

Indian Medicinal Plants Used in Hair Care Cosmetics: A Short Review

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ABSTRACT

Plants act as a source of food and medicine from long times. A wide range of plant oils are used in cosmetics and toiletry preparations. Hair is an important part of body, reflect personality of person. There are many cosmetics available for hair care. From long time plant materials are used for hair care. In this review, Indian medicinal plants having hair care properties are summarized in terms of their biological source, active constituents and biological activity.

Keywords: hair care formulations, hair tonic, natural plants, hair cosmetics.

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INTRODUCTION

In olden times herbal products were used for medicinal purposes, both internally as well as externally. Herbal drugs were used as juice, latex or in dried powder form.^[1] Now a day's personal care products containing ingredient from the plant origin are getting an increasing trend in the pharmacy world. Cosmetic product containing plant material as active ingredient is comes under the category of cosmeceuticals.^[2-3] Appearance of hair makes an important impact on total body feature. Color, length and appearance of hair make a significant difference from person to person. Cosmetics that are used for hair care purpose applied orally and should not be used for therapeutic purpose.^[4-5] Basic feature of hair care cosmetics are as-

1. Should be easy to use
2. Should have local effect.
3. Should be harmful to hair skin and mucous membrane.
4. Should not be allergic to body.
5. Should be applied topically.

Hair care cosmeceutical formulations mainly include shampoo, gel, lotion solution and oil.

Different herbs used in hair care

Amla (Emblica officinalis)

Amla (*Emblica officinalis*, Family- Euphorbiaceae) is deciduous tree widely found in India at the height of 350 m. It is often cultivated at commercial level in Uttar Pradesh, Gujarat, Rajasthan and Maharashtra. Amla contains 5-6% of tannins such as gallic acid, ellagic acid and phyllembelin. It is commercialized in the form of shampoos and hair oil. Mainly its oil and aqueous extract is used in the hair care formulations.^[5]

Brahmi (Centella asiatica)

Brahmi (*Centella asiatica*, Family- Umbelliferae) is herbaceous creeping herb growing at the bank of river. In India, brahmi is found in wet damp and marshy places of north India. Brahmi contains essential oils, sterols, flavonol, glycoside and triterpenoid saponins. Brahmi oil and soft extract are two commercial preparation of brahmi used in hair care formulations. It is also categorized as rasayan in ayurveda and hence possesses the properties of delaying ageing signs in body like graying of hairs. Brahmi also helps in relieving mental fatigue and hence helps in maintain proper bodily environment that leads to healthy hairs.^[6]

Bhringraj (Eclipta alba Linn.)

Bhringraj (*Eclipta alba* Linn, Family- Asteraceae) is an annual or perennial plant found in moist places throughout India, ascending up to 600 fts. Bhringraj mainly contains coumestans (wedelolactone and dimethyl wedelolactone), alkaloid (ecliptine), glycosides (β -amyryn), triterpenic acid and steroids (ecalbasaponins). Brahmi oil is very good hair tonic and used as a constituent in hair formulation for healthy, black and long hair.^[5-7]

Coconut (Cocos nucifera Linn.)

Coconut (*Cocos nucifera* Linn, Family-Palmae) tree is tall rising to a height of 30 meters, grow near the sea side. Oil of coconut fruit is used in different hair formulations such as shampoos and hair oil. Coconut oil has good saponification value so used in shampoos for hair care.^[7]

Eucalyptus (Eucalyptus globulus)

Eucalyptus (*Eucalyptus globulus*, Family- Myrtaceae) is a long tree, cultivated in India for production of oil. Oil contains mainly cineole and lesser amount of volatile aldehyde, terpenes, alcohol and phenol. The oil is colorless or pale yellow liquid that has a characteristics aromatic odor and a pungent, spicy and cooling taste. It produces very satisfactory results in scruff and chafes dandruff.^[6-7]

Henna (Lawsonia inermis)

Henna (*Lawsonia inermis*, Family- Lythraceae) grows wild and cultivated as garden plant throughout India. Henna leaves are the part of plant that is used in hair formulations. Leaves mainly contain lawsone (quinone) dissolve in basic pH to give dark intense orange color. Henna leaves have been used from ancient time as a hair colour due to the chemical interaction of lawsone (thiol group) to the keratin.^[6, 7, 8, 9]

Neem (Azadirachta indica)

Neem (*Azadirachta indica*, Family- Melliaceae) is indigenous to all plains in Indian subcontinent. It also grows widely in the sub-Himalayan track at altitude of 700–10, 000 m above sea level. Neem leaves contain flavonoids, steroids, terpenoids, sterols and nimbolide. Neem seed and seed oil contain different bitter limonoids including nimbin, nimbibin, salanin etc. many commercial shampoos contain neem oil for the control of ticks, fleas and lice. In European countries neem oil also used in different herbal hair oil, hair tonic and conditioners.^[6-7]

Gurhal (Hibiscus rosa sinensis)

Gurhal (*Hibiscus rosa sinensis*, Family-Malvaceae) is a popular Indian garden plant. Gurhal contain taraxeryl acetate, beta-sitosterol, campesterol, stigmasterol, cholesterol, erogosterol, flavonoids and flavonoid, glycosides, lipids, citric and oxalic acids. In herbal formulations, hibiscus petal is used to stimulate thicker hair growth and to prevent premature graying, hair loss and scalp disorders. Petals extract acts as a natural hair conditioner and can be used in hair washes.^[6-10]

Jatamansi (Nardostachys jatamansi)

Jatamansi (*Nardostachys jatamansi*, Family-Valerianaceae) is grown widely in India, especially north India to east India. These are found in the alpine Himalayas at an altitude of 3000–5000. Rhizomes of jatamansi contains 1 to 2 % of pale yellow volatile oil, jatamansic acid, and ketones (jatamansone and nardostachone), resin, sugar etc. oil obtained from rhizomes of this plant used in hair tonic preparations, to promote the growth of hair and impart blackness. Jatamansi is a useful hair tonic and is commonly used in hair oils, promoting hair growth and luster. It promotes hair growth and imparts black color to the hair.^[7]

Fenugreek (Trigonella foenum graecum)

Fenugreek (*Trigonella foenum graecum*, Family-Leguminoseae) plant is a quick growing annual leguminous herb about 2 feet in height. In India Fenugreek (*Trigonella foenum graecum*, Family- Leguminoseae) is often cultivated as a cover crop in citrus-fruit groves to take advantage of their leguminous nature. The major producers of Indian fenugreek are Rajasthan, Gujarat, Uttar Pradesh and Tamilnadu. Generally seed is used to prepare hair care formulations. Seed contain alkaloids (Neurin, Trigonelline, Choline, Gentianine), amino acids (Isoleucine, 4-Hydroxyisoleucine, Histidine, Leucine, lysine), Saponins (Graecunins, fenugrin B, fenugreekine, trigofenosides A-G), lipids, vitamins and fibers. Traditionally fresh Fenugreek leaves paste applied over the scalp regularly before bath helps hair grow, preserves natural color, keeps hair silky and also cures dandruff.^[6, 10, 11]

Cedar wood oil (Juniperus virginiana)

Cedar wood oil extracted from the woods (*Juniperus virginiana*, Family-) for hair loss and dandruff. The chief components of cedar wood essential oil are alpha cedrene, beta cedrene, cedrol, widdrol, thujopsene and a group of sesquiterpenes, which contribute to its

medicinal values. Cedarwood oil is used for hair care formulations, especially for dry hair, and to induce hair growth along with other essential oils. Even people having the problem of dandruff can too benefit from using cedarwood oil.^[9, 11, 12]

Rosemary oil (Rosmarinus officinale)

Rosemary (*Rosmarinus officinale* Linn, Family- Labiatae) is cultivated in Indian gardens. It contains volatile oil, resin, ursolic acid etc. Commercially rosemary oil is used in hair lotions and hair gels to promote hair growth and shining.^[6]

Shikakai (Acacia concinna)

Shikakai (*Acacia concinna*, Family-Mimosaceae) is a shrub widely found in plains of central and south India. Shikakai literally means fruit of hairs. It is an excellent natural hair cleanser and astringent and also acts as detangle. It is used in soaps and shampoos for hair wash, promotes hair growth, removes dandruff and strengthens hair.^[5-7]

Almond oil (Prunus dulcis)

Almond oil (*Prunus dulcis*, Family- Rosaceae) is obtained from ripe seeds of *Prunus dulcis* by cold expression technique. It is commercially cultivated in north part of India. Almond oil contains 40-55% fixed oil, about 20% proteins, mucilage and emulsion. The fixed oil constituents are mainly oleic acid, linoleic acid, and palmitic acid. It is commercially used in dermatology as hair lotion and hair tonic.^[11]

Ginko (Ginko biloba)

Ginko (*Ginko biloba*, Family- Ginkgoaceae) are obtained as dried leaves from *Ginkgo biloba*. It is commercially grown in North India. The leaves chiefly contain terpenes, ginkgolides, flavanol glycosides and kaemferol. It is commercialized in the form of shampoos and hair lotions. Mainly leaf extract is used in the hair care formulations.^[10-11]

Sandalwood oil (Santalum album)

Sandalwood oil (*Santalum album*, Family- Santalaceae) is from the heartwood of obtained from *Santalum album* an evergreen tree 8-12 meter in height by steam distillation method. It is indigenous to South India, and grows in the Western Ghats and a few other mountains. The Sandalwood oil contains 90-97% of sesquiterpenes alcohol (Santalol), hydrocarbons, acids, aldehydes and ketones. Sandalwood oil is employed as hair care products.^[9-11]

Sesame oil (Sesamum indicum)

Sesame oil (*Sesamum indicum*, Family- Pedaliaceae) is obtained from ripe seeds of *Sesamum indicum*, an annual herb by expression technique. Sesame is produced commercially in Gujarat, West Bengal, Rajasthan, Tamilnadu, Orissa, Madhya Pradesh, Andhra Pradesh, Maharashtra, Uttar Pradesh, Punjab, and Karnataka in India. Sesame oil contains palmitic acid, oleic acid, linoleic acid, linolenic acid, stearic acid, arachidic acid, behenic acid, and gandleic acid. Sesame oil is used commercially for hair tonic formulations.^[8]

Senna (Cassia angustifolia/Cassia acutifolia)

Senna (*Cassia angustifolia/Cassia acutifolia*, Family- Leguminoceae/Fabaceae) is obtained as senna leaf from dried leaflets of *Cassia angustifolia* (Indian senna) & *Cassia acutifolia* (Alexendrian senna). The senna (*Cassia angustifolia*) is most commercially obtained from south india and some from the north part of India. The senna leaves contain rhein, chrysophanol, emodin, aloe emodin, mono and diglucosides, kaemferol. Palmidin, myricyl alcohol and mucilage. The leaves are commercially employed as hair black dye.^[7-9]

Lemon oil (Citrus limonum)

Lemon oil (*Citrus limonum*, Family-Rutaceae) is obtained from peels *Citrus limonum* by cold extraction technique. The lemon is commercially grown in north-west region of India. The lemon oil contains α -pinene, camphene, β -pinene, sabinene, myrcene, α -terpinene, linalool, β -bisabolene, limonene, trans- α -bergamotene, nerol and neral. Lemon oil is used as hair cleaning agent.^[9-12]

Rose Oil (Rosa Damascena)

Rose oil (*Rosa Damascena*, Family- Rosaceae) is obtained from fresh petals of *Rosa Damascena* by hydro-steam distillation technique. Rose is grown in almost all the parts of India. Rose oil contains citronellol, geraniol, linalool, farnesol, stearoptene, camphene, eugenol and pinene. Rose oil is employed as Hair care products.^[3, 7, 11]

Sage oil (Salvia officinalis Linn)

Sage oil (*Salvia officinalis* Linn, Family-Labiatae) is obtained from dried leaves of *Salvia officinalis* Linn by steam distillation technique. The Sage is shrubby perennial plant cultivated in India. The Sage oil contains α -pinene, cineole, linalyl acetate, thujone (44 to 45%), borneol, bornyl acetate, farnesol, and camphor. The sage oil is employed as anti dandruff agent.^[5-13]

Basil Oil (Ocimum Sanctum)

The Basil oil (*Ocimum Sanctum*, Family- Labiatae) is obtained from leaves & flowering tops of *Ocimum Sanctum* by steam distillation method. Basil Sanctum is cultivated in India widely. The basil oil contain 1, 8 cineol, linalool, citral, methyl chavicol (estragole), eugenol and methyl cinnamate. Basil oil stimulates and promotes hair.^[7-13]

Jojoba oil (Simmondsia chinensis)

Jojoba oil (*Simmondsia chinensis*, Family-Simmondiaceae) is obtained from seeds of *Simmondsia chinensis* by cold pressed method. The Jojoba plant is mainly grown in Rajasthan, Gujarat, Maharashtra, and Tamilnadu in India. The Jojoba oil contain Eicosenoic acid, Docosenoic acid and oleic acid. Jojoba oil is used as a revitalizing agent for hair.^[13]

Neem oil (Azadirachta indica)

Neem oil (*Azadirachta indica*, Family- Meliaceae) is obtained from powdered seeds, kernels or leaves of *Azadirachta indica*. Neem is native of India and grows throughout all parts of India. Neem oil contains Linoleic Acid, Lower Fatty Acids, Palmitic Acid, Stearic Acid and Oleic Acid. Neem oil is used as hair tonic and anti dandruff agent.^[2, 5, 13]

Methi (Trigonella foenum-graecum L)

Methi (*Trigonella foenum-graecum L*, Family- Fabaceae) is obtained from dried ripe seeds of *Trigonella foenum-graecum L*. Methi plant is cultivated mainly in Rajasthan, Gujarat, Uttar Pradesh, Tamil Nadu and Madhya Pradesh in India. Methi contain essential amino acids, protein, starch, sugars, mucilage, mineral matters, volatile oil, fixed oil, vitamins and enzymes. Methi is used as hair care agent.^[13-14]

Arnica (Arnica Montana)

Arnica (*Arnica Montana*, Family-Apiaceae) is obtained from dried roots and flowers of *Arnica Montana*. Arnica

is a perennial herb cultivated mainly in north region of India. Arnica contains Arnicin, volatile oil, Tannin and phulin. Arnica is used for hair tonics and anti-dandruff preparations.^[14]

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