

A Review on Natural Herbal Hair Conditioners

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Abstract- Hair plays a crucial role in protecting the scalp. Hair conditions are skincare products specifically designed for application to the hair end, serving the purposes of cleansing, conditioning, and rinsing. The growing demand for natural and environmentally friendly hair care product has driven the creation of herbal hair conditioners, blending the advantages of traditional plant-based ingredients with contemporary hair care needs. These conditioners are made with plant extracts, essential oils, and other natural elements that nourish, hydrate, and protect the hair, all while avoiding the harsh chemicals commonly found in convention products. Herbal conditioners offer several advantages over synthetic alternatives, including their gentleness on the scalp and hair, compatibility with different hair types, and reduced risk of irritation or allergic reactions.

Keywords: Herbal Hair Condition, Scalp, Reeth, Amla, Shikakai, etc.

I. INTRODUCTION

A hair care cosmetic product called a conditioner is used to enhance the feel, texture, look and manageability of hair. Its primary function is to lessen friction between hair strands to enable gentler brushing or combing, which could otherwise harm the scalp. Herbal products have gained popularity in recent years, with 20-30% of the population using them. These products are complex mixtures of organic chemicals derived from various parts of plants, including leaves, flowers, stems, bark, and seeds. India, rich in medicinal plants, is encouraged by the World Health Organization (WHO) for its low cost and safety.

Herbal hair conditioners, while better in performance and safer than synthetic ones, may not be popular with consumers. A more radical approach to popularizing herbal shampoos would be to change consumer expectations from conditioners, emphasizing safety and efficacy. The formula compositions also help nourish scalp. Give confidence to the user and prevent damaging to the hair from the root.[1]

1. Herbal hair conditioner

In addition to conditioning, herbal hair conditioners are made with natural elements that strengthen and nourish your hair. The top conditioners for hair growth can protect

your hair from the elements, restore damage, increase shine, and make your hair easier to manage.[3,4]



Figure 1 : Hair Conditioners

2. What is hair conditioner?

Hair conditioner is a product used after shampooing to enhance the hair's texture and manageability. It typically contains ingredients like silicone, oils, and emollients, along with cationic surfactants (cleansing agents) that remove excess oils from the hair. These components work together to restore moisture lost during shampooing, leaving the hair feeling softer and more manageable.[4,5]

3. What does conditioner do to your hair?

Conditioner helps to hydrate and moisturize the hair, especially after shampooing, which can strip away natural oils and leave hair feeling dry and brittle. It replenishes the moisture lost during cleansing and locks in hydration, keeping the hair soft, smooth, and full of life.[4,6]

4. Why should you use hair conditioner?

While shampoo cleans the hair and removes oils, conditioner restores moisture, making the hair smoother, shinier, and healthier. It helps improve the overall appearance and texture of the hair, leaving it soft, shiny, and manageable.[7]

PROPERTIES OF HAIR CONDITIONERS

- Smooth easy combing in both wet and dry hair.
- A reduction in the static electricity caused by combing and brushing dry hair.
- The enhancement of the gloss, lustre to the hair.[8]

FUNCTIONS OF HAIR CONDITIONERS

- Non irritant . * Smooth and Soften the hair.
- Texture . * Protective sheath.
- Tighten the cuticle . * Provide bounce . [9]

ANATOMY OF HAIR

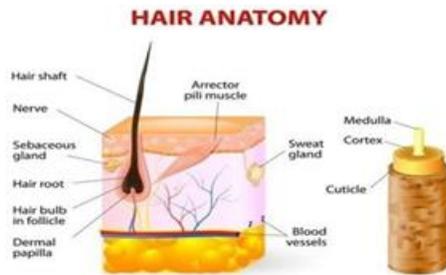


Figure 2 : Hair Anatomy

The anatomy of hair can be divided into two major parts:

1. **Hair Shaft** – The visible part of the hair that extends above the scalp.
2. **Hair Follicle** – The root portion located beneath the scalp, responsible for hair growth.[10]

5. Structure of the Hair Shaft

The hair shaft is composed of keratin, a fibrous protein that provides strength and flexibility. It consists of three primary layers:

6. Cuticle

- The outermost protective layer of the hair shaft.
- Functions to protect the inner layers from environmental damage and moisture loss.[11]

7. Cortex

- The thickest and most important layer of the hair shaft.
- Contains long keratin filaments that determine hair strength, elasticity, and texture.

8. Medulla

- The innermost and least dense layer, primarily found in thick hair.
- Functionally not well understood, but it may contribute to hair structure and insulation.

9. Structure of the Hair Follicle

The hair follicle is a dynamic mini-organ embedded within the scalp and is responsible for hair growth. It consists of several key components:

10. Hair Bulb

- The base of the hair follicle, where active cell division occurs.
- Contains the dermal papilla, which supplies nutrients and oxygen to the growing hair strand.

11. Sebaceous Glands

- Small oil-producing glands attached to the hair follicle.
- Secrete sebum, a natural oil that lubricates the scalp and hair, preventing dryness.

12. Arrector Pili Muscle

- A tiny, involuntary muscle attached to the follicle.
- Contracts in response to cold or fear, causing goosebumps and making the hair stand up.

13. Blood Vessels and Nerve Endings

- The follicle is surrounded by capillaries that provide oxygen and nutrients.
- Nerve endings detect sensory changes such as temperature and pain.[10]

ADVANTAGES

1. Gives bounce to hair: Conditioning your hair after shampooing generally leaves a greasy layer of conditioner on it.
2. Nourishes the hair: Many conditioners help increase the keratin protein in the hair, adding softness and smoothness to it.
3. Maintains scalp cleanliness for longer: Shampooing after conditioning cleanses the scalp without drying the hair and helps the scalp stay clean for longer.
4. Adds shine to hair: Most hair conditioners contain ingredients that add life and luster to the hair. Shampooing your hair after using such conditioners will add shine to the hair without weighing your hair down.
5. Reduces scalp oiliness: Conditioning before shampooing is also good for people who tend to have oily scalp or hair as it softens the hair without leaving it extra greasy.[2]

DISADVANTAGES

1. Some studies have shown that all conditioners do not bond with the hair. Without the bonding, the conditioners fail to provide moisture and strength to the hair.
2. Over conditioning or improper rinsing can make the hair dull, lifeless, and prone to breakage. [13]
3. May cause eye irritation.[3]
4. Short Shelf Life.
5. Potential for Allergies and cost.[2]

VERIOUS INGREDIENT PROFILE

1. Reetha



Figure 3 : Reetha

SYNONYMS:- Soapnut, Soapberry.

BIOLOGICAL SOURCE:- It consist of dried Sapindus Mukorossi Gaertn.

FAMILY:- Sapindaceae

CHEMICAL CONSTITUENTS:- The major constituents present in Reetha are saponins, suga and mucilage.

USES:- Strengthens hair, Adds shine Hair Growth, and Dandruff, etc.[14]

2. Amla



Figure 4 : Amla

SYNONYMS:- Emblic, Myrobalan.

BIOLOGICAL SOURCE:- It Consist Of Dried Phyllanthus Emblica L.(Popular Known As Amla Or Indian Gooseberry) Is An Ephemeral Tree.

FAMILY:- Euphorbiaceae

CHEMICAL CONSTITUENTS:- Emblica Contain Gallic Acid, Chebulic Acid, Ellagic Acid, Kaempferol, Kaempferol-3-O-Glucoside, Gallo Tannin, And Rutin, Phosphoric Acid, Essential Oils, Linoleic Acid, Oleic Acid, Stearic Acid, Palmitic Acid, And Mystic Acid.

USES:- Antioxidants, Hair Care And Immunity, and Weight Management, etc.[14]

3. Shikakai



Figure 5 : Shikakai

SYNONYMS:- Virala, Sari.

BIOLOGICAL SOURCE:- It consist of dried Acacia concinna.

FAMILY:- Shikakai, also known as Acacia concinna in scientific terms, is a shrub-like tree native to Central India.[17]

CHEMICAL CONSTITUENTS:- Lupeol, spinasterol, acacicacid, lactone.

USES:- Hair treatment, and Hair growth, etc. [14]

4. Henna



Figure 6 : Henna

SYNONYMS:- Tawny, Russet.

BIOLOGICAL SOURCE:- It consist of dried Lawsonia Inermis L., commonly known as Henna.

FAMILY:- Lythraceae

CHEMICAL CONSTITUENTS:- The traditional plant-derived henna contains the active ingredient called lawsone.

USES:- Promote healthy hair, Reduce inflammation, Natural hair dry and Baldness, etc.[14]

5. Hibiscus



Figure 7 : Hibiscus

SYNONYMES:- Red tea, Jamaica sorrel.

BIOLOGICAL SOURCE:- It consist of dried Hibiscus, (genus Hibiscus), genus of numerous species of herbs, shrubs, and trees.

FAMILY:- Mallows

CHEMICAL CONSTITUENTS:- The phytochemical analysis showed that Hibiscus rosa-sinensis contained tannins, anthraquinones, quinines, phenols, flavanoides.

USES:- Loss of appetite, Fluid retention and Stomach irritation, etc.[14]

6. Olive oil



Figure 8 : Olive oil

SYNONYMES:- Salad oil, Vegetable oil.

BIOLOGICALSOURCE:- It consist of dried Oil extracted from the fleshy part of the ripened fruit of the olive tree, Olea europaea.

FAMILY:- Oleaceae.

CHEMICAL CONSTITUENTS:- Olive oil also constitutes a major component of the "Mediterranean diet." The chief active components of olive oil.

USES:- Moisturises hair, Natural hair smoothner, Treats split ends and Cures dandruff, etc. [14]

7. Glycerin



Figure 9 : Glycerin

Synonym:- Glycerol, 1,2,3-Propanetriol, Glycerin.

Biological Source:- It consist of dried Glycerin is produced from the hydrolyses of fats and oils, and is a by-product of biodiesel production. It can be obtained either from animal fats orbotanical sources such as palm, coconut, or soybean oil.

Uses:- Due to its strong conditioning properties, glycerin can help soften and smooth down the hair cuticle providing the appearance of additional shine and lustre, etc.[16]

8. Fenugreek



Figure 10 : Fenugreek

Synonym:- Trigonella Greek clover, Trigonella foenamgraccum, Methi dana.

Biological source:- It consist of dried ripe seeds of Trigonella foenum graccum plant.

Family :- Fabsce

Chemical constituents:- Flavonol glycosides found in fengreek include the alkalood and volatile cumpound present are the two main chemical constituents that cause the bitter taste and the odour of the seeds. The major constituents that are pensent in fenugreek seeds are carbohydrates, proteins, lipids, alkaloidi saponins, vitamins, fibres and minerals

Uses:- Fenugreek hair oil helps lessen dandruff and increases blood circulation, It also addresses hair thinning, balding, and dryness, etc. [16]

9. Rose Water



Figure 11 : Rose Water

Synonym:- Gulab jal.

Biological source:- It consists of dried Rose water is extracted from the flowers of *Rosa damascena*.

Family:- Rosaceae

Chemical Constituents :- Rose flowers are rich in biologically active compound, such as phenolics, flavanoids, anthocyanins, and carotenoids. Rose absolute contains chemicals such as phenyl ethyl alcohol, farnesol, stearoptene, α -pinene, β -pinene, Citronellol, geraniol, nerol, linalool, α -Terpinene, limonene, eugenol, methyl eugenol, rose oxide, neral, citronellyl acetate and geranyl acetate.

Uses:- Help with irritated scalp reduce stress, Diminish shine and Tone of hair, etc. [16]

10. Mint leaves



Figure 12 : Mint Leaves

Synonym:- Mentha, Pudina, Peppermint.

Biological source:- It consists of dried leaves and flowering tops of *Mentha spicata* Linn.

Family:- Lamiaceae

Chemical Constituents :- Among monoterpenes, menthol is the major constituent (35-60%), followed by menthone (2-44%), methyl acetate (0.7-23.14%), 1.8-cineole (eucalyptol) (1-

13%), menthofuran (0.3-14%), isomenthol (2-5%), neomenthol (3-4%), and limonene (0.1-6%), whereas β -caryophyllene is the main sesquiterpene (1.6-1.8%). The active chemical in mint is a terpene alcohol called menthol or peppermint camphor.

Uses:- Mint leaves are used to treat dandruff, Head lice, and other infections due to their strong antibacterial and antifungal qualities, etc. [16]

11. Almond oil



Figure 13 : Almond Oil

Synonym:- *Prunus Amygdalus Dulcis* Oil, Sweet almond oil.

Biological source:- It consists of dried Almond oil is a fixed oil obtained by expression from the seeds of *Prunus Amygdalus* (Rosaceae) var *dulcis* (sweet almonds) or *P. Amygdalus* var *Amara* (bitter almonds).

Family:- Rosaceae

Uses:- Almond oil moisturizes your scalp and relieves inflammation and dandruff, etc. [16]

12. Coconut oil



Figure No 14 : Coconut Oil

Synonym:- Copra oil, Vegetable oil, Edible oil, Nariyal tel.

Biological Source:- It consists of dried Coconut oil is the oil expressed from the dried solid part of endosperm of coconut *Cocos nucifera* L.

Family:- Arecaceae

Chemical Constituents :- Copra contains 65-68% fat, 15-20% carbohydrates, 9.0% proteins, 4-9% crude fibres

Carbohydrates contain glucose, fructose and raffinose. Copra oil contains Trimyristine, trilaurin, tripalmetin, tristearin, and other other glycerides.

Uses:- Provides moisture to your hair, etc. [16]

13. Aloe vera



Figure 15: Aloe Vera

Synonym:- Ghritkumari, Aloe, Mussabar, kumari, Korphad.

Biological source:- It consist of dried Aloe is the dried juice collected by incision, from the bases of the leaves of various species of Aloe. Aloe perryi Baker, Aloe vera Linn or Aloe barbadensis.

Family:- Liliaceae

Chemical Constituents :- The aloe leaf gel consists of amino acids, polysaccharides, minerals, organic acids, and phenolic compounds It also contains anthrones, C-glycosides, and anthraquinones such as aloe-emodin, alaesin, aldehydes, and ketones, etc.

Uses:- For natural hair, condition and strengthen, and Encourage hair regrowth, etc.[16]

14. Curry Leaves



Figure 16: Curry Leaves

Synonym:- Kadi Pana, Karibevu, Mitho Limdo Karuvepillai, Meetha neem.

Biological source:- It consist of dried Curry leaves are a part of a small deciduous aromatic shrub, scientifically Named *Murraya koenigii*.

Family:- Rutaceae

Uses:- Encourage the growth of hair, and Heals Broken Hairs, etc.[16]

15. Tulasi



Figure 17 : Tulasi

Botanical name:- *Ocimum tenuiflorum*. **Order:-** Lamiales

Organic source:- Fresh and dried leaves.

Family:- Lamiaceae

Uses:- It is abundant in vitamin K and antioxidants, Treatment for hair loss, and Strengthening hair roots, etc.[15,17,18]

16. Neem



Figure 18 : Neem

Botanical Name:- *Azadirachta Indica*.

Order:- Sapindales

Organic source:- Whole Plant of Neem.

Family:- Meliaceae

Uses:- Neem, known for its medicinal properties, is an effective herb for hair loss, Its antibacterial, and anti-inflammatory, etc. [17,18,19]

17. Bhringraj

Bhringaraj is reach like iron, magnesium and vitamin E that nourish the hair follicle.

Promot hair growth, and also preavent hair fall.



Figure 19: Bhringraj

Botanical Name :- Eclipta prostrata

Order :- Asterales

Family :- Asteraceae

Uses :- 1) Repair hair damage ,and Pramote hair growth, etc.[20]

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