The Different Herbal Hair Growth Oil for Healthy Hair

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Abstract: Herbal hair growth oil is a formulation derived from ingredients of natural origin including the base, which promotes the hair growth activity. An attempt was made to formulate herbal product during which the looks of the hairdressing i.e. color and fragrance etc is provided by the formulation itself and is barren of any synthetic ingredient. The healing power of herbs is undeniable. Herbs have been used for centuries to treat ailments, in beauty care, for improving memory, for weight loss and many other things. Various ingredients were incorporated on the idea of their traditional use and their availability in commercially marketed herbal formulations. The aqueous extracts were prepared and integrated into oil base of natural origin. The experimental paradigms used were primary hair growth activity including number of hair, length of hair, and hair growth initiation also as hair growth completion time. The time vital for complete hair growth was also greatly reduced. The result of treatment with formulated herbal hairdressing was comparable that of minoxidil, which was taken as a typical. The other factors also involve in the hair growth such as hydration, your lifestyle, pollution, hair tie knot pressure, washing your pillow covers, combs; oiling routine, less use of heating tools, don’t indulge with the chemical products, etc.

Introduction
It is a simple structure i.e. made up of protein filaments called keratin. It acts as a barrier to foreign particles. It’s an important part of appearance and creates gender identity. It’s only body structure that can completely renew itself without scarring.

Hair is made up of 2 separate structures-

- The hair follicle: which exist below the skin.
- The hair shaft: which is the hair that we see.

Before hair growth can begin, a hair follicle must be created. The germinating layer of the epidermis starts growing down into the dermis, and forms the outside of each hair follicle. Rather than discussing hair growth cycle, let’s discuss about the hair structure which is shown in the figure 1.

The dermis then grows upwards into the base of the follicle to form the derma papilla. This allows capillaries to enter the papilla and provide nutrients for the hair shaft to grow. The bottom part of the follicle enlarges into an area of actively growing cells. This is called the hair bulb.
At the bottom of the hair bulb, the germinating layer merges into the outer root sheath (which forms the inner wall of the follicle). The superficial root sheath then forms the germinal matrix (hair root) which surrounds the dermal papilla. The germinal matrix grows the inner root sheath (this is the white bit at the end of a hair if it’s pulled out). The germinal matrix also contains stem cells—these produce the hair shaft through continuous cell. Hair shaft cells are similar at first. But as they move up through the follicle, they start to vary shape and a protein called keratin develops inside the cells. 3 different types of hair cell then form. By the time these cells area 3rd of the way up the follicle, they have died and fully hardened (i.e. keratinised). [1]

A sebaceous gland lies within each follicle. This produces an oily substance called sebum from a duct that opens up into the hair follicle about halfway down from the skin surface. The follicle also has a bulge directly below the sebaceous gland in the outer root sheath at the attachment point of the arrector pilii muscle. The bulge produces stem cells that regenerate the follicle during subsequent hair growth cycle. When the arrector pilii muscles contract, they make your hair stand on end (this is what causes Goosebumps). The shaft has three layers which is shown in the above figure 1-

- The cuticle (outer layer)
- Cortex (middle layer) and
- Medulla (inner layer)

The medulla is a honeycomb keratin structure with air space inside. The cortex gives flexibility and tensile (stretching) strength to hair and contains melanin granules, which gives hair its color. The cortex is made from tiny fibers of keratin running parallel to each other along the length of the hair shaft. The cuticle is made from 6-11 layers of overlapping semitransparent keratin scales (which makes the hair waterproof and allow it to be stretched). Someone with thick, coarse hair will have more overlapping layers of cuticles than someone with fine hair.[2]

**HAIR GROWTH CYCLE**

Once the hair growth cycle starts, it should keep going and never stop and for certain types of hair in certain body regions, that’s exactly what happens like body hair will continuously keep on growing throughout the life.

Hair growth cycle is shown below in the figure 2 with the different phases as the following:-

![Hair Growth Cycle](image_url)

1) **ANAGEN**: It is the hair growing phase. It usually lasts 3-5 years. Hair growth rate is about 3mm per week. Although hair grows throughout the anagen phase, at some point the hair follicle starts preparing for the next hair growth cycle. Stem cells from bulge area migrate down and along the outer root sheath towards the dermal papilla.[3]

2) **CATAGEN**: During this phase, hair follicle breaks down active hair growth stops and certain cells in the follicle die, causing it to shorten. But as it does so, part of the outer root sheath stays attached to the dermal papilla ready for the next hair growth cycle to begin. In diagram, hair shaft is then called a club hair. A club hair will often wedge into follicle until
it gets brushed or washed out. But, sometimes the club hair stays put until the follicle restarts the growth cycle and a new hair shaft pushes it out. It lasts up to 2-3 weeks only about 1% of your scalp hair follicle will be in catagen at any one time.[4]

3) TELOGEN:- It is a period of rest for the hair follicle. During this time, the follicle stays shortened and the outer root sheath stays attached to the dermal papilla. When telogen ends, hair germ cells starts growing a new hair follicle from dermal papilla, next hair growth cycle starts again. It lasts up to 3-4 months. About 10% of your hair follicle is in telogen at any one time.[5]

**HERBAL HAIR GROWTH OILS**

Hair oils are external preparations mostly used for management of the hair and in hair dressing. However some of the hair oils are enriched for hair growth and prevention of hair fall. At one time, long strong and thick hair was desirable and popular because these qualities were seen as beauty enhancers.

Nowadays short and flying hair is the order of the day. However, for thick and glossy hair, hair oils are helpful, through, massage, in strengthening the hair roots and making them strong which helps in preventing hair loss and promoting hair growth.

**CLASSIFICATION OF HERBAL EXCIPIENTS FOR HAIR GROWTH**

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>HERBAL EXCIPIENTS</th>
<th>HERBS</th>
<th>USED AS A</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anti-oxidants</td>
<td>Olive oil</td>
<td>Leave-in-conditioner</td>
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<tr>
<td></td>
<td></td>
<td>Rosemary</td>
<td>Growth promoter</td>
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<tr>
<td></td>
<td></td>
<td>Coconut oil</td>
<td>Leave-in-conditioner</td>
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<tr>
<td></td>
<td></td>
<td>Argan oil</td>
<td>Strengthen hair follicles</td>
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<td></td>
<td></td>
<td>Shikakhai</td>
<td>Natural cleanser</td>
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<td></td>
<td></td>
<td>Brahmi</td>
<td>Growth promoter</td>
</tr>
<tr>
<td>2.</td>
<td>Anti-inflammatory</td>
<td>Aloe vera</td>
<td>Conditioner</td>
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<td></td>
<td></td>
<td>Spirulina</td>
<td>Promoting hair growth</td>
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<td></td>
<td></td>
<td>Jatamansi</td>
<td>Growth promoter</td>
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<tr>
<td>3.</td>
<td>Emulsifier</td>
<td>Tragacanth</td>
<td>Conditioner, preservative</td>
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<td></td>
<td></td>
<td>Lecithin</td>
<td>Improve the texture</td>
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<td></td>
<td></td>
<td>Pectin</td>
<td>For Stronger hair</td>
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<td></td>
<td></td>
<td>Vinegar</td>
<td>Exfoliate scalp</td>
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<td>4.</td>
<td>Thickeners</td>
<td>Xanthan gum</td>
<td>Diluents</td>
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<td></td>
<td></td>
<td>Guar gum</td>
<td>Prevent breakage</td>
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<td></td>
<td></td>
<td>Acacia gum</td>
<td>Cleansing agent</td>
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<td>5.</td>
<td>Hair dyes</td>
<td>Heena</td>
<td>Colouring agent</td>
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<td></td>
<td></td>
<td>Amaranthus</td>
<td>Colouring agent</td>
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<td>6.</td>
<td>Anti-ageing</td>
<td>Almond</td>
<td>Antidandruff</td>
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<td></td>
<td></td>
<td>Walnut</td>
<td>Accelerate hair growth</td>
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<td></td>
<td></td>
<td>fenugreek</td>
<td>Antidandruff</td>
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<td>7.</td>
<td>Follicle-stimulating</td>
<td>Amla</td>
<td>Ph adjuster</td>
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<td></td>
<td></td>
<td>Onion</td>
<td>Growth promoter</td>
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<td></td>
<td></td>
<td>Bhringraj</td>
<td>Antidandruff</td>
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<tr>
<td>8.</td>
<td>Conditioning agent</td>
<td>Jojoba oil</td>
<td>Mimics sebum</td>
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<tr>
<td></td>
<td></td>
<td>Castor oil</td>
<td>Enhance hair follicle for growth</td>
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<td></td>
<td></td>
<td>Apricot</td>
<td>Emollient</td>
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<tr>
<td></td>
<td></td>
<td>Hibiscus</td>
<td>Powerful agent for overall healthy hair</td>
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<td>9.</td>
<td>Sun blocking agent</td>
<td>Sesame</td>
<td>Hair growth promoter</td>
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<td></td>
<td></td>
<td>Flaxseed</td>
<td>Heat protecting</td>
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<td>10.</td>
<td>Foaming agents</td>
<td>saponins</td>
<td>Natural cleanser, unclog pores, prevent hair fall</td>
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<tr>
<td></td>
<td></td>
<td>Acanthophyllum squarrosum</td>
<td>Remove the greasiness of scalp</td>
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<tr>
<td></td>
<td></td>
<td>betaines</td>
<td>Improve volume &amp; structure</td>
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<td></td>
<td></td>
<td>Arappu</td>
<td>Cleansing</td>
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<tr>
<td>11.</td>
<td>Anti-microbial</td>
<td>Peppermint</td>
<td>Increase circulation for hair growth</td>
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<td></td>
<td></td>
<td>Soap nut (Reetha)</td>
<td>Promote hair growth, maintain hair health</td>
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<tr>
<td></td>
<td></td>
<td>Lemon grass</td>
<td>Antibacterial</td>
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<td></td>
<td></td>
<td>Lavender oil</td>
<td>Anti-lice</td>
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<td></td>
<td></td>
<td>Tea tree oil</td>
<td>Prevent chemical buildup &amp; dead skin cells</td>
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<tr>
<td></td>
<td></td>
<td>Neem</td>
<td>Cleansing</td>
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</tbody>
</table>
OLIVE OIL – its common name in hindi is Jaitoon, SYNONYMS: Oleum olivae. Biological source: it is the fixed oil expressed from the ripe fruit of Olea europaea and it belonging to the family- Oleaceae. Geographical source: olive tree is native to Palestine and country near to Mediterranean Sea. It is cultivated in U.S. and Southern Australia. It is largest producers are Italy, Spain, Greece and leading countries. Description: colour- pale yellow or greenish –yellow; odour- slight and characteristics; taste- bland, faintly acrid.[6]

Uses:-1. Treats Dandruff: Olive oil moisturizes your hair and reduces scalp irritation, which additional reduces dandruff. Just heat a cup of oil and massage hair generously, especially on the scalp and thus the ends.
2. Promotes Hair Growth: Olive Oil is rich in vitamin E (tocopherol) which makes your hair tough and prevents hair fall. Massaging regularly with olive oil can also fix the problem of split ends.[7]

ROSEMARY – its common name is same as synonym. SYNONYMS: rosemary. Biological source: it is the volatile oil obtained from the fresh flowering tops of the plant Rosmarinus officinalis & belonging to the family Labiatae. Geographical source: rosemary indigenous to south Europe and south Asia. It is cultivated in Mediterranean basin and India. Description: color- colorless or pale yellow liquid; odour- characteristic rosemary flavour, aroma- camphoraceous.[8]

Uses:- Rosemary is best well-known for its hair growth-boosting capacity. There are various reasons why rosemary is employed for hair growth:
• Rosemary oil helps stimulate blood circulation to the scalp. This, in turn, can promote hair growth.
• Rosemary oil has anti-inflammatory and analgesic properties. These properties may help soothe the scalp.
• Rosemary oil exhibits antifungal properties against Malassezia furfur, fungi that cause dandruff. This helps in getting rid of dandruff and curbing hair fall.
• The oil from the rosemary helps clean the hair follicles by unclogging them. Clogged follicles often lead to problems like dandruff, and, in extreme cases, hair fall.
• It repairs damage while removing dirt and grime that may keep the hair weighed down. [9]

COCONUT OIL – it’s called nariyal in hindi. SYNONYMS: coconut butter, copra oil. Biological source: Coconut oil is the oil expressed from the dried solid part of endosperm of coconut, Cocos nucifera, belonging to family Palmae. Geographical source: Coconut is cosmopolitan throughout the planet. It is largely cultivated in African and southeast Asian countries. Coconut also referred to as copra may be a dietary also as industrial product throughout the planet. Huge quantity of oil is produced in India, Sri Lanka Malaysia, South Africa, China, Indonesia, and other countries.

Description: it is obtained from the hard brown in colour, dried endocarp is inner part consists of a mixture of triglycerides of saturated fatty acids. The oil contains about 95% of saturated fatty acids with 8 and 10 carbon atoms. It shows the presence of caprylic acid, 2%; capric acid, 50–80%; lauric acid, 3%; and myristic acid about 1%. [10]

Uses: 6 Reasons to Treat Your Hair with Coconut Oil
• Copra oil stimulates hair growth getting deep into its follicles.
• Copra oil promotes the scalp health struggle against such problems as insect bites, lice and dandruff.
• Coconut oil moisturizes dry hair.
• Copra oil adds luster, shine and softness to the hair.
• Copra oil prevents hair breakage and split ends, contributing to hair length.
• Coconut oil slows down hair loss.

How it works?– As far as hair is sort of a tube, hollow from inside, copra oil completely penetrates this space. As a result, the hair shafts are packed up and given more body. Your hair looks denser and fuller.

1. Fatigue Prevention-Hair gets damaged by swelling and shrinking of fibers, due to water retention and absorption. Such a ‘hygral fatigue’ is prevented by copra oil, which protects the hair from possible damage.
2. Reduces Protein Loss–Do you know that our hair is total protein composition? Thus, protein loss from hair finishes up in weak and unhealthy hair. Coconut oil treatment appreciably reduces this protein loss from either damaged or undamaged hair. Researchers have discovered that it's the sole oil to supply such a discount.
3. Conditions from Within- Coconut oil retains moisture, so necessary for well-moisturized and powerful hair. This keeps the hair shiny and silky. Coconut oil also moisturizes the hair from within, protecting it from heat and environment damage.
4. Anti-bacterial Properties-In addition, copra oil has antibacterial properties and nutrients, liable for ideal hair and scalp protection from bacteria/protozoan/viral infections. More so, women using copra oil can stop getting gray and keep their dark hair even when old!
5. Magical Coconut Oil-Well, are you able to promote luxurious hair growth with magical coconut oil? Join all those people throughout the planet, who have already acknowledged its beneficial effects! You’re getting to possess your own long and opulent hair, regardless of whether it's male and feminine. Here it is, your potential ticket to thick and delightful locks![11]
How to Use It for Your Maximum Results- Coconut oil is to be apply over the scalp and hair. Then you ought to comb it through the hair, in order that to succeed in every strand. Furthermore, it's strongly advisable to warm the oil before applying, massage it into the scalp, leave it overnight and wash in the morning with shampoo.

ARGAN OIL - SYNONYMS: morocco argan, argan tree. Biological source: it consists of dried fruit of the Argania spinosa, belonging to the family Sapotaceae. Geographical source: it is native to morocco. It grows wild and pro-fusely in the area extending from Safi to the fringes of the Sahara and bounded by the Atlantic Ocean to the West and the Atlas Mountains to the East. Its geographic distribution is limited: lo-cated 29º15”to 31º20”N and 8º10” to 10º25” W. Within the area where the argan grows, there are approximately 21 million trees which play a vital role in the food chain and the environment, although their numbers are declining now [12].

Description: The fruit is two to four centimeter long and 1.5 to three centimeter broad, with a thick, bitter peel surrounding a sweet-smelling but unpleasantly flavoured layer of pulpy pericarp. This layer is very hard nut, which contains one (occasionally two or three) small, oil-rich seeds. The fruit takes more than a year to mature, ripening in June to July of the following year. Its average weight ranges from five to 20 g or more. The flesh or pulp is 55 to 75% of the fruit fresh weight [13].

Uses: Argan oil is full of fatty acids and powerful antioxidants, such as vitamin E, that have been shown to have benefits for your scalp and hair. Here are a number of the advantages of argan oil for hair which will help protect against hair loss.

1. Moisturizes and conditions-Argan oil is usually used as a moisturizer for skin and hair because it's filled with fatty acids, mainly monounsaturated fatty acid and linolic acid. These oils are shown to lubricate the hair shaft and help your hair maintain moisture. Argan oil is additionally rich in vitamin E, which provides a fatty layer to your hair and scalp which will help prevent dryness and may help reduce fizziness and boost shine.

2. Improves scalp health- Argan oil has anti-inflammatory and antioxidant properties that are good for the skin. This can help prevent or improve skin conditions, including those that can affect the scalp that can cause hair loss, like: psoriasis, seborrheic dermatitis.

3. Little scientific research has been done on argan oil’s antifungal properties, though it may help treat dandruff. Sometimes dandruff is caused by a yeast-like fungus on your scalp.

4. Prevents styling and coloring damage-The medium-chain fatty acids in argan oil have a protective effect which will help prevent damage from washing and styling.

5. Research shows that other oils that are rich in linoleic acid, oleic acid, and palmitic acid add a protective layer to the hair that improves combing force and protects the hair from breakage during heat styling. Oil treatment was also shown to reduce the formation of split ends, which can result in thicker, healthier looking hair. A 2013 study also found that argan oil reduced damage caused by hair coloring when applied to Caucasian hair after color processing.

6. Sun protection-Argan oil has been used by Moroccan women for centuries to protect skin from sun damage. A 2013 study found that the antioxidant activity in argan oil protected skin against radical damage from the sun. This benefit may also extend to the hair, helping to prevent drying and other damage from ultraviolet rays.[14]

SHIKHAKAI - SYNONYMS: Acacia concinna, shikakai. Biological source: it consists of the shrub known as Acacia concinna, belonging to the family fabaceae. Geographical source: Acacia concinna is a climbing shrub native to Asia, common in the warm plains of central and south India. Description: The plant parts used for the dry powder or the extract are the bark, leaves or pods. The bark contains high levels of saponins, which are foaming agents found in numerous other plant type used as shampoos or soaps.[15]

Uses: 1. Induces hair growth- Research shows that shikakai exhibits hair growth-promoting activity.

2. soothes Your Scalp-A healthy scalp is the foundation for healthy hair growth. Shikakai has antibacterial and antifungal properties. It can soothe an inflamed scalp and restore its health. It also helps sustain the optimum pH level of your scalp.

3. Fights Dandruff-Shikakai has antifungal properties that help curb dandruff. This prevents issues like follicle clogging and aggravation, leading to unhindered hair growth. It can also help reduce dryness and itching.

4. Nourishes Your Follicles- Shikakai is a great source of essential vitamins. Its vitamin C content can help promote hair growth by giving your scalp a collagen boost. It is also an excellent source of antioxidants that help prevent radical damage.

5. Cleanses Your Hair- Shikakai may be a natural mild cleanser, which suggests that it cleanses your hair without stripping away the natural oils from it. This keeps your hair clean and conditioned.

6. Adds Shine- Shikakai helps add shine to your hair while also making it far more manageable. If you’ve got a drag problem, it might be an honest idea to incorporate this ingredient in your hair care routine.

7. Prevents Grays- Using shikakai can help postpone your hair’s natural graying process. It can also effectively deal with issues like premature graying. Washing your hair with shikakai before you dye it’ll also allow your hair to soak up the dye better.

8. Curbs Hair Loss- Shikakai can help control hair loss by restoring scalp health. It effectively deals with issues like an aggravated scalp, follicle clogging, dandruff, and itching. In many cases, curbing hair fall is as simple as restoring scalp health.

9. Prevents Lice- There is nothing more annoying than head lice. Anecdotal evidence suggests that shikakai may be a natural solution to a head lice problem. Not only does it curb the problem, but it also keeps the head lice away for good with regular use. However, there are not any scientific studies to prove these effects.[16]
BRAHMI- SYNONYMOS: Bacopa. Biological source: it consists of the fresh leaves and the stems of the plant known as Bacopa monniera, belonging to the family scrophulariaceae. Geographical source: it’s a prostrate, succulent herb found throughout India, in wet, damp and marshy places. Description: green in colour, bitter in taste, leaves are fleshy obovate, alternate, simple, entire, with broad apex, sessile and their lower surface is dotted. Flowers are solitary, stalked; corolla bluish white in colour. One of the 5 Sepals are larger than others. Flowers arise in the axes of the leaves in April- June.

Uses: - It is a plant that has been used as a natural remedy for several problems in the ancient Indian medicine system Ayurveda.
1. Brahmi can help promote the largely health of your hair making it longer and thicker.
2. Brahmi powder for hair growth can reduce the number of split ends significantly within a few weeks of regular use.
3. It coats the hair follicles reducing the damage to hair. This also allows the hair to build up volume and length.
4. It also nourishes the roots of the hair thus dropping the hair fall.
5. You cannot only use the fresh brahmi powder for hair growth but you can also suppose it to aid you with the dandruff problem.
6. It reduces dryness from the skin and prevents itchy scalp.
7. brahmi has been demonstrated to be very useful for improving memory; a large segment of people use brahmi powder for hair growth. Other common uses also include remedy for irritable bowel syndrome (IBS), Alzheimer's disease, anxiety, attention deficit-hyperactivity disorder, allergic conditions. It has also been used as tonics to fight stress.[17,18]

ALOE VERA- SYNONYMS: aloe, ghrita kumara, musabbar. Biological source: it is obtained from the dried juice of the leaves called Aloe barbadensis Miller belonging to the family Liliaceae. Geographical source: Aloe is indigenous to eastern and southern Africa and grown in the cape. It is cultivated in the Caribbean islands, Europe and many parts of the India. Description: outer leaf is greenish and inside colourless gel, bitter in taste, characteristic odour.[19]

Uses: 1. Calms an itchy scalp- Seborrhiec dermatitis is that the clinical term for the condition we call dandruff. The symptoms of an itchy scalp and flaking skin under your hair are often treated with burn plant.

2. Deep cleans oily hair- Aloe vera cleanses the follicle efficiently, stripping off extra sebum (oil) and residue from other hair products. But burn plant doesn’t hurt your hair strands while it cleans. Unlike other chemicals in hair products, burn plant is gentle and preserves the integrity of your hair. Using burn plant may be a good way to urge hair that appears healthier, shinier, and softer

3. Strengthens and repairs hair strands- Aloe vera contains vitamins A, C, and E. All three of those vitamins contribute to cell turnover, promoting healthy cell growth and glossy hair. Vitamin B-12 and folic acid are also in aloe vera gel. Both of those components can keep your hair from rupture. Aloe vera may be a popular product that folks use on their skin after sun exposure. This is due to its high collagen content and cooling properties. The vitamin content in burn plant suggests that it'd work to repair sun damage to your hair, too

4. Promotes hair growth- Aloe vera has the incredible ability to extend blood circulation to a neighborhood. That’s a part of why its healing properties are so unique. When you use burn plant on your hair and scalp, and blood flow to your scalp increases. When your scalp has been cleansed and your hair has been conditioned with burn plant, you would possibly see that hair breakage and loss slows down. There are many people that claim that burn plant actually causes hair to grow much faster. But as of now, there’s little clinical confirmation to prove or disprove those claims.[20]

JATAMANSI -SYNONYMS: nard, Indian spike nard. Biological source: it consists of dried rhizomes of Nardostachys jatamansi belonging to the family Valerianaceae. Geographical source: these plants are found in the alpine Himalayas. It is cultivated in Punjab, Sikkim and in Bhutan. Description: colour- dark grey rhizomes are crowned with reddish-brown tufted fibres. Odour- highly agreeable, aromatic. Taste- acrid, slightly bitter and aromatic. Shape- elongated and cylindrical.

Uses: 1) Promotes hair growth- Jatamansi Powder has anti-inflammatory and anti-microbial properties that prevent hair fall, dandruff and any other microbial growth in your hair. This helps promote hair growth and also it makes your hair smoother, shinier and silkier. The herb is rich in compounds that boost hair growth, and there are studies that validate this fact

2) Enhances memory- Jatamansi Powder is used as a memory enhancer because it enhances the faculties of mind and provides a sense of relaxation to your brain. It is used as an ayurvedic medicine to treat various ailments in the nervous system. It is known to cure diseases of the three doshas as described in Ayurveda- Vatta, Pitta and Kapha.

3) Anti- inflammatory and antifungal properties- Jatamansi powder is said to possess anti-inflammatory and anti-fungal properties and is often found as an effective cure to any kind of skin infections.

4) Anti-microbial properties- Jatamansi is said to possess anti-microbial properties and is an effective remedy to curb the growth of harmful microbes that can cause various skin irritations and other severe health issues[21,22]
WALNUT - SYNONYMS: Walnut seed, Walnut kernel, juglans. Biological source: it is dried fruits of Juglans regia L. Belonging to the Family: Juglandaceae. Geographical source: native to Iran(Persian), walnut trees are growing many in parts of the world, including Asia (foothills of the Himalayas, Iran, China and Japan), Southern and Eastern Europe, as well as North and South America. Walnut trees grow in some provinces of Iran such as Fars, Hamedan, Kohgiloyeh and Boyerahmad, and Lorestan. Description: walnut is about 35-40 mm long and has a smooth surface. The nut shell is the endocarp and shows two distinct ridges. The two cotyledons and their lobes are separated by thin partitions and the brown testa closely follows the undulations of the cotyledon surfaces. Colour is brownish, taste slightly bitter and little tangy, aromatic is characteristics.

Uses:
1. Improves Hair Growth- This oil has vitamins and biotin which promotes hair growth. It also has potassium which leads to hair growth. Walnut oil strengthens the roots of your hair and makes your hair grow.
2. Makes Color Stay For Longer- Women with colored hair should use this oil as it makes the color stay for longer. It further makes your hair look shinier.
3. Say Bye To Dandruff- Dandruff is a common hair problem we all face. Dealing with it can be tricky. If you don't treat it on time then it can increase and further lead to hair fall. Applying walnut oil on your hair can help you get rid of dandruff completely. You can apply it twice a week and then wash with a sulfate free shampoo to get the best results.
4. Prevent Hair Fall- We all have been there! Seeing hair strands on the pillow after waking up in the morning or losing some combing our hair. Hair fall is another common issue we all face. Walnut oil has omega 3 fatty acids which prevent any damage to the scalp. You can use walnut oil once or twice a week. Keep it overnight and then wash with a mild shampoo next morning.
5. Makes Your Hair Strong And Thick- Women with thin hair know the struggle. Hair thinning is a major hair issue. Walnut oil can help you makes your hair thick and strong. Along with treating all these problems, this oil also helps in improving the health of your scalp, it works as a natural hair dye too. It has anti-fungal properties that keep any infections at bay. Using this oil regularly on your hair can help you improve the health of your hair, you get shinier and thicker hair![23,24]

FENUGREEK - SYNONYMS: Methi, Trigonella, Bird's foot, Greek Hay. Biological source: It consist of dried known as Trigonella foenum-Graecum, belonging to the family. Geographical source: Fenugreek is a dried leaves of herb similar to clover that is native to the Mediterranean region, southern Europe, and western Asia. It is largely cultivated in the Middle East, North Africa, India, and Egypt. The seeds are utilized in cooking, to form medicine, or to cover the taste of other medicine. Fenugreek seeds smell and taste somewhat like syrup. Fenugreek leaves are eaten in India the same as a vegetable. Description: Fenugreek is an herb with small white flowers and light green leaves. The seedpods of this plant contain about 10 to 20 small, yellowish cotyledons enclosed in the endocarp, and pungent taste of seeds.[25]

Uses: Fenugreek is used for renal ailments, a vitamin lack disease called beriberi, mouth ulcers, boils, bronchitis, infection of the tissues beneath the surface of the skin (cellulitis), tuberculosis, chronic coughs, chapped lips, baldness, cancer, Parkinson's disease, and exercise performance.

Fenugreek is taken orally for digestive problems like loss of appetite, indigestion, constipation, inflammation of the stomach (gastritis). Fenugreek is additionally used for diabetes, painful menstruation, polycystic ovary syndrome, and obesity. It is also used for conditions that affect heart health such as "hardening of the arteries" (atherosclerosis) and for high blood levels of certain fats including cholesterol and triglycerides.

These seeds also offer a lot of benefits for hair and can help correct almost every hair problem. Many people claim it to be the secret to grow thick and shiny hair. Fenugreek can be consumed orally or applied topically in the hair to gain maximum benefits. Here are some ways in which fenugreek seeds can benefit your hair

- **Fights dandruff-** Apart from being an embarrassing hair condition to deal with, dandruff can also completely ruin the health of your scalp and lead to hair loss. To tackle this problem, make a paste of soaked fenugreek seeds and yoghurt. Apply all over your hair and let it stay for 15-20 minutes before washing it off with lukewarm water. Repeat twice a week for quicker results.
- **Promotes hair growth-** Fenugreek seeds are loaded with nutrients that not only promote hair growth but also improve the feel of the hair when used regularly. To prepare a pack for hair growth, blend half cup soaked fenugreek seeds with one tablespoon aloe vera gel, a tablespoon of coconut oil and a few drops of rosemary oil.
- **Prevents premature hair graying-** Premature hair greying is a common problem among today’s youth. Fenugreek seeds are packed with potassium which helps tackle the problem of premature hair greying. Mix soaked fenugreek seeds paste with amla juice and apply it to the scalp. Allow it to rest for about an hour before washing it off with a mild shampoo. Apply this to your scalp, allow it to rest for 30-40 minutes before washing it off.
- **Prevents Hair Loss-** Are you fed up of tackling the woes of hair loss? Look for the fenugreek seeds in your spice box as it might be just what you require. Fenugreek seeds are very effective in making the hair strong from their roots and dealing with the follicular problems. These seed fights irritation on the scalp and dandruff, which are two main reasons for hair loss. To prevent hair loss, soak some fenugreek seeds for the whole night and blend them with some water and lemon juice.
Apply this hair mask and then rinse off. You can also soak some of these seeds in coconut oil in a bottle. Place this bottle in a cool place for about ten days. After 10 days, filter this oil and massage your hair with it.

- **For Shiny Conditioned Hair:** Who doesn’t want shiny and luscious hair and that too naturally? Everyone does. So stop using to the chemical-based shampoos and conditioners for a silky smooth hair, and incorporate fenugreek seeds in your hair diet. These seeds not only condition the hair strands but also their roots and follicles. Grind 1/2 cup soaked fenugreek seeds, 1/2 cup yogurt, lemon juice, and water together and make a thick paste. Apply this mask on your hair and wash your hair after 45 minutes with a mild shampoo. Soak fenugreek seeds overnight in water. In the morning, you can apply the slimy water used to soak the seeds in your hair. [26]

**AMLA—SYNONYMYS:** Indian gooseberry, emblica, amlaki; Biological source: It consist of fresh or dried fruit of Emblica officinalis, belong to the family of euphorbiaceae Description:-Color- green color changes to light yellow or brick red at maturity. Odor- odorless, taste- sour and astringent, shape-depressed globular. Chemical constituents- rich in vitamin C source, Phyllumbin. Amla, also known as Amrit (nectar), is one of the most nourishing herbs for the hair. It offers a plethora of medicinal benefits and is useful in any form – raw, powdered or as an oil. It acts as a natural conditioner and maker the hair thicker and stronger.

Here are 12 amazing benefits of using amla for your hair:

1. **Hair growth:** The phyto-nutrients, vitamins and minerals present in amla help in increasing the scalp circulation and stimulate healthy growth. Vitamin C of amla produces collagen protein. This helps in stimulating hair growth, both length and volume wise. Collagens replace the dead cells of hair follicles with new hair cells.

2. **Serves as a natural hair conditioner:** Amla can nourish, strengthen and condition your hair thereby making it shiny and adding volume to your hair. One amla contains up to 81.2 percent of moisture content in it. Those with dry hair, now you know what to do. Moreover, if you have a oily hair, then use amla powder, it will soak in all the excess oil present on your scalp, along with conditioning it.

3. **Treats Dandruff:** Dandruff is usually the result of dryness. This vitamin C rich juice cures the dryness and prevents the accumulation of dandruff. Amla’s Vitamin C, its anti-inflammatory plus its anti-bacterial properties can stop dandruff and also the itching caused by it, on the scalp.

4. **Scalp cleanser:** Amla juice is great for cleansing the scalp. It nourishes the scalp and makes the hair shiny. The antioxidants present in amla, shields our hair from various hair damages, caused due to it by dust, pollution, smoke, and hair styling tools, etc.

5. **Improves pigmentation:** Most of the hair coloring packs contain amla in them as it helps in fighting pigmentation. It also helps in discoloration making the hair long and luscious. Moreover, it is important to keep our hair and scalp clean to avoid pigmentation. Amla and its anti-microbial properties, will not just banish hair odour but it will also remove the germs sticking on your hair.

6. **Reduces graying of hair:** According to Ayurveda, premature graying usually occurs due to excess pitta in the body. Some of the signs of excess pitta include skin rashes, burning sensations, pectic ulcers, excessive body heat, and heartburn. Amla, a natural coolant, is an excellent remedy for fixing the pitta condition, which reduces graying.

7. **Strengthens hair:** Amla juice serves as a beneficial tonic for both skin and hair. It strengthens your hair follicles thereby facilitating hair growth and strengthening of the hair. Plus, strengthens the roots, maintains colour and improves lustre. Eating fresh gooseberry or applying its paste on the roots of your hair improves hair growth and colour.

8. **Antioxidant:** Amla has twice the antioxidant power of acai and around 17 times of pomegranate. It has the power to eliminate toxins in the body and serves as a great antioxidant. Due to its antioxidant potential, it is often used as a nutritional supplement in chayavanprash and other Ayurvedic medicines.

9. **Natural shine:** Amla powder can be added to the home-made hair masks to add a natural shiny to your hair. Make sure to apply it regularly to have better results. The surplus of vitamin C in amla can help halt pre-mature greying. If you want to enhance the natural colour of your hair, all you have to do is mix amla powder with henna powder.

10. **Thickening of hair:** With its nutrients and other beneficial properties, drinking amla juice regularly or simply applying it can make your hair thicker and bouncier. Amla has vitamin C, which is assisted by various minerals, nutrients, amino acids, and antioxidants, etc. That helps Amla in fighting against all the hair weakening factors and thickens hair.

11. **Prevents frizzy hair:** It prevents dryness and helps in restoring moisture. It also removes the dead cells. The essential fatty acids present in Amla strengthen hair follicles and add luster to the hair. With regular use of amla, you may get rid of that unmanageable frizzy hair.

12. **Enhances hair color:** Amla is usually used with henna so as to reinforce the hair color making it look natural. You can use Amla in various forms like in oil, juice, pickle and even in candy form to give back your hair, its natural color. [27]

### 10 Amazing Benefits of Amla

1. It’s an excellent source of Vitamin C.- Amla may be a highly potent sort of vitamin C, and contains far more vitamin C than is found in oranges.

2. It enhances immunity.

3. It’s high in antioxidants. Antioxidants prevent the body against free radicals. Free radicals are harmful and may damage cells, potentially resulting in cancer and other possible diseases.

4. It reduces inflammation.

5. It is good for digestion, and helps the body to absorb and assimilate nutrients from the foods we eat. Amla also reduces acidity. It’s tons more slow and delicate than other herbs that aid digestion. For example, ginger is an herb/root used for absorption. It is tons stronger and warmer than Amla. But don’t get me wrong, ginger is great for anyone who can switch it. Personally, as a private
who’s a touch more sensitive than most of the people, I tend to not have it fairly often. I prefer the mildness and cooler quality of Amla.

6.) It strengthens the liver and helps us to flush out toxins.

7.) It’s great for the urinary system. It helps flush out toxins through the urogenital system without over-stimulating it.

8.) Great for the skin. Whenever you see someone with tons of skin blemishes or acne, often times it’s thanks to them having a liver overrun by toxins. Since Amla helps to detoxify the liver and aids digestion (as well as being an honest source of vitamin C and other minerals), one among the results of taking it regularly is that it’s good for one’s complexion.

9.) Gives us healthier, more lustrous hair. Since Amla is great for digestion, it makes it easier for our bodies to soak up the calcium within the foods we eat, therefore leading to healthier hair (not to say healthier bones, teeth, and nails). It helps us to conserve our natural, young-looking hair color, and minimizes hair loss.

10.) Relieves menstrual cramping. If you propose to require Amla specifically to urge obviate menstrual cramps, you’ll got to start taking it a minimum of a couple of weeks before menstruation so as for it to be in your system long enough to have an effect.[28]

**FLAXSEED**- SYNONYMS: linseed, linum. Biological source: it consists of dried ripe seeds of the plant known as Linum Usitatissimum belonging to the family Linaceae. Geographical source: it is found in Russia, Canada and the U.S.A. and Argentina. In Egypt, Algeria, Italy and Greece only fibre flax is cultivated, while in India, it is cultivated for fibres as well as oil. Description: brown colour, odour characteristics, mucilaginous and bland taste, elongated, ovate, strongly flattened, round at one end and obliquely pointed shape.

Uses: Rich in various ingredients are discussed in brief below:-

1) **Great source of Vitamin E** - it is one of the best vitamin used for hair growth for the reason that of its strong antioxidants properties which stop hair and scalp damage. It helps improve the efficiency of capillaries, boosting blood circulation. It also help when it comes to prevent premature graying.

2) **Balances pH levels and oil production** - it helps balance pH and oil production. These are 2 factors that directly affect the rate at which gro hair and its health. Flaxseed soothes the scalp and helps calm the sebaceous glands and produces the right amount of oil for hair growth.

3) **Nourishes the hair** - seeds are rich in omega-3 fatty acids. These fatty acids are necessary for healthy hair growth. They nourish the follicles and hair shafts, making them stronger and fewer susceptible to the damage. It helps bind moisture to the hair shaft, controlling problems like breakage, split ends, dryness and frizz. Omega-3 fatty acids help improve hair elasticity.

4) **Soothe the scalp** - the regular use, or even ingestion, of flax seeds, prevents issues like acute hair loss, scalp eczema and dandruff. Seeds are a great source of both soluble and insoluble fibres. [29,30]

**BHRINGRAJ**- SYNONYMS: Eclipta, bhangra, maka, false daisy. Biological source: this consists of whole plant botanically known as Eclipta alba belonging to the family Asteraceae. Geographical source: in tropical parts of world and all over India, abundant in marshy places and available in all seasons. Description: green to greenish brown colour, odour is characteristics, bitter in taste.

Uses: 1. **Dandruff reduction** - bhringraj has antimicrobial and antifungal properties that can help reduces dandruff. It has also anti-inflammatory properties, which help psoriasis or other skin irritations on the scalp reduces by apply in oil form. It is also improve the circulation of the scalp which leads to promote the hair growth.

2. **Slows graying** - graying of hair is largely depends upon genetics. Graying is slow process of loss of pigment (melanin). The darkening properties of bhringraj of may help hair appear less gray.[31,32]

**JOJOBA OIL** - SYNONYMS: hohoba oil. Biological source: it is a mixture of liquid wax ester from the seeds of Simmondsia chinesis, S. Californica belongs to the family Buxaceae. Geographical source: it is an evergreen desert herb indigenous to the southern United States and north-western Mexico called as jojoba (or hohoba) by the American-Indians. In India, its commercial cultivation has been tried but at Jodhpur, Pune, Ahmednagar and Satara area have been successful cultivated. Description: golden yellow coloured liquid with characteristics odours

Uses: Condition hair-Remember, jojoba oil molecules are almost like sebum, which naturally coats your hair with oil. “Applying it to your scalp and hair can hydrate individual hair strands and help lock in moisture, leaving your hair feeling soft and healthy,” And because it’s super-lightweight, people with thin or fine hair can use it to hydrate their strands sans the heaviness of normal conditioners.

Ditch dandruff-Jojoba oil naturally contains hexadecanoic acid and octadecanoic acid, both of which are known for conditioning and protecting the hair. When massaged onto the scalp, the added hydration can help prevent dandruff or an itchy scalp—and because jojoba oil is skilled at balancing out the skin, ongoing use may also keep those pesky flakes from returning.
Protect against damage-The fatty acids in jojoba oil not only moisturize the hair, but protect it from styling tool-induced heat damage. And remember those potent antioxidants? They defend your hair against free radicals the same way they do your skin. For those with colour-treated hair, adding jojoba oil to your repertoire can help extend the length of your colour too. To score these protective benefits, run a drop of two of jojoba oil from beginning to end your hair before and after styling.

Promote hair thickness and growth- The vitamins and minerals found in jojoba oil (vitamins B and C, zinc, copper) provide nourishment to the hair and help keep it thick and growing. “The zinc that’s found in jojoba oil, for example, is vital for the tissue in the hair to grow,” “It helps the follicles grow and maintains the functionality of the surrounding oil glands”.

Delay grays-Copper deficiency can lead to loss of pigment and premature gray hair, and copper itself is currently being studied as a potential topical anti-aging compound. Because jojoba oil contains copper, along with protective antioxidants like vitamins C and E, applying it could help slow down this process and restore some of the lost copper.[33]

Jojoba oil mimics the natural oil sebum, which is produced in our scalp, which helps treat a dry scalp. It nourishes the hair and maximizes the rate at which the hair grows. It is also known to prevent premature aging and is used for hair and scalp treatments and restoration.[34]

CASTOR OIL- SYNONYMS: Ricinus oil. Biological source: it is the fixed oil obtained from the cold expression of the seeds of Ricinus communis, belonging to the family Euphorbiaceae. Geographical source: castor seeds are produced in most tropical and sub tropical countries. In India, castor is one of the major oilseeds crops and are grown in Andhra Pradesh, Gujarat and Karnatak. Brazil, U.S.S.R., Thailand, U.S.A., Romania and other countries producing this on large scale.

Uses: Benefits Of Castor Oil For Hair
1. Research shows that castor helps stimulate hair growth and reduce dandruff.
2. Castor oil contains ricinoleic acid, which has anti-inflammatory properties. Hence, it can help soothe and reduce irritation in the scalp.
3. Castor oil may help reduce dandruff. It has antimicrobial, antibacterial, and antiviral properties. These may help clean the scalp and protect it from infections.
4. Castor oil improves blood circulation. This can help increase blood circulation to the scalp and increase the hair’s thickness and density.
5. Castor oil contains omega-6 fatty acids. These fatty acids can help get better overall hair health and hair texture.
6. Castor oil makes hair darker and prevents early aging of hair like premature graying.
7. Castor oil also has antioxidant properties. Hence, it may help reduce hair damage and hair fall caused by free radicals.
8. A study showed that castor oil helps reduce hair loss, split ends, and hair damage.
9. Castor oil can also help moisturize the hair and condition it.
10. A study showed that castor oil could help increase the luster of hair [35,36].

SEASAME OIL- SYNONYMS: til, gingelly, benne. Biological source: it is fixed oil obtained by expression of the seeds of Sesamum indicum belonging to the family Pedaliaceae. Geographical source: the plant is indigenous to India, and is cultivated in Caribbean islands, Japan, Africa and the United States. Description: pale yellowish liquid colour, slight characteristics odour, bland taste.

Uses: Treats Premature Graying-Massaging your hair and scalp with vegetable oil can prevent premature graying, retaining the natural color of your hair for extended. In fact, vegetable oil has hair darkening properties. Regular use of this oil will aid darken your hair while keeping it healthy.
2. Promotes Hair Growth-Sesame oil improves the circulation of blood within the scalp, and it thereby promotes hair growth. It is also highly penetrative which helps heal chemical harm, and supplies nourishment to your hair shafts and follicles.
3. Protects Hair from Harmful UV Rays-Another benefit vegetable oil offers to hair health is that’s a natural sun-blocking agent. Applying vegetable oil to your scalp and hair prevents the potential hair damage that would occur during extended sun exposure. Sesame oil forms a protective coat round the hair shaft, keeping it safe from the harmful rays of the sun. It also saves your hair from the damaging effects of pollution.
4. Treats Head Lice-Another lesser known advantage of vegetable oil is that it are often used with other essential oils to treat head lice. Regularly applying the oil to hair before shampooing has proven to be extremely beneficial for an equivalent. Sesame oil is antibacterial and using it on the scalp helps keep both fungal and bacterial infections at bay.
5. Soothing Properties-Sesame oil has soothing and tranquilizing properties. Harsh heat can be damaging to the hair follicles. Sesame oil acts as a coolant, performing from within and nourishing the scalp from inside and out. Sesame oil locks the moisture within, thus stop further damage.
6. Sesame Oil For Dandruff-Massaging vegetable oil into your scalp nightly, before bed, helps treat dandruff while soothing the scalp and preventing further aggravation.
7. Sesame Oil For Dryness-Mixing equal parts of root juice, sesame oil, and juice, creates the right potion for tackling dryness. You can apply this to your scalp together with your fingertips, massage the potion during a circular motion and canopy all parts of the scalp. Leave it on overnight and wash it off subsequent morning. For better results, soak a towel in predicament, squeeze out
the excessive water and wrap it around your head. Keep it on for half-hour then shampoo your hair. The heat will permit the oil mixture to penetrate and condition your scalp deeply.

8. **Sesame Oil For Hair Shine**-Rub 2-3 drops of the oil in between your palms then apply it to your hair. Not only will this add shine, it'll also work as a leave-in conditioner.

9. **Sesame Oil For Deep Conditioning**-Warm the oil and mix it with any deep moisturizer of hair. Apply the mixture onto your hair and leave it on for at least one hour. For maximum results, leave it on overnight.

10. **Revitalizes Damaged Hair**-The oil has high penetrating properties and works wonders to rejuvenate the damaged hair by nourishing the hair and scalp from deep within.

11. **Combats Hair Loss Due To Stress**-Stress is with the chief culprits behind hair loss. Due to its amazing cooling properties, vegetable oil helps relieve stress and, thus, plays an important role in combating hair loss.[37,38]

**NEEM OIL**

**SYNONYM:** Margosa oil. *Biological source:* it is non-edible fixed oil obtained from fully mature seeds or leaves of *Azadirachta indica,* belong to the family *Meliaceae,* collected late in summer. *Geographical source:* native to the sub Himalayan region, SI & NI. *Description:* leaves are compound, alternate, pinnate about 25 – 30 cm long. Leaflet are elliptic-lance shaped, smooth with tipped points and slightly oblique base. Fruit colour- yellowish become black after ripening, pleasant odour, firstly sweet and then bitter inn taste, globous in shape. Valvate and wrinkled when young and become hard when maturity.

Uses: Benefits of Washing Hair with Reetha

1. Washing hair with reetha does not involve the use of harmful chemical compounds like sulfates, parabens, phthalates, and other additives.
2. Reetha makes hair a lot more tangle-free in comparison with the results you get by using other commercial shampoos.
3. Since reetha is a very mild ingredient with naturally low pH, the natural oils of the hair remain intact, giving it a better shine and texture after each wash.
4. After using reetha, the hair becomes very manageable as it gets completely free from frizziness and split ends.
5. With regular use, reetha makes the hair stronger from the root, which reduces hair fall significantly.
6. Reetha makes the scalp feel more moisturized and helps it stay supple.
7. It is a great conditioner that also nourishes the hair to help it grow faster.
8. The saponins in reetha work as insecticides to eliminate lice from your scalp.
9. It is used in hair cosmetics as a hair tonic.[39]

Using reetha as a hair Shampoo is reasonably priced and giving gentler effect to your hair. The Reetha fluid makes your hair shinier and softer. It is antiseptic and anti-fungal in nature and keeps your scalp free from dandruff and prevents hair loss. It shows no side-effects in spite of using it daily that's not with chemical shampoo. Reetha for dandruff: Reetha is a superb hair cleanser. Apply the liquid over your scalp and left for jiffy followed by washing an equivalent with clean water. It helps to prevent dandruff and white flakes. Reetha has antibacterial and anti-fungal properties, which help in preventing hair loss by keeping dandruff away. Reetha is overloaded with iron which works well for the hair. Iron plays an important role in maintaining hair health. It will also supply the necessary antioxidants to the hair to promote hair growth.[40]

**NEEM OIL**

**SYNONYMS:** soapnut, arishta. *Biological source:* it consists of dried of fruits of *Sapindus trifoliatus* or mukorassi, belonging to the family *Sapindaceae.* *Geographical source:* native to the sub *Himalayan* region, SI & NI. *Description:* leaves are compound, alternate, pinnate about 25 – 30 cm long. Leaflet are elliptic-lance shaped, smooth with tipped points and slightly oblique base. Fruit colour- yellowish become black after ripening, pleasant odour, firstly sweet and then bitter inn taste, globous in shape. Valvate and wrinkled when young and become hard when maturity.

Uses: Benefits of Neem leaves

- **Treats dandruff and itchy scalp**-Struggling with dandruff and nothing seems to work? You can trust neem leaves for a dandruff-free mane and healthy scalp. They are a natural cure for scalp infections and dandruff. They possess antifungal and antibacterial properties that help remove dandruff once and for all and work wonders for itchy and flaky scalps. They reduce dryness, flakiness, itchiness and leave your scalp moisturized and healthy. Boil some neem leaves in water and use it as a pre-shampoo rinse. Pour the mixture on your hair and massage your scalp gently for a minimum of 10 minutes. Follow up with an anti-dandruff shampoo and use this rinse twice a week before your hair washes for a clean and healthy scalp.

- **Promotes hair growth**- One of the various benefits of neem leaves includes strengthening hair follicles and simultaneously reducing hair fall. The result is luscious, strong and healthy hair. Regular application of a neem hair mask or oil can offer you long and voluminous hair with none extra effort. They also improve hair texture and keep hair woes like thinning, breakage and hair loss at bay. Apply a hair mask made up of neem powder and copra oil onto your hair from root to tip once every week and massage to stimulate blood circulation in your scalp. Wash your hair and repeat this once a week. It is an age-old remedy for hair fall caused due to stress, pollution and overuse of heat tools.

- **Prevents premature graying**- If you are spotting greys prematurely, neem leaves can help! This is one of the lesser-known benefits of neem leaves. The high level of antioxidants in neem leaves prevent premature greying of hair caused thanks to hormonal imbalance, sun damage and stress. Mix some neem powder in half a cup of yogurt and apply this mixture onto your hair. Wash it off after 20 minutes and follow up with a light shampoo.
• Hydrates dry ends—Rough and dry ends, frizzy cuticles and dry and lifeless hair? Here is the remedy you have been looking for. Neem leaves benefit your hair an excellent deal by hydrating your dry strands and improving their health. Dry and frizzy ends contribute to stunted hair growth and make your mane look unkempt and tacky. Neem leaves condition your hair from root to tip and make it healthy looking and visibly soft. Take some lukewarm water during a bowl consistent with the length of your hair and add one to 2 tablespoons of neem powder into it. Mix and apply it on the tips of your hair. Leave it on for 10 minutes before rinsing it off. [41,42]

EVALUATION PARAMETERS FOR HERBAL HAIR OIL

The formulated herbal hair oil was subjected to physical evaluation.

Specific Gravity—Take the specific gravity bottle, rinse it with distilled water. Dry it in oven for 15 min, cool, close it with cap and weigh it (a). Now, fill the same specific gravity bottle with the sample and close it with cap and again weigh it (b). Determine the load of sample per milliliter by subtracting the load (b-a).

Viscosity—It is an index of resistance of a liquid to flow, the higher the viscosity of a liquid, the greater is the resistance to flow. The viscosity was determined by using Ostwald’s viscometer.

pH—The pH of herbal hairdressing decided using pH meter.

Acid Value—Preparation of 0.1 molar solution—Weigh 0.56 g KOH pellets and dissolve in 100 ml of distilled water and stir continuously. The prepared 0.1 molar KOH solution was filled within the burette.

Preparation of sample—Measure 10 ml oil and dissolve in 25 ml of ethanol and 25 ml of ether mixture and shake. Add 1 ml of phenolphthalein solution and titrate with 0.1 molar KOH solution.

Acid value = 5.61V*N/W (Where, V = Volume of standard sodium hydroxide used (ml), N = Normality of the sodium hydroxide solution, W = Weight of the sample (g)).

Saponification Value—Accurately weigh 1 ml of oil into a 250 ml of conical flask and 10 ml of ethanol:ether mixture (2:1) was added. To this flask, 25 ml of 0.5 N alcoholic KOH was added. Keep the flask for 30 min, and the flask was cooled. The cooled solution was titrated against 0.5 N HCl using phenolphthalein as indicator. Similarly, the blank titration was performed without taking oil (sample). The amount of KOH in mg used was calculated.

Saponification value = 28.05*(B-S)/W (Where, S = ml of KOH required to neutralize the substance, B = ml of KOH required for blank, and W = Weight of the sample taken for the test (g)). [43, 44]

RESULTS AND DISCUSSION—Color and odor of the oil sample were typical of their constituents. The pH of oil was found to be 6.8 which were relevant with human skin. The acid value is an indication of rancid state. More acid value indicates the higher percentage of free fatty acid. Lower the acid value, higher the yield/quantity of oil. The acid value of formulated hair oil was found to be 2.97. [45]

CONCLUSION

It is important to notice that just using the oil to massage your hair isn't a cure to dryness. Dryness is often caused by a lack of hydrating foods and liquids in your diet. Even though vegetable oil nourishes the scalp and controls dryness, you would like to use extra measures to combat scalp dryness and dandruff. Along with the utilization of herbal plants you ought to take some precautions to guard your hair. a number of the hair care tips you want to follow for healthy hair may include—Protect your hair the maximum amount as possible from external damage. Attempt to cover your hair before you step outside. Wear a hat or wrap a shawl to avoid direct contact with sun and pollution together with your hair. Cover your hair to preserve your hair health the maximum amount as possible. 2. Never skip oiling. Your mother or grandmother may need asked you to grease your hair on a daily basis. Both men and ladies should oil their hair regularly. It'll provide strength to your hair and stop hair fall. It’ll also give the specified nourishment to your hair. 3. Brush your hair wisely. While brushing your hair start from the tip to roots. Also, choose the proper brush consistent with your hair type. Don’t brush your hair when it's wet because the moisture makes your hair follicles weak which triggers hair fall. 4. Avoid styling on a daily basis. Following the recent trends could be cool for you but it can take a toll on your hair quality. Coloring, regular curling or straightening or excessive use of toiletry can contribute damaged and lifeless hair. 5. Don’t experiment an excessive amount of with hair care products. You ought to attempt to stick with one hair care product which suits you well. Don’t try a replacement product every other day. It also can cause hair damage. Drink plenty of water every day and include fresh fruits and vegetables in your diet. Be sure to eat lots of nuts and seeds that will tackle any deficiency of essential fatty acids. Also, do not wash your hair with hot water as hot water will bit the hair of its natural oils.
References:


[38]. Guo EL, et al. (2017). Diet and hair loss: effects of nutrient deﬁciency and supplement use.