

A REVIEW ON ANTI DANDRUFF HERBAL SHAMPOO

Kaustubh Ravindra Donde*¹, Sneha K. Sonawane*²

*¹Student, SMBT College Of Pharmacy, Dhamangaon, Nashik, India.

*²Assistant Professor, SMBT College Of Pharmacy, Dhamangaon, Nashik, India.

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ABSTRACT

The aim of this present study is to prepare and formulate an anti-dandruff herbal shampoo and main motive is maintain physicochemical function that focuses on safety, efficacy, eliminating harmful chemical synthetic ingredient, and substitute it with safe natural ingredients [1]. Formulation of shampoo by using the extracts of Hibiscus rosa-sinensis, P.Betel, Aloe Barbadensis, Citrus limonum, Lawsona inermis, Ocimum sanctum in different proportions. Evaluation of physicochemical and performance tests in terms of anti-dandruff activity, visual assessment, wetting test, pH, organoleptic properties, assurance of solid contents, foam stability, surface tension detergency, conditioning performance, foam volume, and stability was performed. It also gives the hair shinier, smoother, and softer texture. Shampoo for cosmetics is made with a variety of medications. Side effects of these medications include increased scaling, itching, hair loss, pain, nausea, and headaches. Thus, an effort is made to create a herbal shampoo recipe that has no negative effects. Increased blood circulation from antioxidants aids in both the treatment of illnesses and hair growth. Herbs and plants with antioxidant qualities can be used to treat a variety of illnesses, including hair loss. Increased blood circulation from antioxidants aids in both the treatment of illnesses and hair growth. Herbs and plants with antioxidant qualities can be used to treat a variety of illnesses, including hair loss.

Keywords: Herbal, Anti Dandruff, Shampoo, Synthetic.

I. INTRODUCTION

- From ancient time human has been using nature care for their health, skin, and hair. The natural ingredients have preventive actions. While relationship between dandruff and seborrhea dermatitis has at times been a matter of discussion. Many regard seborrhea dermatitis of the scalp as severe dandruff; others think dandruff should be used to describe any flaking of the scalp. Dandruff is nothing but a clinical condition caused by Malassezia (pityrosporum) species. Many natural substances have anti-dandruff properties widely used in combination with the herbal shampoos [3,4,5].
- Shampoo is the most common hair care cosmetic. It is available in viscous liquid, powder form applied for cleansing hair and scalp from dirt residues. Herbal shampoo is a combination of cosmetic preparation that uses herbs from plants and it is used for washing hair and scalp just like a regular shampoo. It is an choice to the synthetic shampoo available in the market. Synthetic shampoo causes many harmful effects on hair, skin, and eyes. Therefore people got attracted towards the herbal products, due to low side effects and less cost.[6,7] The main objective is to formulate and evaluate an herbal anti dandruff shampoo with various herbs for multipurpose benefits. To eliminate all traditionally synthetic ingredients. This shampoo clears dirt, sebum and dandruff, promotes shine, hair growth, strength, and darkens hair. It also acts as a conditioning agent. This herbal shampoo powder also performs all these activities without affecting or damaging hairs [8,9].
- Nowadays a wide range of shampoos are available in the market like synthetic herbal, medicated, and non-medicated shampoos with different functions. Among these herbal shampoos are the most popular ones as they bear the impression of having better purity, safety, and efficacy[7].
- Herbal shampoos are prepared from natural ingredients and are meant for cleansing hair and scalp just like regular shampoo. These shampoos are totally free from side effects as no surfactants are involved in it, has maintained good stability and are having less harmful effects as compared to synthetic shampoo. Synthetic shampoo contains surfactants. Long term use of these surfactants can lead to serious effects like scalp irritation, loss of hair, drying of hair, greying of hair, split ends and eye irritation. Thus the people are getting attracted towards herbal cosmetics due to its less side effects and inexpensive nature[9,10].

➤ **TYPES OF SHAMPOOS [13,17,19]**

Shampoos are of the following types

- Powder shampoo
- Clear liquid shampoo
- Lotion shampoo
- Solid gel shampoo
- Medicated shampoo
- Liquid herbal shampoo

➤ **Specialized shampoo [20,22,29]**

- Baby shampoo
- Anti-dandruff shampoo
- Conditioning shampoo
- Two-layer shampoo

➤ **ADVANTAGES OF SHAMPOO[11,18,22]**

- Cleansing properties
- Improving hair hygiene.
- Treating scalp conditions.
- Treatment for dry scalp.
- Treatment for hair loss.
- Treatment for greasing or oily hair.
- Relieves itch and irritation.
- Repairs damaged hair.
- Shampoo keeps hair silky or smooth.

➤ **DISADVANTAGES OF SHAMPOO:[23,27,31]**

- Sometimes it causes mild side effects such as dry hair, hair fall, etc.
- Dryness & redness of the scalp.
- It damages the hairs.

➤ **IDEAL PROPERTIES OF SHAMPOO: [34,35,37]**

- To make the hair smooth and shiny.
- Produce maintained and good amount of foam.
- Should not cause irritation to eye,skin,scalp.
- Should completely remove dirt.
- Give pleasant fragrance to hair.
- Good biodegradability

❖ **ANATOMY OF HAIR**

- Hairs are an integral part of human beauty.
- The scientific name of hair is pili or pilus
- Hair is a component of the dermal layer where it sits in the hair follicle
- Hairs have a sensory function; they protect from cold and harmful UV radiations and significantly impact their growth.
- At a microscopic level, variation in the length, size, shape, and color can be seen easily.
- Hair follicles grow in groups of 1-4 hairs called “follicular units”

The hair are made up of 95% keratin a fibrous, helicoidal protein (shaped like a helix) that forms part of the skin and all its attachments (body hair, nails, etc.) [11, 13, 21, 29, 35, 42].

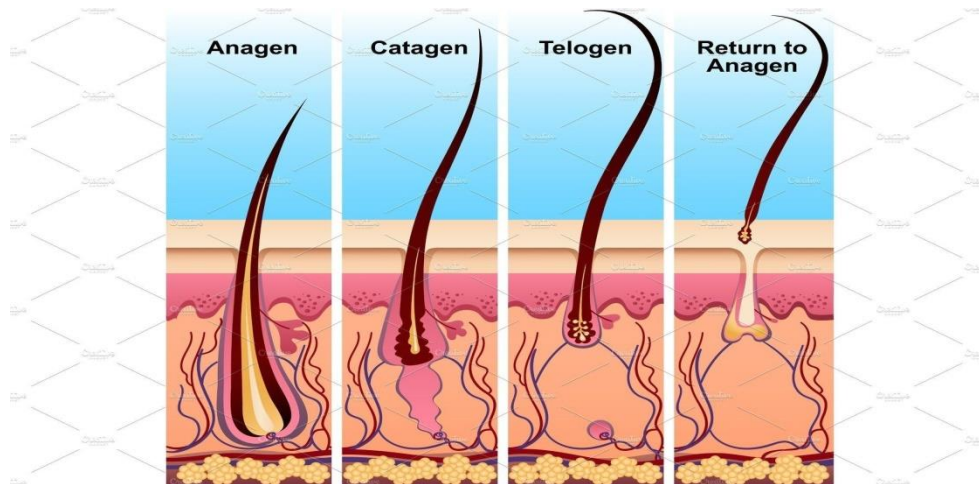
The hair structure consists of 3 different parts:

- **Medulla:** Medulla is a innermost layer of the hair shaft, made up of amorphous, soft, oily substances.
- **Cuticle:** Thin protective outer layer that contains nutrients beneficial for hair growth. It is high in keratine with cells shaped like that of scales that are layered one over the another, measuring about the 60 micrometer long and about 6 micrometer wide.
- **Cortex:** It is the main constituent of hair, containing long keratinize chains that give elasticity, resistance to the hair. The cells of the cortex are combined together by an intercellular chain rich in lipids and proteins[20,28,33,37].

GROWTH CYCLE OF HAIR [13, 32, 43, 44]

The hair growth cycle consists of four phases:

- **Anagen (growth phase) :** It is the growing phase. This phase last for several years.
- **Catagen (transitional phase) :** At the time of this phase the hair follicle shrinks and hair growth slows.
- **Telogen (resting phase) :** It is the rest phase where hair growth stops and new hair begins the growth phase, pushing the old hair out.
- **Exogen phase :** last phase of hair growth cycle where hair strand completely detaches from the scalp and sheds off.



➤ **HAIR PROBLEMS** [9, 18, 19, 21]

- **HAIR LOSS:** The main reason behind the hair loss is Stress, medication, changes in hormone and many hair styling products can contribute to hair loss.
- **OILY HAIR/GREASY HAIR:** Oily hair is caused by excessive production of natural oil (sebum) by the scalp. Sebum is produced by sebaceous glands which sometimes “work overtime” leading to excessive amount of oil.
- **DANDRUFF:** Dandruff is a non-inflammatory harmless skin condition that affects scalp and might result in hair loss. It is scaly and adheres to the base of the hair

II. MATERIALS AND METHODS

Fresh parts of the hibiscus (flowers) were collected from the local area of Nashik MH. All flowers collected were allowed to sun dry for nearly 15-20 days of span.

The fine powder was obtained from these dried flowers and was labeled properly.

Ginger was washed under tap water to eliminate contaminants and was dried in the shade, converted into fine powders, and was sieved using 60 meshes the prepared extracts were stored in a well-closed container[10,22,39].

➤ **INGREDIENTS**

1) **Piper betel leaf**



.The chemistry of betel leaf is mostly dominated by chavibetol and varies locally. The main ingredient in Sri Lankan piper betel is safrole. In different chemotypes, additional dominating chemicals include eugenol, isoeugenol, and germacene D.Eugenol, chavicol, hydroxychavicol, and caryophyllene are also found in leaves.

Alkaloids (piperine, pellitorine, piperdardine, guineensine, etc.), phytosterols (beta-sitosterol, beta-daucosterol, stigmasterol, etc.), lignan (pinoresinol), and other bioactive substances are found in stems. Among these are Bornyl cis-4-hydroxycinnamate, Bornyl p-Coumarate, piperolein-B, dehydropiperonaline, and oleanolic acid.

Aristololactam A-II, 4-allyl resorcinol, a novel phenylpropene, and the diketosteroid stigmast-4-en-3,6-dione are all found in the roots.The 50 distinct chemicals that made up the essential oil include eugenol, cadinene, terpinene, terpinolene, and 3-carene as its main constituents.

1) **Hibiscus**



- **Synonym:** shoeblack plant mahagua, cotton rose, mahagua, roselle [22].
- **Biological Source:** Genus of many species of herb rosa sinensis, belonging to the family Malvaceae they are native to subtropical and tropical regions.
- Several are cultivated for the purpose of decoration as ornamentals for their fancy flowers and a number are useful as the fibre plants [12, 34].
- **Chemical Constituents:** The phytochemical analysis resulted into many constituents in the Hibiscus rosa-sinensis containing tannins, phenols, anthraquinones, quinines reducing sugars , essential oils, flavonoid, alkaloids, terpenoids, saponin, cardiac glycoside, protein, free amino acids and carbohydrates[9,15,34].

Applications

- **Stimulates hair growth:** The naturally occurring amino acids in hibiscus flowers provide the hairs with the nutrients help promote hair growth. Amino acids produce a structural protein called keratin, which is the main building block of hair. Keratin binds the hair making it strong to withstand the breakage. It also gives the hair strands' overall thickness and makes hair more stable. Using hibiscus on your hair can avoid treatment related to hair fall [20,33,48].
- **Conditions hair:** The various chemicals in most shampoos deteriorate the hairs from its natural oils. Hibiscus flowers and leaves contain a vast amount of mucilage which acts as a rich source of natural conditioner. This conditioner also gives a shining look to hair and also it is convenient to use[5,39,40].
- **Prevents baldness:** Through various research, it is found that the use of hibiscus extract for treating baldness is effective. Using hibiscus a natural substance is a safe way for regrowing hair. Hibiscus use in the treatments of baldness like (Finasteride and minoxidil) relieves the symptoms. The main thing is that the use of hibiscus does not cause any side effects[39,42].
- **Treatment of dandruff and itchy scalp:** Hibiscus acts as an effective and reduces the oil secretion by using the glands. Using Hibiscus overall gives a soothing and cooling effect. It also maintain the pH balance of hairs

[30].

- **Prevents premature greying:** Hibiscus was used from an ancient period of time as natural dye to mask grey hair. It is abundant in antioxidants and vitamins that help in producing melanin, the natural pigment that gives hair its natural colour[38].

2) Aloe vera



Aloe vera : Aloe Barbadensis Miller-Asphodelaceae

Aloe vera may also reduce inflammation, which can help people with dandruff symptoms, such as itchiness. It has an antifungal with antibacterial properties of Aloe vera may prevent dandruff. It will restore the PH of scalp and increases the hair growth[39].

3) Lemon



Scientific name: Citrus limonum ,Family: Rutaceae

Genus: Citrus, Species: Citrus limonum L.

Chemical Properties:

Lemons contain various different chemicals and are thought to have some health benefits. It contains a terpene compound called D-limonene which gives their natural lemon smell and taste. Lemons contain sufficient amounts of citric acid; therefore they have a low pH with a sour taste. They also contain Vitamin C (Ascorbic acid) which is beneficial to human health. 100 milliliters of lemon juice contains nearly to 50 milligrams of Vitamin C (55% of the required daily value) and 5 grams of citric acid[40,41].

Active ingredients

The Citrus limonum has essential oil about 2,5 %.

The active components are: D-limonene (amount: 90 %), citral (amount 3 – 5 %), geranylacetate, citronellyl acetate, methyl ester- flavonoids: naringine, rutin, hesperidine, eriocritin. lemons contain flavonoid compounds that have antioxidant with anti-cancer properties. These may be able to delete cell growth in cancers. Limonins compound that are found in lemons could also be anti-carcinogens. Citrus flavonoids improve the permeability of vascular vessels, they show anti-phlogistic effects and diuretic properties. Citrus flavonoids inhibit bacterial muta-genesis[43,44]

4) Henna



Lawsonia inermis Linn, popularly known as henna plant, belongs to the family of Lythraceae.

Henna leaves are very popular natural dye to color hand, finger, nails and hair. It has a pigmented called Lawson (2-hydroxy-1, 4-naphthoquinone), mucilage, mannitol, flavonoids such as quercetin, apigenin, several phenolic glycosides, xanthone, coumarin, glycosides, beta-cytostrol, terpenoids, lipid, resin, tannin, catechin [45,46].

The plant extract exhibit a variety of activities such as antimicrobial activity, anti-sickling activity, cytotoxic activity, anti-inflammatory, antipyretic, and analgesic activities.Henna acts as a conditioning agent for hair treatment and soothes the hair[46].

5) Tulsi



Tulsi is a shrub in the basil family Lamiaceae .The plant and its oil contain diverse phytochemicals, including tannins, flavonoids, eugenol, caryophyllenes, carvacrol, linalool. The plant contains a family of 10 neolignan compound that is called tulsinol A. aromatic compounds in the essential oil are camphor (31%), eucalyptol (20%), α -bisabolene (18%), eugenol (15%), germacrene (10%) and β -bisabolene (12%) [34].

With reference to Ayurveda, tulsi is also known as “The Incomparable One,” “Mother Medicine of Nature” and also “The Queen of Herbs,” and is revered as an “elixir of life” that is combination of both its medicinal, spiritual properties. Ancient Ayurveda suggests that tulsi is a good tonic for the body, mind with spirit that offers solutions to various modern day health problem. Tulsi has ability to penetrate the deep tissues with dry tissue secretions and normalize kapha, vata, pitta. Tulsi has beneficial activity of anti-microbial agent and acts as a preservative agent[33].

➤ **Uses [21, 33, 40]**

- As an Anti-Dandruff Hair shampoo
- Nourishes Hair
- Stops graying of hair
- Reduces hair loss
- Induces shine and luster to the hair
- After the formulation of the anti-dandruff hair pack.

➤ **FORMULA**

SR NO	INGRIDIENTS	ROLE
1	P. Betel leaf extract	Anti dandruff activity
2	Hibiscus leaf extract	Moisturizer
3	Shikakai	Surfactant
4	Lemon Juice	Vitamin C
5	Aloe Vera	Conditioner
6	Tulsi Ext	Perservative
7	Water	q.s.

III. CONCLUSION

The present study was carried out with the aim of preparing the herbal shampoo that reduces hair loss during combing, is safer than chemical conditioning agents as well as strengthens hair growth. Herbal shampoo was formulated with the aqueous extract of medicinal plants that are commonly used for cleansing hair traditionally. Use of conditioning agents (synthetic) reduces the protein or hair loss. To provide the effective conditioning effects, the present study involves the use of reetha, aloe vera , and other plant extracts instead of synthetic cationic conditioners. The main purpose behind this investigation was to develop a stable and

functionally effective shampoo by excluding all types of synthetic additives, which are normally incorporated in such formulations. The study of the developed shampoo is further scientific validation is needed for its overall quality.

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