

## A Systematic Review on Hair Care and Herbs Used in Hair Fall Treatment

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### Abstract

Hair damage is more common problem nowadays. Hair loss frequently smacks many people as it begins to thin in mid to late life. Many people are anguish from baldness, retreating hairline, hair damage and thinning of hair, although hair loss is very commonly seen not only in men but also in females who are prone to this problem. Whatever the reason for hair loss, it is never hilarious. The hair is an integral part of the way to feel about the self appearance and when the hairs are lost it can be damaging to self-esteem and self-confidence. Some of the other factors that are accountable for hair loss in humans according to the American Academy of Dermatology includes but not limited to poor diet, improper care of the hair, health disorders like thyroid and anaemia problems, conditions like menopause and alopecia and also due to chemotherapy and certain medications. The cited review article includes various herbals used in the treatment of hair fall. The current review emphasised on various herbs used in marketed formulation in the treatment of hair fall.

### Keywords

*Hair loss, Herbal, Alopecia*



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## INTRODUCTION

### Normal hair growth cycle<sup>(1, 2)</sup>:

The approximate growth of hair is 10 cm per year. Hair follicle undergoes three phases of growth in a cyclic manner.

**1. Anagen:** It is growth phase which may vary from 2-8 years and determines the length of the hair.

**2. Catagen:** It is transitional or regression phase which lasts about ten days. At the end of the growth phase the hair enters into this phase. The hair follicle shrinks and detaches from the dermal papilla.

**3. Telogen:** It is known as resting phase, which last about 5-6 weeks. This phase comes after the transitional phase. As the name indicates the hair follicle along with the dermal papilla remain in the resting phase. Both of them join and new hair growth begins at the end of this stage. This new hair pushes the old one out and hair follicle enters in the growth phase again.

Each hair passes through all these phases independent of the neighbouring hairs.

### Common Reasons of hair loss / fall<sup>(1, 2, 3)</sup>:

There are several reasons for hair loss in both males and females. Following are some of the most common reasons for hair loss.

- ✓ Hereditary
- ✓ Hair Dye
- ✓ Straightening and Curling Irons
- ✓ Chemicals Found in Hair Care Products
- ✓ Poor Diet
- ✓ Thyroid Issues
- ✓ Anaemia
- ✓ Menopause
- ✓ Pregnancy
- ✓ Chemotherapy

While hair loss can be damaging to the way we feel about ourselves, it can be corrected easily at home with different herbal remedies.

### Hair Care Tips<sup>(1, 2, 3, 4)</sup>:

- Stress has a bigger impact than you think. Meditation can be very helpful, as well as exercise.
- Massage your scalp often: This will help your blood flow through it and get your hair to grow faster.
- Rinse your hair with vinegar before shampooing. It makes your hair look shiny and cleaner; plus, it treats dandruff.
- Most people use more shampoo than they need. Depending on hair length, you probably only need about a quarter sized dollop.

- Rinse your hair under cold water after you finish shampooing; and conditioning to make it shine and look even more luscious than it was before.
- When towel drying, don't rub the hair vigorously. This splits the hair. Try using a micro fiber towel as they soak up lots of moisture.
- Deep conditioning is very good for your hair. It keeps hair soft, healthy and moisturized.
- After you shower, try using a wide toothed comb, or even your fingers, rather than a brush.
- Do not sleep with wet or damp hair. This will weaken the follicles and make hair strands brittle. Blow dry in low heat at the roots before bed.
- Brush your hair regularly before going to bed each night.
- Avoid excessive use of color dyes on your hair
- Get your hair trimmed off every month. In order to promote its growth and shed dead ends. You will see that this even helps ease your ability to style your hair..
- Eat healthy and give your hair the right amount of vitamins.

### Herbal home remedy for Hair fall:



Red gram aids in treating baldness and hair loss
Coconut milk and oil promotes growth of new hair
Mustard oil and henna leaves aids in growth of new hair
Lemon and black pepper seed help to stop loss of hair
Applying coffee over bald areas helps to rejuvenate hair
Application of coriander juice on scalp is an effective remedy
Olive oil mixed with honey and cinnamon helps to grow new hair
Use of liquorice mixed with milk and saffron stimulates hair
Application of fenugreek seed mixed with water aids in hair
Shampoo prepared by mixing and boiling amla, reetha, Shikakai is good home remedy

**Coriander Juice:** Juice obtained from the leaves of coriander can also be applied to the scalp and they have been found to be beneficial in the growth of new hair.

**Mustard Oil and Henna Leaves:** Henna leaves can be boiled in mustard oil and applied to the patchy area devoid of hairs. This aids in the growth of healthy hair.

**Coconut Milk:** Coconut milk is a rich source of protein and can also induce the formation of new hairs. Tender coconut fruit can be broken down carefully or bored to obtain the milk. When the milk is applied on

the scalp of a bald individual, it gives rise to new hairs.

**Amla, Shikakai and Reetha:** These can all be mixed together and boiled in water to yield a shampoo that you can apply regularly. This results in the rejuvenation of hair in bald individuals. It has been recognized as one of the most essential home remedies for treating baldness.

**Lemon and Black Pepper Seeds:** These can be made into a paste and applied over the bald area to stop any further loss of hair.

**Liquorice, Milk and Saffron:** A pinch of saffron added to milk containing ground up pieces of liquorice can stimulate the growth of new hair in the bald area.

**Fenugreek Seeds:** Mix with water and apply to the bald area and leave it for an hour, followed by washing. Doing this for a month can result in the growth of hair.

**Red Gram:** A paste made up of red gram can be applied for treating both baldness and hair loss.

**Olive Oil, Honey and Cinnamon:** A paste of olive oil, cinnamon powder, and honey applied before a bath and then washed off after 15 minutes is effective in treating baldness.

**Pepper and Curd:** Pepper is mixed in curds and applied on the scalp once a week, followed by washing hair with warm water.

**Herbs:** A combination of dried bhringaraja, amla, haritaki and vibhitaki made into a paste and applied on the bald area results in the growth of new hair.

**Following are details of some important herbs used in hair loss treatment:**

**Rosemary**<sup>(5, 6)</sup>:



**Pharmaceutical Name:** Polar Plant, Compass-weed

**Biological Source:** It is a woody, perennial herb with fragrant, evergreen, needle-like leaves and white, pink, purple, or blue flowers of *Rosmarinus officinalis*, family *Lamiaceae*.

**Part used:** Leaves (fresh/dried)

**Chemical Constituents:** This herb is rich of volatile oil and oleoresin.

It also helps in reducing hair thinning and balding. It will help in improving the circulation of the scalp and this will in turn

help in hair growth. Rosemary works effectively on the hair when combined with olive oil.

Regular application of oil prepared from mixing olive oil and rosemary will help in preventing graying of the hair prematurely. It is an effective product top use for treating flaky and dry scalp. It will help in nourishing the hair follicles and strengthening the hair on the scalp right from the shaft.

**Other uses:** Rosemary is used topically (applied to the skin) for preventing and treating baldness; and treating circulation problems, toothache, a skin condition called eczema, and joint or muscle pain such as myalgia, sciatica and intercostal neuralgia. It is also used for wound healing, in bath therapy (balneotherapy), and as an insect repellent. Rosemary is used in digestion problems including heartburn, intestinal gas (flatulence), liver and gallbladder complaints and loss of appetite. It is also used for gout, cough, headache, high blood pressure and reducing age-related memory loss. Some women use rosemary for increasing menstrual flow and causing abortions.

### **Amla** <sup>(7, 8, 9)</sup>:



**Pharmaceutical Name:** Indian Gooseberry, *Emblic myrobalan*, Amla, Amalaki

**Biological Source:** It consists of Fresh, dried ripe fruits of *Emblica officinalis* belonging to family *Phyllanthaceae*.

**Part used:** Fruits (ripe, dried or fresh)

**Chemical Constituents:** The major chemical components in amla are Phyllembin, Ascorbic acid (Vitamin C), Gallic acid, Tannins, Pectin. Amla is rich in vitamin C, tannins and minerals such as phosphorus, iron and calcium which provides nutrition to hair and also causes darkening of hair. Amla may be given in combination with Hibiscus, Bramhi and Methi.

Crush amla fruit to extract juice or buy amla powder available at any herbal store.

Add 2 teaspoons of the juice or powder into an equal quantity lemon juice.

Mix well, apply to the scalp and leave it to dry; then rinse using warm water.

**Other uses:** Amla is used to relieve asthma, bronchitis, constipation and piles. It burns fat and used in treatment of gastric disorders including hyperchlorhydria. It is blood purifier and flushing out toxins from body. Amla is used in eye health by improving eyesight and minimizes intraocular tension and controls problem of onset of cataract. Other uses of amla include its use in anti-aging preparations, acne, insomnia, blood purifier.

**Fenugreek** <sup>(10, 11, 12)</sup>:



**Pharmaceutical Name:** Methi, Methika, Greek Clover, Greek Hay, Greek Hay Seed

**Biological Source:** It consists of dried seeds of *Trigonella foenum graecum* belonging to family *Fabaceae*.

**Chemical Constituents:** It contains Diosgenin the steroid. Saponins including yamogenin, gitogenin, tigogenin and neotingogens are also present in fenugreek.

Fenugreek is a potent dihydrotestosterone (DHT) blocker and rich source of

multivitamin B which plays major role in stimulant property. DHT is synthesized in adrenal glands, hair follicles and testes and prostate by action of enzyme  $5\alpha$ -reductase, which plays major role in occurrence of alopecia. Blocking this DHT synthesis helps in preventing hair loss and treating alopecia. Fenugreek seed or extract could be incorporated in oils or shampoos for hair loss prevention.

**Other uses:** Fenugreek reduces cholesterol, regulates blood sugar and controls diabetes, enhances breast milk production, protects from cancer, maintains healthy testosterone levels, helps to lose weight, helps to reduce menstrual discomfort.

**Bhringraj** <sup>(13, 14)</sup>:



**Pharmaceutical Name:** Bhangra, Bhangaraiya, Maka, Markara

**Biological Source:** *Eclipta alba* family *Compositae*

**Part used:** Whole plant

**Chemical Constituents:** It consists of Flavonoids & isoflavonoids- Wedelolactone, Desmethylwedelolactone, Triterpene glycosides & Saponins- Eclalbasaponins I-VI,  $\beta$ -amyrin. It is a common weed growing throughout India on waste ground.  $\beta$ -sitosterol and wedelolactone responsible for hair growth activity.  $5\alpha$ -reductase inhibition contributes in treatment of androgenic alopecia.  $5\alpha$ -reductase inhibition by  $\beta$ -sitosterol has been well documented in this study.

**Other uses:** Bhringraj is used as bug repellent, acne, pail relief, respiratory disorder, cancer, blood circulation. Used in CNS disorder like insomnia, anxiety, emotional stress. Some research paper shows that a significant decrease in mental stress and anxiety, as well as increased cognitive function when lavender oil and rosemary oil inhaled before taking the examinations. It works to rejuvenate kidneys and liver. In Ayurveda, the root powder is used for treating hepatitis, enlarged spleen and skin disorders. Mixed with salt, it relieves burning urine sensation. Mixed with a little oil and applied to the head, the herb relieves headache.

**Stinging Nettle**<sup>(15, 16):</sup>



**Pharmaceutical Name:** Nettle, Big string nettle, Common nettle, Gerrais, Isirgan,

**Biological Source:** *Urtica dioica* family *Urticaceae*.

**Part used:** Roots and leaves

**Chemical Constituents:** Nettle contains histamine, formic acid, acetylcholine, serotonin, glucoquinones, many minerals (including silica), vitamins A, B, C, tannins.

It is an herb that helps in preventing the conversion of testosterone hormones into dihydrotestosterone which is the main cause for hair loss. Stinging nettle can be consumed in the form of pills. It can also be used as a hair oil to see good results.

Put the leaves of the stinging nettle in a jar containing olive oil for about three weeks. Make sure that the jar is tightly sealed. Keep the sealed jar in a cool place for about three weeks and make sure that it is not exposed to direct sunlight. After three weeks, you can apply the home made oil on your scalp and hair regularly to see visible hair growth. Adding this oil to your scalp and hair on a

regular basis will make you notice hair growth quickly.

**Other uses:** Stinging nettle root is used for urination problems related to an enlarged prostate. The problems include night-time urination, too frequent urination, painful urination, inability to urinate and irritable bladder. Stinging nettle root is also used for joint ailments, as a diuretic, and as an astringent. It is used in Urinary tract infections and inflammation, kidney stones.

**Peppermint** <sup>(17, 18)</sup>:



**Pharmaceutical Name:** Pudina, Pudyanu, Puthina

**Biological Source:** Peppermint (*Mentha piperita*, belonging to family *Lamiaceae* also known as *M. balsamea* Willd. It is a hybrid mint, a cross between watermint and spearmint.

**Part used:** Leaves (fresh)

**Chemical Constituents:** It contains terpenoids and flavonoids such as eriocitrin, hesperidin and kaempferol 7-O-rutinoside.

It will help in improving the growth of hair follicles and thereby promote hair growth.

Regular application of good quality peppermint oil on the scalp and the hair will offer cooling and soothing effect to your scalp and thereby promote hair growth. It will help in improving the blood circulation of the scalp and also bind the hair roots onto the scalp.

**Other uses:** Peppermint is used for the common cold, cough, inflammation of the mouth and throat, sinus infections, and respiratory infections. It is also used for digestive problems including heartburn, nausea, vomiting, morning sickness, irritable bowel syndrome, cramps of the upper gastrointestinal tract and bile ducts, upset stomach, diarrhoea, bacterial overgrowth of the small intestine, and gas. Some people also use peppermint for menstrual problems, liver and gallbladder complaints, preventing spasms during endoscopy procedures, and as a stimulant. Peppermint oil is applied to the skin for headache, muscle pain, nerve pain, toothache, inflammation of the mouth, joint conditions, itchiness, allergic rash, bacterial and viral infections, relaxing the colon during barium enemas, and for repelling mosquitoes.

***Aloe Vera*** <sup>(19, 20, 21):</sup>

**Pharmaceutical Name:** Korphad

**Biological Source:** Aloe is the dried latex of leaves of various species of Aloes, namely:

- *Aloe barbadensis* Miller (or Curacao Aloe);
- *Aloe ferox* Miller (or Cape Aloe);
- *Aloe perryi* Baker (or Socotrine Aloe);
- *Aloe africana* Miller & *Aloe spicata* Baker (Cape Aloe).

All these species belong to the family *Liliaceae*.

**Part used:** Leaves, Juice

**Chemical Constituents:** It contains proteolytic enzymes which repairs dead skin cells on the scalp. Aloenin is the major constituent responsible for promoting hair growth without irritating the skin.

It also acts as a great conditioner and leaves hair all smooth and shiny. It promotes hair growth, prevents itching on the scalp,

reduces dandruff and conditions hair. Diane Gage, author of *Aloe Vera: Nature's Soothing Healer* says, "Keratin, the primary protein of hair, consists of amino acids, oxygen, carbon and small amounts of hydrogen, nitrogen and sulphur. Aloe vera has a chemical makeup similar to that of keratin and it rejuvenates the hair with its own nutrients, giving it more elasticity and preventing breakage".

Regular application of the Aloe Vera gel will help in maintaining the pH balance of the hair. It will also help in opening up the blocked pores of the scalp and boost the growth of hair follicles. It is found to be really effective when mixed with coconut milk.

**Other uses:** People take aloe gel by mouth for weight loss, diabetes, hepatitis, inflammatory bowel diseases, osteoarthritis, stomach ulcers, asthma, radiation-related skin sores, fever, itching and inflammation, and as a general tonic. A chemical in aloe called acemannan is taken by mouth for HIV/AIDS. Aloe extract is used for high cholesterol. Aloe latex is taken by mouth mainly as a laxative for constipation.

***Ginseng*** <sup>(12, 22, 23, 24, 25):</sup>

**Pharmaceutical Name:** Panax ginseng

**Biological Source:** It is the dried root of different naturally occurring species of Panax, namely: *Panax ginseng* C.A. Mey or *Aralia quinquefolia* Deene and Planch (Korean Ginseng); *Panax japonica* (Japanese Ginseng); *Panax notoginseng* (Indian Ginseng) belonging to family *Araliaceae*.



**Part used:** Roots & Stems

**Chemical Constituents:** Ginseng chiefly comprises of a complex mixture of triterpenoid saponins which may be either a steroidal triterpene or a pentacyclic related to oleonic acid. However, these glycosides have been classified into three major heads, namely: Ginsenosides, Panaxosides and Chikusetsu Saponins. Ginsenoside Rg1, is one of the major saponins that has been isolated and identified in ginseng, with a steroidal triterpene aglycone known as (20S)-protopanaxatriol. It possesses hair growth promoting activity and that G-Rb1, may be one of the active constituents of

Ginseng radix in the mouse vibrissal hair follicle organ culture model

Ginseng is believed to stimulate the blood circulation, thus increasing the blood supply to the hair follicles. If taking ginseng supplements, it would be better to take them along with vitamin B6 and zinc supplements. For topical application, any hair oil infused with the ginseng root can do wonders. Terpenoid glycosides or ginsenoside which contained in ginseng can be used to help strengthen hair roots, because the function of the terpenoid glycosides or ginsenoside is the giver of extra nutrients, so it's will help the hair roots become stronger.

**Other uses:** Ginseng is often used to fight infections such as colds and flu. It is used for other infections including HIV/AIDS, infections of the intestine (dysentery) and particular infections (*Pseudomonas* infections) that are common in people with cystic fibrosis.

Ginseng is used to improve digestion and for loss of appetite, as well as for vomiting, inflammation of the colon (colitis) and inflammation of the lining of the stomach (gastritis).

**Ginkgo** <sup>(26, 27, 28)</sup> :

**Pharmaceutical Name:** Semen Ginkgo, Maidenhair tree

**Biological Source:** It consists of ripe seeds of *Ginkgo biloba* L. belonging to family *Ginkgoaceae*.

**Part used:** Leaves

**Chemical Constituents:** It consists of flavonoid glycosides, diterpenes (including terpene compounds called ginkgolides), bioflavones, quercetin, isorhamnetine kaempferol, proanthocyanidins, sitosterols, lactones, anthocyanin.

Ginkgo biloba leaf extract promote hair regrowth, through combined effects on proliferation and apoptosis of the cells in the hair follicle thus suggesting potential as a hair tonic.

**Other uses:** To strengthen lung and soothe asthma and to relieve leukorrhea. Ginkgo leaf is often taken by mouth for memory disorders including Alzheimer's disease. It is also used for conditions that seem to be due to reduced blood flow in the brain,

especially in older people. These conditions include memory loss, headache, ringing in the ears, vertigo, dizziness, difficulty concentrating, mood disturbances and hearing disorders.

**Lavender** <sup>(13, 18)</sup> :

**Pharmaceutical Name:** Lavandula, Camphor, Pink Lavender

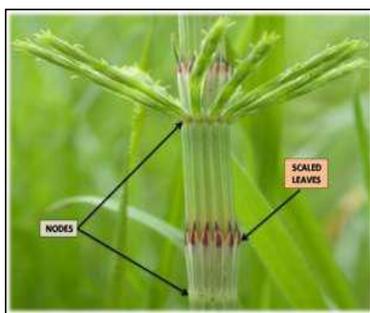
**Biological Source:** Most widely used species, *Lavandula angustifolia*, family *Lamiaceae*.

**Part used:** Flowers and oil obtained from flowers

**Chemical Constituents:** It consists of linalool, perillyl alcohol, linalyl acetate, camphor, limonene, tannins, triterpenes, coumarins, cineole, and flavonoids.

**Other uses:** Analgesic effects, anti-anxiety effects, anti-bacterial effects, anti-cancer effects, anti-fungal effects, anti-oxidant effects, cardiovascular effects, hypolipidemic effects, neurologic/CNS effects, sedative effects, spasmolytic effects.

**Horsetail** (29, 30, 31, 32):



**Pharmaceutical Name:** Bottlebrush, Horsetail, Mare's Tail, Scouring Rush, Shave Grass

**Biological Source:** *Equisetum arvense* L. belonging to family *Equisetaceae*.

**Part used:** Aerial parts

**Chemical Constituents:** It consists of Flavonoids, phenolic glycosides, triterpenoid and saponins.

Wide range of skin and hair cosmetics contains *Equisetum arvense* extract. In skin cosmetics it acts as anti-aging, moisturizer, anti-wrinkle, anti-acne, antiperspirant, conditioner. It prevents grey hair, strengthen the hairs and maintain hair tone. Horsetail extract is also used as anti-dandruff agent (Kuriyama). Horsetail improves the texture and tone of hair. The hair preparations contain *Equisetum arvense* extracts and silicones or cationic polymers. The extracts showed hair growth-stimulating effect in an aged man with alopecia. Hair conditioners are

prepared containing cationic surfactants, silicones, and plant components (*Equisetum arvense* extract). These provide smoothing and conditioning effect to hairs.

**Other uses:** Anti-diabetic, anti-oxidant or free radical scavenger, anaemia, diuretic.

Horsetail is used for “fluid retention” (edema), kidney and bladder stones, urinary tract infections, the inability to control urination (incontinence), and general disturbances of the kidney and bladder. It is also used for balding; tuberculosis; jaundice; hepatitis; brittle fingernails; joint diseases; gout; osteoarthritis; weak bones (osteoporosis); frostbite; weight loss; heavy menstrual periods; and uncontrolled bleeding (haemorrhage) of the nose, lung, or stomach.

**Calendula** (33, 34):



**Pharmaceutical Name:** Garden Marigold, Gold-Bloom, Holligold, Marigold

**Biological Source:** It consists of flowers of *Calendula officinalis* belonging to family *Asteraceae*.

**Part used:** Fresh or dried petals of the plant

**Chemical Constituents:** It contains 0.8 percent flavonoids, monodesmosidic and bisdesmosidic saponins, esterified and hydroxylated triterpenes. The essential oil of *Calendula* comprises of mainly sesquiterpenoids like  $\alpha$ -ionone,  $\beta$ -ionone and cardinal.

The flowers of marigolds are rich in minerals and anti-oxidants. Calendula oil applied to the scalp promotes growth of stronger hair by increasing collagen production and circulation in hair follicles. Use calendula alone or in combination with moisturizing oil.

**Other uses:** Calendula oil is used in skin products used to treat dryness or chapping, inflammation, issues like eczema, psoriasis, dermatitis.

**Liquorice** <sup>(35, 36, 37)</sup> :

**Pharmaceutical Name:** Yashtimadhu,

**Biological Source:** It consists of dried roots of the plant *Glycyrrhiza glabra* (Linn) belonging to family *Leguminosae*.

**Part used:** Roots

**Chemical Constituents:** The major active component of Licorice is saponin known as glycyrrhizin, also known as glycyrrhizic acid, which is an extremely sweet, foaming triterpene glycoside. It has a similar structure and activity as the adrenal steroids.

**Other uses:** Liquorice is generally used in skin problems like eczema, skin rashes, psoriasis, itchy or dry skin. It also used in respiratory problems like asthma. It helps to reduce the weight. One study shows that Liquorice may used to alleviate menopause problems and menstrual and premenstrual syndrome cramps. It has anti-viral, anti-bacterial and anti-inflammatory action.



**Shikakai** <sup>(38, 39)</sup> :



**Pharmaceutical Name:** Shikakai



**Biological Source:** It consist of dried fruits of *Acacia concinna* belonging to family *Fabaceae*

**Chemical Constituents:** In commercial extracts, when the plant is hydrolyzed it yields lupeol, spinasterol, acacic acid, lactone, and the natural sugars glucose, arabinose and rhamnose. It also contains hexacosanol, spinasterone, oxalic acid, tartaric acid, citric acid, succinic acid, ascorbic acid, and the alkaloids calyctomine and nicotine.

The pods are rich in Saponins and make a mild detergent, which has a neutral pH. Aritha powder, extracted from Soapnuts (*Sapindus Pericarp*) also contains Saponins, which acts as a foaming agent. It was used as soap in Ayurvedic tradition. The oils also maintain integrity of cosmetic products and could be used as a base instead of petroleum and plastic derivatives. There are significant evidences already generated for Ayurveda skin care in vitiligo, psoriasis, eczema and acne vulgaris.

## CONCLUSION

Hair loss, a dermatological disorder has been recognized for more than 2000 years. It is common problem in the world that has affected men and women. It is investigated

through many treatment are on offered including natural or synthetic based products, but natural product are continuously gaining popularly and the use of plant extract in formulation. Because synthetics based product may cause human health hazard with several side effects. In the future it is possible that many new plants extract of commercial significance will be identified.



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