



A DETAILED REVIEW ON FORMULATION AND EVALUATION OF HERBAL HAIR OIL

Wasim J. Bagwan^{1*}, Ravi U. Kurhade², Sharda T. Borule³, Balure Vaishnavi³,
Barsule Sanjana³, Pranavi Chavan³

¹Assistant Professor. Department of Pharmacy, MDA School of Pharmacy Kolpa Latur - 413512, MH. India.

²Principal. Department of Pharmacy, MDA School of Pharmacy Kolpa Latur - 413512, MH. India.

³Student, Department of Pharmacy, MDA School of Pharmacy Kolpa Latur - 413512, MH. India.

Article Received on 15 Feb. 2026,
Article Revised on 05 March 2026,
Article Published on 10 March 2026,

<https://doi.org/10.5281/zenodo.18957816>

*Corresponding Author

Wasim J. Bagwan

Assistant Professor. Department of
Pharmacy, MDA School of Pharmacy
Kolpa Latur - 413512, MH. India.



How To Cite This Article: Wasim J. Bagwan^{1*}, Ravi U. Kurhade², Sharda T. Borule³, Balure Vaishnavi³, Barsule Sanjana³, Pranavi Chavan³. (2026). A Detailed Review on Formulation and Evaluation of Herbal Hair Oil. World Journal of Pharmacy and Pharmaceutical Sciences, 15(3), 1583–1596.

This work is licensed under Creative Commons Attribution 4.0 International license.

ABSTRACT

Natural remedies are widely accepted because they are considered safer and associated with fewer side effects than synthetic products. Herbal hair oil is one of the most recognized natural treatments for hair care. It moisturizes the scalp, improves dry scalp and hair conditions, and provides essential nutrients required for proper functioning of the sebaceous glands, thereby promoting natural hair growth. The present study aimed to formulate and evaluate an herbal hair oil using Hibiscus rosa-sinensis, tulsi, black cumin, rosemary oil, coconut oil, curry leaves, and fenugreek. The formulation was evaluated for pharmacological activity, including qualitative and quantitative hair growth, mean hair length, and anti-alopecia effects. Physicochemical parameters such as viscosity, pH, and skin irritation were also assessed. Results showed that hair growth activity increased with higher concentrations of

herbal ingredients in the formulation.

KEYWORDS: Hair oil, herbs, formulation, preparation, evaluation, results and discussion.

INTRODUCTION

Ayurveda, meaning the “science of life,” is the traditional system of medicine in India and relies extensively on herbal remedies for health care. Although many synthetic chemicals have replaced herbal products, natural medicines are still preferred due to their safety and effectiveness. Herbal drugs derived from plants are considered safer for treating various conditions, including hair-related disorders. Herbal cosmetics are gaining global acceptance as they are safe and derived from natural sources. Herbal hair oils are among the most popular hair care products, as they moisturize the scalp, correct dry scalp and hair conditions, supply essential nutrients, and promote natural hair growth. Hair problems such as hair fall, dandruff, split ends, greying, and alopecia affect individuals of all ages and genders, increasing the demand for effective hair care formulations. Many plants used in traditional Indian medicine are reported to promote hair growth and improve hair quality. Herbal hair oils are formulated by incorporating herbal extracts into an oil base. These plants contain bioactive compounds such as alkaloids, flavonoids, tannins, and phenolic compounds. One such important plant is *Hibiscus rosa-sinensis* Linn, whose flowers, leaves, stems, and roots have been traditionally used in medicine, indicating its safety and suitability for herbal cosmetic formulations.



Fig 1: Various Herbal Ingredient.

CAUSES OF HAIR LOSS

- ☐ Malnutrition
- ☐ Radiation & Chemotherapy
- ☐ Certain medications like – especially anabolic steroids like testosterone
- ☐ Chronic kidney failure

- ☐ Exposures to allergens, irritants, toxins, burns, injuries and infections
- ☐ Iron deficiency
- ☐ HIV/ AIDS
- ☐ Fungal infection
- ☐ Genetics

Lack of Nutrition

Natural food sources Nutrition plays a key role in hair maintenance and may be harmful in deficiency or excess. Protein, in the form of keratin, is the primary component of hair. Not surprisingly, inadequate protein intake, such as patients with Kwashiorkor or anorexia nervosa, has been associated with hair loss.

Bacterial Infections

Among bacterial infections, *Treponema pallidum* can manifest in hair loss in 4% of patients during secondary syphilis. Clinical presentation can either take on a diffuse or patchy pattern of hair loss or a combination of the two. Most common location is on the scalp, though other areas such as eyebrow and chest can also be affected.

Cytotoxic Drugs

With the exception of cytotoxic agents, the literature on hair loss and drug consists primarily of case reports or series and safety reports to the FDA, so there is a particular lack of clinical studies that investigate this association. Nonetheless, it is important to know the names and categories of drugs that may attribute to hair loss.

Hair

Hair is a protein filament that grows from follicles found in the dermis. Hair is one of the defining characteristics of mammals. The human body, apart from areas of glabrous skin, is covered in follicles which produce thick terminal and fine vellus hair. Most common interest in hair is focused on hair growth, hair types, and hair care, but hair is also an important biomaterial primarily composed of protein, notably alpha-keratin. Structure

Hair types

Hair type is primarily based on the curl pattern of the hair, which is determined by the hair follicle. Genetics play a key role in determining hair type. Andre Walker, who has been

Oprah Winfrey's stylist for decades, is credited with creating a system that classifies hair into one of four curl patterns.

- ☐ Type 1: Straight
- ☐ Type 2: Wavy
- ☐ Type 3: Curly
- ☐ Type 4: Coily

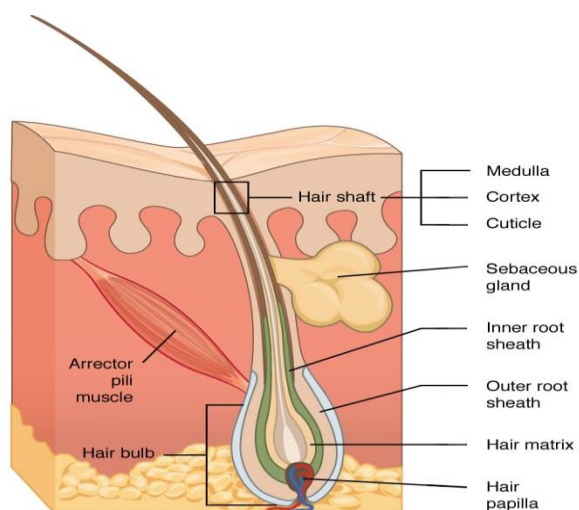


Fig 2: structure of Hair.

Function of hair

- The primary function of human hair is to insulate the human body.
- Maintaining the Body temperature Hair on the scalp protects the cerebral void in the head, by maintaining the temperature.
- Hair protects skin from external factors, such as sun damage and chapped skin from wind damage. It also blocks dust and dirt from settling on the skin.

TYPES OF HAIR OIL

- Jojoba Oil
- Coconut Oil
- Olive Oil
- Avocado Oil
- Almond Oil
- Grape seed Oil
- Rosemary Oil
- Onion oil Others (Ayurveda Oil, etc.)

OBJECTIVE

Provide Antioxidant activity

Provide Antibacterial activity

To reduces Dandruff

To Stimulate hair growth

To Repair hair damage

To Reduces hair loss

To Provide nourishment to scalp

To Use as hair tonic.

PLANT AND EXCIPIENT PROFILE**1. Hibiscus Rosasinensis**

Synonyms - Hibiscus arnottii Griff. Ex Mast. Hibiscus boryanus DC. Hibiscus cooperi auct.

Hibiscus festalis Salisb.

Family: Malvaceae

Botanical name: Hibiscus rosa-sinensis

Other names: Hibiscus arnottii Griff.

Hibiscus boryanus DC.

Hibiscus cooperi auct.

Active constituents- flavonoids, tannins

Parts used: Whole flower & leaves

Uses

- ☐ Hibiscus flowers are used to clout
- ☐ Premature greying of hairs.
- ☐ prevent hair loss and spilt ends

2. Curry Leaves

Family- Rutaceae.

Scientific name- *Murraya koenigii*.

Other names: karivepallai, karivembu, karivepaku, kadipatta

Parts used- Leaves.

Geographical location: Subtropical and tropical region through the Asia.

Active constituents- Bismahanine murrayanine murrayazolino.



Uses

Rich in powerful plant compounds.

May reduce heart disease risk factors.

May have neuroprotective properties.

Anticancer effects.

Anti-inflammatory effects

2. Fenugreek



Synonym – Methi, Greek clover, Greek hey, woo Lu bar, medhika

Biological source – *Trigonella foenum* is an annual plant

Family – Fabaceae.

Parts used- Seeds.

Geographical location: Maharashtra.

Active constituents- Trimethylamine, Trigonelline, Quercetin.

Other names: Herbaceous plant. Fenugreek seed. Trigonella.

Uses

Prevent hair loss

Revives damaged hair

Fights dandruff

Controls scalp inflammation

Adds shine and soft texture

Prevents pre mature grey hair

3. Tulsi Leaves

Synonym -Sacred basil, Holy basil

Biological source – Leaves of *Ocimum sanctum*, *Ocimum basilicum*.

Family – Labiatae

Chemical Constituents – Tulsi contains volatile oil,

1. Eugenol
2. Nerol, Eugenol methyl ether
3. Caryophyllene
4. Camphor
5. Carvacrol
6. Cineole



Uses

Expectorant

Stomachic

Stimulant

Flavouring agent

Stimulate hair growth

Nourishment

5. Coconut Oil



Coconut oil is the fatty oil that is derived from either raw or dried coconuts. The use of coconut oil for hair has a long history in hair and beauty therapy. Using coconut oil on the scalp has shown great results even in faster hair growth. Coconut oil for hair is often regarded as the best hair oil that reduces protein loss and maintains hair health. Coconut oil uses for hair is that when used regularly on the scalp, it can help reduce dryness and solve your dandruff problems.

Family- Aceraceae.

Scientific name- *Cocos nucifera* L.

Other names: Fossil oil.

Grease

Lubricating oil

Parts used- kernel oil

Uses

1. Helps grow hair longer
2. Prevents dandruff
3. Helps treat split ends
4. Prevents hair damage from heat
5. Effective treatment for lice-infested hair

6. Rosemary Oil

Stimulates hair growth

Improves circulation and soothes the scalp.

Improve hair growth in specific cases of loss, including alopecia areata, androgenetic alopecia.

Rosemary Oil will protect hair from damage and breakage.

Rosemary oil can support dandruff-related problems and is an anti-bacterial and anti fungal agent.



Table no 1: Ingredients Used In Formulation Herbal Hair Oil.

Sr.no	Ingredients	Scientific name	Family	Quantity in (gm.)
1	Fenugreek seed	Trigonella foenum-graecum	Fabaceae	10
2	Black cumin	Nigella sativa	Ranunculaceae	10
3	Curry leaves	Murraya koenigii	Rutaceae	8
4	Hibiscus	Hibiscus rosa-sinensis	Malvaceae	5
5	Tulsi	Osmium tenuiflorum	Lamiaceae	7
6	Coconut oil	Cocos nucifera	Arecaceae	40
7	Rosemary oil	Salvia Rosmarinus	Lamiaceae	20
8	Sodium benzoate	-	-	0.3
9	Vit. E capsule	-	-	2-3 capsules

METHODS

Methods of Preparation

- 1) Various ingredients such as coconut oil, curry leaves, amla fruit, fenugreek seeds, hibiscus flowers, hibiscus leaves, and nagarmotha roots are used in the formulation of herbal hair oil.
- 2) Firstly, coarsely grind the fenugreek seeds and gooseberry (amla).
- 3) Take a glass vessel and transfer the powder into it.
- 4) After that, add 100 ml of coconut oil into it. Also, add the curry leaves and hibiscus flowers.
- 5) Now, add the hibiscus leaves to the oil.

- 6) Switch on the stove and let it boil. In between, mix it well and allow it to boil on a low flame.
- 7) Boiling takes 10 to 15 minutes. Boil until it gets a brownish color.
- 8) Now, switch off the stove and allow it to cool down.
- 9) After that, filter it twice with the help of a clean cotton cloth.
- 10) To extract the oil completely, use a cotton cloth and transfer the mixture into it, then squeeze it.
- 11) After extracting, transfer it into a container bottle and store it. Herbal oil is ready for use

EVALUATION PARAMETER

Physical evaluation

1. The color is brown.
2. The odor is characteristic.
3. The texture is smooth.
4. The pH level is 6.01
5. The specific gravity is 0.88 g/cm³.
6. The smoothness is consistent.

Chemical evaluation

1. The acid value is 0.68.
2. The saponification value is 28.05.
3. The viscosity is 1.07.

Biological evaluation

1. The irritation test result is non-irritant.
2. The sensitivity test result is non-sensitive

Specific Gravity

Take the specific Gravity bottle rinsed it with distilled water dry it in oven for 15 min, cool, closed it with cap and weigh it (a). Now fill the same specific gravity bottle with the sample and closed it with cap and again it weigh (b). Determine the weight of sample per millilitre by subtracting the weight (a-b).

Viscosity

Viscosity were determined by the Oswald's viscometer.

PH

PH was determined by the PH meter.

Sensitivity Test

The prepared herbal hair oil was applied on 1cm skin of hand and exposed to sunlight 4-5 min.

Skin irritation Test

The prepared herbal hair oil was applied on back side of hand, keep it for observed the skin irritation for next 4-6hrs.

RESULT AND DISCUSSION

The herbal oil is prepared with herbs which in mention in above table. Herbs is used having following activity. Herbal hair oil used to treat the hair related problems such as,

- ☐ Anti-Dandruff
- ☐ Hair Growth Stimulant
- ☐ Anti-Bacterial

This all activity to promote the hair loss and to start the hair growth. The herbs provide various nutrients to the hair scalp to enhance and to maintain the function of sebaceous gland. The Various parameters like PH, Specific Gravity, Colour, odour, viscosity evaluated in below table.

Sr.no	parameter	Inference
1	colour	Greenish black
2	Odour	characteristics
3	Ph	6-7/lime green
4	Viscosity	3.1595cp
5	Density	0.836g/ml.
6	Grittiness	Smooth
7	Skin irritation	No irritation

CONCLUSION

The medicinal plant *Hibiscus rosa sinensis* is having many pharmacological activity, therapeutic activity, various parts of this plant like flowers, leaves and roots have been known to possess medicinal properties like oral contraceptive, laxative, aphrodisiac, menorrhagia etc. The antioxidant properties of the *Hibiscus Rosa sinensis* plants are particular interest in view of the oxidative modification. The diabetes related complications like hyperglycaemia,

hypercholesteromia, hyperlipidaemia also controlled by the Hibiscus Rosa sinensis plants in animals. Hibiscus helps in hair softening resulting healthy hair growth. Another important ingredients are black cumin and curry leaves. The black cumin which act as preventing graying of hairs and curry leaves which reduces the hair loss and repair damage hair. Due to addition of tulsi leaves it act as antidandruff hair tonic. The hair oil is medicinally important in treatment of hair related problems. The various constituents of herbal extract which may help to reduction the hair fall and regrowth the hairs. Herbal formulation is having more market cap and it is growing in demand.

REFERENCES

1. Karunakar S, Pharm M, Sharma M, Asst A, Prof, Rakesh K, et al. Formulation and evaluation of hair oil for hair loss disorders. *Journal of Medicinal Plants Studies*, 2016; 4(3): 13–7.
2. Purwal L, Gupta SPBN, Pande SM. Development and Evaluation of Herbal Formulations for Hair Growth. *E-Journal of Chemistry*, 2008; 5(1): 34–8.
3. Banerjee PS, Sharma M, Rajesh Kumar Nema. Preparation, evaluation and hair growth stimulating activity of herbal hair oil. *Journal of Chemical and Pharmaceutical Research*, 2009 Jan 31; 1.
4. Habeeba Shaikh, Siddiqua Shaikh. Formulation and Evaluation of Herbal Hair Oil. *WORLD JOURNAL OF ADVANCED SCIENTIFIC RESEARCH*. 2019 May 21.
5. Potential hair growth of crude extract from Hibiscus rosa-sinensis Linn - Archives of Pharmacy Practice. *Archivepp.com*. 2022 May 21.
6. Lin RL, Garibyan L, Kimball AB, Drake LA. Systemic causes of hair loss. *Annals of Medicine*. 2016 May 5; 48(6): 393–402.
7. Lee NE, Park SD, Hwang H, Choi SH, Lee RM, Nam SM, Choi JH, Rhim H, Cho IH, Kim HC, Hwang SH, Nah SY. Effects of a gintonin-enriched fraction on hair growth: an in vitro and in vivo study. *J Ginseng Res.*, 2020 Jan; 44(1): 168-177. Doi:10.1016/j.jgr.2019.05.013. Epub 2019 Jun 7. PMID: 32095099; PMCID: PMC7033365.
8. Houschyar K, Borrelli Mimi R, Tapking C, Popp D, Puladi B, Ooms M, et al. Molecular Mechanisms of Hair Growth and Regeneration: Current Understanding and Novel Paradigms. *Dermatology*, 2020; 236(4): 271–80.
9. Medically reviewed by Kristin Hall, FNP Written by Our Editorial Team Last updated 9/26/2020.

10. Sudhir SP, Deshmukh VO and Verma HN: Nigella Sativa Seed, a Novel Beauty Care Ingredient: A Review. *Int J Pharm. Sci. Res.*, 2016; 7(8): 3185-96. doi: 10.13040/IJPSR.0975-8232.7 (8).3185-96.
11. The Health Benefits of Holy Basil Medically reviewed by Miho Hatanaka, RDN, L.D. — Written by Brian Krans Updated on November 3, 2020.
12. Satyavati GV, Gupta AK, Tendon N, Medicinal Plants of India, Vol-2, Indian council of medical research, New Delhi India, 1987; 289-299.
13. International Journal of Life Sciences Research Publish Journals Medicinal Benefits of Coconut Oil (A Review paper) 1G. S. Vala, 2P. K. Kapadiya. Profile
14. Mukhopadhyay G, Dutta Kr Prabir, Das Pranjali, Chowdhury R. Authentication and Photochemical Screening of Hibiscus Rosa Sinensis. VOLUME 5, ISSUE 4. OCT– DEC. 2018.
15. Formulation and Evaluation of Herbal Hair Oil, *World J Adv. Sci. Res.*, 2020; 3(5) September – October. Habeeba Shaikh, Siddiqua Shaikh.
16. Authentication and Photochemical Screening of Hibiscus Rosa Sinensis. *IJRAR International Journal of Research and Analytical Reviews I* OCT. – DEC. 2018. Mukhopadhyay Goutam^{1*}, Dutta Kr Prabir², Das Pranjali¹, Sodani Akhsay¹, Kundu Shymodip¹, Sarkar Pintu¹, Manna Debasmita³, Sarkar Argha¹, Nazar Tarique¹, Kumar Chandan⁴, Roy Chowdhury Sangita.
17. THERAPEUTIC POTENTIAL OF HIBISCUS ROSA SINENSIS: A REVIEW *International Journal of Nutrition and Dietetics* Volume 4, Number 2, 2016 Vincenta Khristi and V. H. Patel.
18. PREPARATION AND EVALUATION OF POLYHERBAL HAIR OIL. *International Journal of Pharmaceutical Chemistry and Analysis* Vol.1, No.1, October 2014 X. Fatima
19. Grace, S. Rahul Raj, S. Shanmughanathan, D. Chamundeeshwari. <https://www.tsijournals.com> *Int. J Chem. Sci.*, 2012; 10(1): 349-353.
20. *IJRAR*, E ISSN 2348-1269, PRINT ISSN 234-5138 <http://jddtonline.info>, *Diary of Medication Conveyance and Therapeutics*. From Google, 2019; 9(1): 68-73.
21. *Journal of Pharmacoconosy and Phytochemistry*, 2018; 7(3): 3254-3256.
22. Ansari SH. what's more, Ali M. Hair care and home-grown medication. *Indian J Nat Nudge*, 1997; 13(1): 3-5.
23. Rath V, Rath 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.

24. Dixit VK, Adhirajan N. what's more, Gowri C. Improvement and assessment of home grown definitions for hair growth. Indian Medications, 2001; 38(11): 559-563.