase hair thickness and growth.
- Promoting hair growth.
- Controls scalp inflammation.
- Fights dandruff.
- Adds shine and soft texture.

7.11 Betel Leaves :[4]**Fig .14 Betel Leaves**

Betel leaves can be used to effectively promote hair growth. It has several nutrients essential for healthy hair, as well as antimicrobial and antibacterial properties that make hair thick and long while conditioning it.

Role

- Hair long and shiny.
- Home remedies for hair growth.
- Prevents hair loss.
- Vitamin C in betel leaves helps in reducing hair fall.
- For quick hair growth.
- Treats dandruff and split ends.

7.12 Nagarmotha :[4]

Fig .15 Nagarmotha

Regular use of Nagarmotha oil improves hair texture, adds shine and stimulates hair growth. Effectively relieves stress and also prevents hair loss and premature graying. Make a mixture of 3-4 drops of nagarmotha oil and 1 tablespoon of coconut oil.

Role :

- Improve hair texture
- Reduce hair fall
- Stimulates hair growth
- Useful for treating dandruff

7.13 Drumstick :[4]

Fig . 16 Drumstick

Drumstick is very beneficial for hair and scalp because it contains many vitamins and minerals. Cleanses hair and scalp, prevents hair damage, dandruff, dry and lifeless hair. It also increases blood circulation in the scalp and accelerates hair growth.

Role :

- It boosts hair growth
- Promotes hair growth
- Leading to thicker and healthy hair

8. EVALUATION PARAMETERS:

The prepared vegetable oil was subjected to physical and biological evaluation.

Acid content: preparation of 1 molar solution 0.56 g of KO granules were weighed and dissolved in 100 ml of distilled water and continuously stained. The prepared 0.1% KOH solution was poured into the beet. Sample preparation 10 ml of al was measured, dissolved in 25 ml of ethanol and 25 ml of the mixture and shaken. 1 mL of phenolphthalein solution was added and titrated with 0.1 M KOH solution.

Saponification value: 1 ml of oil was accurately weighed into a 250 ml Erlenmeyer flask and 10 ml of ethanol ether mixture (21) was added. 25 ml of 0.5 N alcoholic KOH solution was placed in this bottle. The flask was kept for 30 minutes and the flask in 0.5 N HCl. using a phenolphthalein indicator. Zero titration was also done without taking the oil (sample). The amount of KOH in mg that was calculated.

PH: Phof herbal oil was determined by PH meter. The most accurate cone method for measuring PH is a laboratory device called a probe and material, a PH meter. A glass electrode sensor through which a small voltage is passed. The Muter voltmeter measures the electronic impedance of the glass electrode and displays Pusits instead of volume. Typically, a pH meter must be calibrated with each use two standard solutions of known pH are prepared by dipping Meement into the probe liquid until the meter registers a reading.

Viscosity: The viscosity of the herbs was determined with a viscometer Ostwaldand Take the specific gravity bottle, wash it with distilled water, dry in an oven for 15 minutes, cool, cap and weigh (a) Now fill the same specific gravity bottle with the sample and cap and weigh again (b) Determine the weight of the sample per milli liter by subtracting the mass (ba).

Susceptibility test: 1 cm of prepared plant cells was applied to the skin of the hands and exposed to sunlight for 4-5min.

Conclusion:

The utilization of herbal hair oil in the cosmetic enhanced many folds in personal hygiene and health care system. Herbal oil is one of the most well- recognized hair treatments. The use of different herbal materials which is having different benefits with good combination will give the great effect for hair. The herbal extracts and constituents chosen for the formulation of hair oil were reported to have hair growth, relaxation, anti-dandruff. hair thickening, and hair fall control properties, which when used together gives a synergistic effect in promoting healthy and shiny hair growth. The formulation was proven to be safe

for human use. Hair oil formulation with good values of evaluation parameters show similar beneficial in maintaining good hair growth of the hair turning grey hairs to black providing protection from dandruff and results lustrous looking hairs. Also hair oil will help in maintaining good growth of hair, not only that it also provides turning grey hair to black, protects from dandruff metres street It provides various coential nutrients required to muntan normal function of sebaceous glands and prom natural hair growth. Formulation was done and evaluated by means of various parameters like pH greenish brown organoleptic properties (colour, odour, sensitivity, sedimentation) acid value, viscosity, specific gravity, and stability test. At last, it can be concluded that the herbal hair oil formulations .

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