

## Formulation and Evaluation of Polyherbal Hair Oil

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**ABSTRACT:** Herbal and herbal drugs are clinically proved good for hair growth. Hair loss problem is of great concern to both male and females and main problem associated with hair loss are hair fading, dandruff and falling of hair. Various synthetic medicines available for hair loss which does not treat permanently and also shows severe side effects.

The main objective of this work is to develop such herbal hair oil formulation which can resolve the problem related to hair fall and other hair disease. Herbal drugs like Amla, aloe vera, bhringraj, curry leaves, Tulsi leaves, watermelon seeds, hibiscus flower, neem leaves, coconut oil were selected for the formulation of Polyherbal hair oil. The hair oil was prepared a mixture of all the herbs in fixed proportion using coconut oil as base.

Herbal formulations always have attracted considerable attention because of their good activity and comparatively lesser or nil side effects with synthetic drugs

**Objective:** The objective of present study involves preparation of herbal hair oil using amla, aloe vera, bhringraj, curry leaves, Tulsi leaves, hibiscus, coconut oil and its evaluation for increase in hair growth activity.

To study the importance of hair oil for the treatment of common hair problems such as baldness, alopecia, hair fall, gray hair. Prevent Hair Loss and Strengthen hair roots and reduce excessive hair fall.

Natural ingredients are present which utilize the benefits of various herbs to provide a natural and holistic approach to hair care without harsh chemicals.

**Purpose:** Purpose of Polyherbal hair oil is to prevent hair fall, dandruff, alopecia, gray hair and to retain them soft and flowing without any side effects.

**Conclusions:** results of this study we can conclude that the formulated herbal hair oil can maintain normal function of sebaceous glands and promotes natural hair growth. It can also give antimicrobial, hair growth,

hair thickness properties. It can help prevent hair thinning, treat scalp infection. It can help to maintain moisture in scalp and improves blood circulation, reduces itchiness and dryness.

**Keywords:** Herbal hair oil, Amla, aloe vera, bhringraj, curry leaves, Tulsi leaves, watermelon seeds, hibiscus flower, neem leaves, coconut oil, anti dandruff activity, hair loss.

### I. INTRODUCTION:

Hair is one of the most important parts of the body as it impacts the beauty and overall appearance of any individual. Hair care we often use various hair care products for cleansing, modifying the texture of hair, treatment of the stressed hair and providing nourishment to the hair. Generally, we are using various synthetic products for hair care and hair treatment. Sometimes these synthetic products are showing few to many unwanted side-effects instead of treating the particular problems. In order to come out from these issues.

In Ayurvedic medicine herbs are used as an integral part of the health care system. Herbal formulations always have attracted considerable attention because of their good activity and comparatively lesser or nil side effects with synthetic drugs.

Hair plays a very important role in the personality of humans and for their cure we use lots of cosmetic products.

Hair oils are natural oil products with essential properties to treat hair problems. Herbs and herbal drugs are clinically proved good for hair growth. Hair oils that embrace herbal drugs are called as hair tonics.

Hair loss problem is of great concern to both males & females & the main problems associated with hair loss are hair fading, dandruff & falling of hair. Various synthetic medicines are available for hair loss which does not treat permanently & also shows severe side effects.

Herbal hair oil not only moisturizes the scalp but also combats dry scalp and dry hair conditions.

It Provides numerous essential nutrients required to maintain normal functions of the sebaceous gland And promote

natural hair growth. Hair oils are the hair care formulations applied for cure of hair Disorders such as baldness, greying of hairs, hair falling, and dryness of hairs A plethora of herbs Have been employed for hair treatments.

Various herbs like Amla in which present vit.c which promotes hair strength, neem leaves, Antimicrobial activity, Hibiscus consists of calcium, phosphorus, iron, vitamin B1, riboflavin, niacin And vitamin C, used to stimulate thicker hair growth and prevents premature graying of hair.

Hair loss is a distressing condition for an increasing number of men and women. Therefore it is of great importance, to develop new therapies for the treatment of hair loss. It is a dermatologic disorder, and the surge for discovering natural products with hair growth promoting potential is continuous Hair loss, or alopecia, is a common patient complaint and a source of significant psychological and physical distress. Androgens are considered to be one of the most important causes for alopecia apart from a variety of other factors. Natural products in the form of herbal formulations are available in the market and are used as hair tonic, hair growth promoter, hair conditioner, hair-cleansing agent, antidandruff agents, as well as for the treatment of alopecia, Dandruff and lice infection. A number of herbal products have been acclaimed with hair growth promoting activity. The traditional system of medicine in India acclaims a number of herbal drugs for hair growth promotion.

Hair oiling is the practice of pouring oil onto hair and massaging it into the scalp to increase Moisture, luster and shine. Hair oiling may soften the hair and provide vitamins and minerals that get Stripped from frequent washing. Herbal hair oil are natural oil products with essential properties to treat Hair problems like thinning of hair and dry or flaky scalp.

### Structure of hair :-

Hair grows out of follicles located in the junction between the deep layers of the dermis and the Hypodermis. These Follicles are also known as hair bulbs. Blood flow is supplied by a small vessel that passes through the inside of the hair Shaft, thus providing the hair with all the vital elements it Needs to remain healthy such as amino acids, mineral salts or Vitamins.

The hair shaft is surrounded By glands, the most important being the sebaceous gland, which produces sebum That acts as a Natural lubricant for the hair. On the surface of the scalp, pores evacuate the sweat produced by the Sweat Glands.

The hair is made up of 95% keratin, a fibrous, helicoidal protein (shaped like a helix) that forms Part of the skin And all its appendages (body hair, nails, etc.). Keratin is synthesized by keratinocytes And is insoluble in water, thus Ensuring permeability and protection for the hair.

Some 18 amino acids can be found in the hair, such as proline, threonine, Leucine and arginine. Keratin is particularly rich in cysteine (a type of sulfurated amino acid), which forms disulfide bond Between molecules, adding rigidity and resistance to the entire structure.

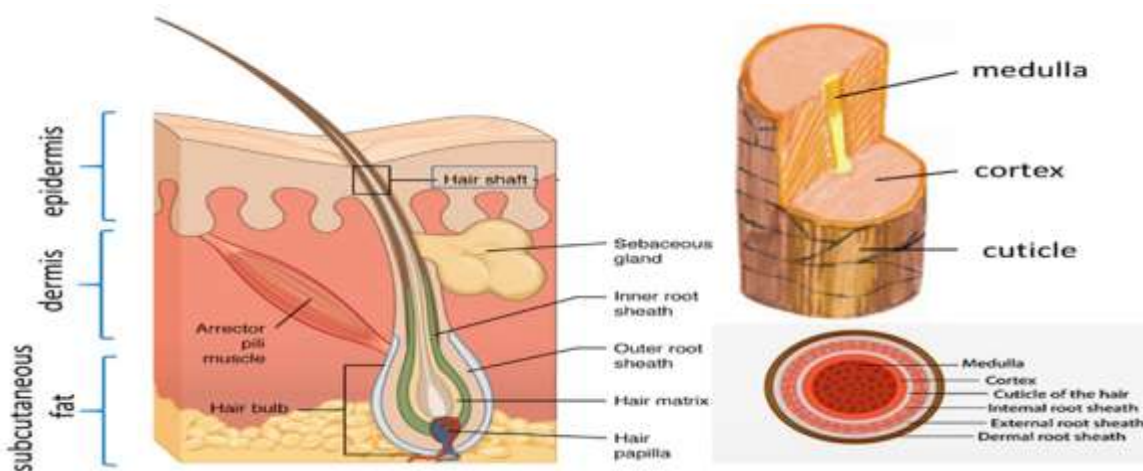


Fig. :- structure of hair

### Common hair problems:-

- **Hair Loss:** Although historically discussed as a problem among men, hair loss/thinning hair is also common among women. For most men, it may be male pattern balding. Female hair loss is often caused by stress, medication, changing hormones, and even menopause. Additionally, many hair styling products (chemicals/excessive heat) can contribute to hair loss.
- **Dandruff:** Dandruff, scaly particles that cling to the root of the hair, can be caused by a poor diet, an infection, or even a sluggish metabolism.
- **Dry Hairs:** Shampooing too often causes dry hair. Although squeaky-clean hair is a good thing, many overdo it by washing once, sometimes twice, per day. That will strip away all of the hair's natural oils.

### Benefits of herbs for hair :-

The aim of present study involves preparation of polyherbal hair oil using plant materials. Herbs & herbal drugs are clinically proved good for hair growth. Hair loss problem is of great concern to both males & females & the main problems associated with hair loss are hair fading, dandruff & falling of hair.

Various synthetic medicines are available for hair loss which does not treat permanently & also shows severe side effects. The main objective of this work is to develop such an herbal hair oil formulation which can resolve the problem related to hair fall & other hair diseases. Herbal drugs like Vitamin B7, Hibiscus rosasinesis, Curry leaf, Aloe Vera leaf, were selected for the formulations of polyherbal hair oil. The hair oil was prepared individually and in a varying concentration of all the herbs and a mixture of all the herbs in fixed proportion using coconut oil as base. The formulated oil in varying concentration was evaluated physical, chemical and hair growth properties of formulated oil.

- Prevent Dandruff.
- Prevent Hair Fall.
- Prevent premature Greying.
- Keeps hair moisture, strong.
- Increase hair growth
- Antibacterial, antifungal Activity to scalp.
- Strengthen the roots

### PLANT PROFILE :-

#### • **Neem leaves:-**



**Scientific Name :-** Azadirachta indica

**Family :-** Meliaceae

**Chemical constituents: -**

- a. Azadirachtin: Exhibits antimicrobial properties, helping to combat scalp infections
- b. Nimbin: Offers anti-inflammatory and antifungal effects, beneficial for a healthy scalp.
- c. Quercetin: Provides antioxidant properties, protecting the hair and scalp from damage.

#### • **Curry leaves :-**



**Scientific Name :** Murrayakoenigii

**Family :-** Lamiaceae

**Chemical constituents :-**

- a. Beta-carotene: Converts to vitamin A, supporting hair follicles and promoting hair growth.
- b. Amino acids: Contribute to the strength and structure of hair strands.
- c. Iron: Helps prevent hair breakage and supports overall hair health
- d. Carbazole alkaloids: May have antioxidant and antimicrobial properties, promoting scalp health.
- e. Phosphorus: Supports hair growth and maintenance.

**Uses:** They are rich in antioxidants and proteins, these antioxidants neutralize the free radical And keep your hair healthy and strong.

- **Hibiscus flower :-**



**Scientific Name:** Hibiscus rosa-sinensis

**Family:-** malvaceae

**Chemical constituents :-**

- a. Vitamin C: Boosts collagen production, promoting hair strength And preventing breakage.
- b. Amino acids: Nourish hair, contributing to improved texture and strength.
- c. Flavonoids: Provide antioxidant properties, protecting hair from damage.

- **Coconut oil :-**



Oil derived from dried fruits of Oil derived from dried fruits of Cocos nucifera of the family Aceraceae. The lauric acid in coconut oil

has nourishing properties that are especially Prone to soak into the strands of your hair. Coconut oil absorbs into your hair quickly, Providing moisture .

- **Amla :-**



**Scientific name :** Phyllanthusemblica

**Family :-** Phyllanthaceae

**Chemical constituents :-**

- 1) Vitamin C: Boosts collagen production, promoting Hair strength.
  - 2) Minerals (iron, calcium): Support overall hair Health and prevent hair loss.
- Uses :** It helps in conditioning scalp, promote healthy hair growth, minimize gray hairs.

- **Watermelon seeds :-**



**Scientific name :-** Citrulluslanatus.

**Family:-** Lamiaceae

**Chemical constituents:-** 1) Proteins: Support hair structure and strength, aiding in the prevention Of breakage.  
2) Fatty acids (oleic acid, linoleic acid): Contribute to the moisturizing and conditioning of hair.

- 3) Vitamins (especially niacin, folate): Promote overall scalp health and may aid in hair growth.
- 4) Citrulline: An amino acid that may have a role in promoting blood circulation in the scalp.

- **Aloevera :-**



**Scientific name :-** Alovera

**Family :-** Liliaceae

**Chemical constituents :-**

- 1) Enzymes (proteases, lipases): Support the breakdown of dead skin cells on the scalp.
- 2) Minerals (zinc, copper): Support overall hair health and growth. Provide moisturizing And hydrating effects, promoting hair softnes.

- **Bhringraj :-**



**Scientific name :-** Ecliptaprostrata

**Family :-** Asteraceae

**Chemical constituents:-** These include alkaloids, flavonoids, polyacetylenes, triterpenes, steroids, And fatty acids. These compounds contribute to the potential hair-strengthening and Growth-promoting properties of polyherbal hair oils containing bhringraj.

- **Tulsi leaves:-**



**Scientific name :** Ocimumtenuiflorum

**Family:-** Lamiaceae

**Chemical constituents :-**

- 1) Eugenol: Exhibits antimicrobial properties, helping to address scalp issues.
- 2) Ursolic acid: May contribute to strengthening hair and preventing hair loss.
- 3) Vitamins (A, C, K): Support overall scalp health and nourish the hair.

**FORMULATION TABLE :-**

Sr. No.	Ingredients	F-1	F-2	F-3
1.	Amla	5 gm	5 gm	5 gm
2.	Aloevera	3 gm	5 gm	4 gm
3.	Bhringraj	3 gm	5 gm	4 gm
4.	Curry leaves	3 gm	5 gm	5 gm

5.	Tulsi leaves	5 gm	4 gm	4 gm
6.	Watermelon seeds	4 gm	3 gm	2 gm
7.	Hibiscus flowers	4 gm	5 gm	6 gm
8.	Neem leaves	3 gm	5 gm	5 gm
9.	Coconut oil	50 ml	50 ml	50 ml

**EXPERIMENTAL WORK :-**

- Collection of all the ingredients such as Amla, curry leaves, neemleaves, tulsi leaves, Hibiscus flower, watermelon seeds, Bhringraj, aloe vera and coconut oil .
- Accurately weigh all dried and fresh herbs in given quantity.
- All ingredients add in grinder crush into fine form and mix them
- Then transfer to cooking pot.

- Then directly boil in the base oil and continuously stir until the colour change and the Drug is completely extracted in the base oil.
- Let the oil cool
- Then it filtrate through a filter medium ( muslin cloth, filter paper)
- In the filtrate coconut oil was added to make up the volume to 50 ml
- Pour the oil in suitable container



**EVALUATION PARAMETERS :-**

The prepared oils were then subjected to physical and biological evaluation.

**1) Organoleptic Property :-**

- Color:** Detected by naked eyes.
- Sensitivity:** Applied to the skin and exposed to the Sunlight for 5 minutes to check for any irritation Over skin.

- **Sedimentation:** Keep the whole preparation aside for Overnight and check for sedimentation.
- **Grittiness:** Rubbed to the skin and observed.

**2) pH Determination :-**

Take a pH paper and dip into the formulated hair oil and Check for the color change. Or determination of pH by digital pH meter.



**3) Acid value :-**

10 ml of oil was added with 25ml of ethanol and 25ml of ether. Phenolphthalein was added as

indicator and Titrated with 0.1M Potassium hydroxide solution.



**4) Specific Gravity :-**

Specific gravity of the prepared oil was determined using specific gravity bottle.



## II. RESULT AND DISCUSSION :-

The formulation and Evaluation of polyherbal hair oil by using Amla, aloe vera, curry leaves, neem leaves, Tulsi leaves, watermelon seeds, hibiscus flower, bhringraj, and Coconut oil

was prepared. The various Parameters like color, odour, irritation test, sensitivity test, viscosity, pH, specific gravity, and acid value of Herbal hair oil was evaluated.

Parameters	F-1	F-2	F-3
Colour	Yellowish	Yellowish	Yellowish
Odour	Pleasant	Pleasant	Pleasant
Sedimentation	No sedimentation	No sedimentation	No. Sedimentation
pH	5.5	5.2	5.5
Acid value	2.5	2.2	2.2
Specific gravity	0.897	0.897	0.897

## III. CONCUSSION :-

Based on the results of this study we can conclude that the formulated herbal hair oil can maintain Normal Function of sebaceous glands and promotes natural hair growth. It can also give antimicrobial, Hair growth, Hair thickness properties. It can help prevent hair thinning, treat scalp infection. It can help To maintain Moisture in scalp and improves blood circulation, reduces itchy and dryness.

## REFERENCES :-

- [1]. Dixit VK, Adhirajan N. what's more, Gowri C. Improvement and assessment of home definitions for hair Growth. Indian Medications.
- [2]. Patni P, Varghese D, Balekar N. furthermore, Jain D.K. Detailing and assessment of home – grown hair Oil for alopecia management. *Planta Indica*.
- [3]. Adhirajan N, Ravikumar T, Shanmugasundaram furthermore N, Babu M. In vivo and in vitro assessment Of hair growth capability of Hibiscus rosasinensis Linn *Ethan pharm*. 2003.
- [4]. Joshi AA, Dyawarkonda PM. Definition and assessment of polyherbal hair oil. *Global Diary of Green Drug store*. 2017.
- [5]. Banerjee PS, Sharma M, Nema RK. Readiness, assessment and hair development animating action of Natural hair oil. *Diary of Compound and Drug Exploration*. 2009.
- [6]. R. R. Shah, S. A. Mohite, N. R. Patel, *Asian Journal of Pharmaceutical Research, Preparation and Evaluation of Polyherbal Hair Oil- An Effective Cosmetic*, Volume 8, Issue 1, 2018, pg 36 – 38.
- [7]. B.RamyaKuber, Ch. Lavanya, Ch.NagaHaritha, S. Preethi, G. Rosa, *Journal of Drug Delivery and Therapeutics, Preparation and evaluation of poly herbal hair oil*, Volume 9, Issue 1, January 2019, pg 68-73.
- [8]. SapnaGautam, SumeetDwivedi, Kushagra Dubey, Hemant Joshi, *International Journal of Chemical Sciences, Formulation and evaluation of herbal hair oil*, Volume 1, Issue 1, 2012, pg 349-353.
- [9]. Sabarwal N, Varghese D, B rakesh, K anjali, J ashish, J sanjay, *Development and evaluation of polyherbalFormulations for hair growth activity: PHCOG J*, 2009; 1(2):165-170.
- [10]. Usha Kiran T, Sindhu G, Rajesh S, Aruna B, Sandhya Rani K S, *Preparation and evaluation of herbal Hair oil: Indo American journal of pharmaceutical sciences*, 2017; 4(06):1540-1546
- [11]. Amol Joshi A and Pravindyawarkonda M, *Formulation and evaluation of polyherbal hair oil: International journal of green pharmacy*, 2017; 11(1):135-139.
- [12]. Debajyoti Das, Pushpendra Kumar Jain, *Asian Journal of Pharmaceutical and Clinical Research, Evaluating hair growth potential of some traditional herbs*, Volume 8, Issue 6, November 2015, pg 150
- [13]. FoziaAnjum, ShaziaAnwer Bukhari, and Mir Munsif Ali Talpur, *African Journal of Traditional, Complementary and Alternative Medicine, Exploration of Nutraceutical Potential of Herbal Oil Formulated from Parasitic Plant*, Volume 11, Issue 1, 2014, pg 78-86.
- [14]. Akram Ahmad, Vikas Kumar, GP Mohanta, Hasna Ali, *Preparation and Evaluation Antioxidant Activity of Mixed*



- Herbal Hair Oil Formulation, <http://www.researchgate.net> access on (8 dec 21), 2012.
- [15]. SapnaGautam, SumeetDwivedi, Kushagra Dubey, Hemant Joshi, International Journal of Chemical Sciences, Formulation and evaluation of herbal hair oil, Volume 1, Issue 1, 2012, pg 349-353.
- [16]. T. Usha Kiran Reddy\*, S. Rajesh, G. Sindhu, B.Aruna, Indo Global Journal of Pharmaceutical Sciences, HERBS USED IN FORMULATING POLY HERBAL HAIR OIL – A REVIEW, 4(06)(6):1527-1539, January 2019.
- [17]. Roy, R. K., Thakur, M., Dixit, V. K., Development and Evaluation of polyherbal formulation for Hair growth-promoting activity, Journal of Cosmetic Dermatology, Nov-2006, 6, 108-112.
- [18]. Rathi V, Rathi JC, Tamizharasi S. What's more, Pathak A.K. Plants utilized for hair development Advancement: A review. Phcog Fire up. 2008;2(3):165-167.
- [19]. Sunitaverma, Hibiscus Rosa-sinesis multipurpose ornamental plant. International journal of research In Pharmacology and pharmacotherapeutics. 2016.
- [20]. Yamani N, Sudha SS, Jyostna JJ, Pratyusha K, Pratyusha Kartheeka JA. Formulation and evaluation Of Polyherbal hair oil Pharmacognphytochem .2018; 7:3254-6.
- [21]. A. Jadhav, U. Surwase, Aditya V. Thengal, Formulation and Evaluation of Polyherbal Hair oil, International Journal of chemical science.