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HERBS USED IN FORMULATING POLY HERBAL HAIR OIL – A REVIEW

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Abstract:

Hair plays a very important role in the personality of humans and for their cure by using lots of cosmetic products. Herbal formulations always have activity and comparatively lesser or no side effects with synthetic. Hair formulation of Emblica officinalis (Fruits), Bacopamonnieri (Leaves), Trigonella foenumgraecum (Seeds), Murraya koenigii (Leaf), Hibiscus rosasinensis (Flowers) in different concentrations in the form of herbal oil were studied for their hair growth activity, refractive index, acid value, saponification value. Admirable results of hair growth were seen in formulation prepared by different methods of oils preparation technique.

Keywords: *Hair formulation, Physical parameters, Herbal oil.*

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INTRODUCTION:

Hair plays a vital role in human body and it is considered to be protective appendages on the body and accessory structure of the integument along with sebaceous glands, sweat glands and nails [1]. The main problems associated with hair such as pigmentation problems (Fading), dandruff and falling of hair (Shedding)[2]. Each hair grows in three cyclic phases such as anagen (growth), catagen (involution) and telogen (rest). The anagen phase can be as short as 2-6 years. In the catagen phase, the growth activity increases and hair moves to the next phase, catagen phase is between 2-3 weeks. The telogen phase is a state at which the hairs move into resting state as 2-3 months. In general, 50 to 100 hairs are known to be shed everyday and an increase of more than 100 constitutes a state of hair loss or alopecia. Amla is

rich source of vitamin C and contains appreciable amount of pectin rich in mineral matters like phosphorous, iron, calcium[3]. Bacopa monnieri acts on brain so that it is called as nervine tonic. Hibiscus consists of calcium, phosphorus, iron, vitamin B1, riboflavin, niacin and vitamin C, used to stimulate thicker hair growth and prevents premature graying of hair. Bramhi contains alkaloids which enhance protein kinase activity. Methi contains high protein fodder which supply required protein nutrition to hair. Trigonella foenum graecum is used as high protein fodder and for its cleansing and softening activity and it also promotes scalp health and prevents hair falling [4]. Leaves of Murraya koenigii is used for its antiseptic properties [5]. Cocos nucifera is used to promote the growth of hair.

Herbs used in formulation:

S. NO	BOTANICAL NAME	FAMILY	TELUGU NAME	PLANT PART USED	CHEMICAL CONSTITUENTS	USES
1.	Embllica officinalis	Euphorbiaceae	Amalkamu, uririkai	Fruit	Aspartic acid, glutamic acid, alanine	Anti oxidant
2.	Hibiscus rosasinensis	Malvaceae	Mandaram	Flowers	β – sitosterol, stigmasterol, taraxeryl acetate	Prevents dandruff, hair loss
3.	Bacopa monnieri	Scrophuariaceae	Sambarenu	Leaves	Bacosides, with jujubogenin	Treatment of deminsia
4.	Trigonella foenum graecum	Fabaceae	Mentulu	Seeds	Saponins, coumarin, nicotinic acid,	Moisturizes hair & replenishes hair growth
5.	Semecarpus anacardium	Anacardiaceae	Nallajidi	Fruit	Vitamins, amino acids, biflavonoids	Anti oxidant Anti microbial
6.	Azadirachta indica	Meliaceae	Vepa	Leaves	Nimbin, nimbinene	Anti-dandruff
7.	Cocos nucifera	Arecaceae	Tenkayi chettu	Oil	Alcohols, ketones	Moisturiser
8.	Acacia concinna	Fabaceae	Cheekaya	Fruit	Tannins, saponins	Control dandruff and promotes hair growth
9.	Chrysopogon zizanioides	Poaceae	Kuruveeru	Roots	Caralene, vetivene	Antifungal, antibacterial
10.	Lawsonia inermis	Lyrthaceae	Goeranta	Leaves	Quinone, naphthoquinone	Anticancer

Plant profile 1:

Botanical Name	Emblica officinalis
Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Euphorbiales
Family	Euphorbiaceae
Genus	Phyllanthus L
Species	Phyllanthus E L
Popular Name(s)	Phyllanthus E, E, Amla
Parts used	Fruit
Habitat	Northern and South Western

**Plant Description:**

The tree is small to medium in size, reaching 1 - 8 m (3 ft 3 inch - 26 ft 3 inch) in height. The branchlets are not glabrous or finely pubescent, 10–20 cm (3.9 - 7.9 inch) long, usually deciduous. The leaves are simple, sessile and closely set along branchlets, light green, resembling pinnate leaves. The flowers are greenish-yellow. The fruit is nearly spherical, light greenish yellow, quite smooth and hard on appearance, with six vertical stripes or furrows.

Chemical constituents:

Emblica officinalis is very high in vitamin C, pectin, polyphenol compounds, gallic acid, ellagic acid,

corilagin, phyllantidine and phyllantine (both alkaloids). Its ascorbic acid content ranges from 1000mg to 1700mg per 100grams [6]. Also found are hydrolysable tannins punigluconin, pedunculagin and Emblicanin A and Emblicanin B [7].

Uses:

Emblica exhibits strong antioxidant activity. It is one of the most important plants in the traditional Ayurvedic medical system as well as in other traditional health systems for immunomodulatory, antiulcer, anti-inflammatory, hepatoprotective and anticancer actions. However, there is very limited clinical evidence to support the use of emblica for any indication [8].

Plant profile 2:

Kingdom	Plantae- plants
Sub kingdom	Tracheobionta – vascular plants
Super division	Spermatophyta – seed plants
Division	Magnoliophyta – Flowering plants
Class	Magnoliopsida – Dicotyledons
Sub class	Dilleniidae
Order	Malvales
Family	Malvaceae – Mallow family
Genus	Hibiscus L – Rosemallow
Species	Hibiscus rosa-sinensis L

**Plant Description:**

Hibiscus rosa-sinensis is a bushy, evergreen shrub or small tree growing 2.5–5 m (8–16 ft) tall and 1.5–3 m (5–10 ft) wide, with glossy leaves and solitary, brilliant red flowers in summer and autumn. The 5-petaled flowers are 10 cm (4 in) in diameter, with prominent orange-tipped red anthers[9].

Chemical Constituents:

Leaves and stems contain β -sitosterol, stigmasterol, taraxeryl acetate and three cyclopropane compounds and their derivatives. Flowers contain cyanidin diglucoside, flavonoids and vitamins, thiamine, riboflavin, niacin and ascorbic acid. Quercetin-3-diglucoside, 3,7-diglucoside, cyanidin-3,5-

diglucoside and cyanidin-3-sophoroside-5-glucoside have been isolated from deep yellow flowers; all above compounds and kaempferol-3-xylosylglucoside have been isolated from ivory white flowers.

Uses:

The flowers of Hibiscus rosa-sinensis are edible and are used in salads in the Pacific Islands. The flower is additionally used in hair care as a preparation. It is also used to shine shoes in certain parts of India. It can also be used as a pH indicator. When used, the flower turns acidic solutions to a dark pink or magenta color and basic solutions to green.

Plant profile 3:

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Lamiales
Family	Scrophulariaceae
Genus	Bacopa
Species	Bacopamonnieri
Zoological Name	Bacopamonnieri

**Plant Description:**

Brahmi is the small creeping herb with the numerous branches. It grows to a height of 2 -3 feet and its branches are 10 -35 cm long. It has oval shaped leaves that are 1-2 cm long and 3- 8 mm broad. Leaves are formed in pairs along the stems. Small-tubular, five petaled flowers are white- purple in colour. Its stem is soft, succulent, and hairy with the glands. Roots emerge out of the nodules and directly go to the soil. The fruit is oval and sharp at apex[10].

Chemical constituents:

The major phytoconstituent of Brahmi are Bacosides. Bacosides are saponins in nature, which help to repair

damaged neurons by enhancing proteins involved in the regeneration of neural-cell synapses in body. The alkali Brahmine resembles strychnine in action but is less toxic. It contains stigma sterol in free state. The active principle, Hersaponin resembles reserpine and chlorpromazine in action

Uses:

Bacopa has been used in traditional Ayurvedic treatment for epilepsy and asthma. It is also used in Ayurveda for ulcers, tumors, ascites, enlarged spleen, inflammations, leprosy, anemia and gastroenteritis[11].

Plant profile 4:

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Fabales
Family	Fabaceae
Genus	Trigonella
Species	Foenum-graecum Linn

**Plant description:**

Fenugreek, *Trigonella foenum-graecum* is an herbaceous annual plant in the family Fabaceae grown for its leaves and seeds which are used as a herb or spice. The fenugreek plant may have a single stem or may be branched at the stem base. The leaves of the plant are small and trifoliate with oval leaflets which are green to purple in color [12].

Chemical constituents:

Trigogenin, neotrigogenin, diosgenin, yamogenin, 4-hydroxyisoleucine, vitexin, isovitexin, saponaretin, homoorientin, vicenin-1, vicenin-2 and two flavonoid glycosides quercetin and luteolin and steroidal saponins have been isolated from seeds [13].

Uses:

Fenugreek has been used for controlling high blood sugar in people with diabetes. Some supplement products have been found to contain possibly harmful impurities/additives.

Plant profile 5:

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Rosidae
Order	Sapindales
Family	Anacardiaceae
Genus	Semecarpus
Species	Anacardium

**Plant description:**

It is medium to large sized deciduous tree with grey bark exfoliating in small irregular flakes, 15-25m in height and closely related to cashew. Leaves are simple alternate, oblong, rounded at apex glabrous above and pubescent beneath. Flowers appear in panicles greenish white in color appears in May and June. Nut of this plant is smooth, ovoid, lustrous black about 2.5cm long. Fruits ripen from December to March. Seeds inside the black fruit is called godambi, is edible when prepared properly. Fruits of this tree are also used for dye.

Chemical constituents:

Fruit contains biflavones, Bhiwanol. Nuts contain biflavones binaringenin, tetrahydrobutaflavone, tetra-

hydro-amentoflavone. Nut shell contains biflavonone semecarpufavanone, semecapetin. Kernel contains semidrying oil, glycoside [14].

Uses:

Various parts of these plants are commonly used in the Ayurvedic system of medicine for the treatment of various ailments, mainly alimentary tract and certain dermatological conditions. Reports shown noticeable impact on illnesses related to the fruit, blood pressure, respiration, cancer and neurological disorders. The seed inside the semecarpus anacardium is known as "Godambi" in hindi and is widely used in India as dry fruit. Godambi is eaten by Indians in winter and was commonly used as a method of birth control for women.

Plant profile 6:

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Rosidae
Order	Sapindales
Family	Meliaceae
Genus	Azadirachta A Juss.
Species	Azadirachta Indica A Juss

**Plant description:**

Height: 15–20 m (about 50–65 feet)

Flowers: Very sweet scented, especially at night, appear in March-May; white and fragrant; arranged auxiliary, normally in more-or-less drooping panicles which are up to 25 cm (10 in.) long; inflorescences branch up to the third degree, bear from 150 to 250 flowers; individual flower is 5–6 mm long and 8–11 mm wide; protandrous, bisexual flowers and male flowers exist on the same individual.

Fruit: Ripes in July and August, evergreen, the old foliage persisting till after the young leaves have expanded; branches wide spread.

Leaves: The opposite, pinnate leaves are 20–40 cm (8 to 16 in.) long, with 20 to 31 medium to dark green leaflets about 3–8 cm (1 to 3 in.) long; terminal leaflet is often missing; petioles short.

Chemical constituents:

Main chemical components are nimbin, nimbinene, azadirachtin, azadirachtol, azadirachnol, desacetynimbinene, nimbandiol, nimbolide, quercetin, beta-sitosterol, n-hexacosanol, nimbiol and nimocin[15].

Uses:

Neem leaves are dried and burnt in the tropical regions to keep away mosquitoes(11). These flowers are also used in many Indian festivals like Ugadi. Neem products are believed by siddha and Ayurvedic practitioners to be antihelmentic, antifungal, antidiabetic, antibacterial, antiviral, contraceptive and sedative. Neem oil is also used for healthy hair, to improve liver function, detoxify the blood and balance blood sugar levels. Neem leaves have also used to treat skin diseases like eczema, psoriasis etc.,

Plant profile 7:

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Liliopsida
Subclass	Arecidae
Order	Arecales
Family	Arecaceae
Genus	Cocos L.
Species	Cocos nucifera

**Plant description:**

Cocos nucifera trees have a smooth, columnar, light grey-brown trunk, with a mean diameter of 30-40 cm at breast height, and topped with a terminal crown of leaves. Tall selections may attain a height of 24-30 m; dwarf selections also exist. Trunk slender and slightly swollen at the base, usually erect but may be leaning or curved.

Leaves pinnate, feather shaped, 4-7m long and 1-1.5 m wide at the broadest part. Leaf stalks 1-2 cm in length and thornless.

Inflorescence consists of female and male auxiliary flowers. Flowers small, light yellow, in clusters that emerge from canoe-shaped sheaths among the leaves. Male flowers small and more numerous. Female flowers fewer and occasionally completely absent; larger, spherical structures, about 25 mm in diameter. Fruit roughly ovoid, up to 5 cm long and 3 cm wide, composed of a thick, fibrous husk surrounding a somewhat spherical nut with a hard, brittle, hairy shell. The nut is 2-2.5 cm in diameter and 3-4 cm long. Three sunken holes of softer tissue, called 'eyes', are at one end of the nut. Inside the shell is a thin, white, fleshy layer known as the 'meat'. The interior of the nut is hollow but partially filled with a

watery liquid called 'coconut milk'. The meat is soft and jellylike when immature but becomes firm with maturity. Coconut milk is abundant in unripe fruit but is gradually absorbed as ripening proceeds. The fruits are green at first, turning brownish as they mature; yellow varieties go from yellow to brown.

Chemical constituents:

The chemical constituents of *cocos nucifera* have some biological effects such as antihelminthic, anti-inflammatory, antinociceptive, antioxidant, antifungal, antimicrobial and antitumor activities [16].

Uses:

The oil and milk derived from it are commonly used in cooking and frying. Coconut oil is also widely used in soaps and cosmetics. The husk and leaves can be used as material to make a variety of products for furnishing and decorating. Coconuts have been used in traditional medicine around the world to treat numerous ailments, ranging from sore throat, colds, and earaches to tuberculosis, tumors and ulcers. Recent medicinal studies have found that coconut can have antibacterial, antifungal, antihelminthic and antiviral properties, among other health benefits

Plant profile 8:

Kingdom	Plantae
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Fabales
Family	Fabaceae
Genus	Senegalia

**Plant Description:**

Habit: A large climbing shrub with numerous hooked prickles scattered through the branches and rachis of leaves.

Bark: Pale brown, polished

Leaves : Bipinnate, spiny on the rachis, but not on the stipules with a large gland at about the middle of the petiole below the pinnae and one between the uppermost or two uppermost pairs of pinnae, leaflets 12-25 pairs.

Inflorescence: It is a cluster of 2 or 3 stalked rounded flower-heads in axils of upper reduced leaves, appearing paniculate i.e., forming panicles. Stalk (peduncles) carrying the cluster is 1-2.5cm long, velvety. Flower – heads about 1cm in diameter when mature

Flowers: White or yellowish, complete, action morphic, hermaphrodite

Fruits: Pods thick and fleshy, 7-12cm long, 1.8-2.8cm broad, somewhat constricted between seeds, becoming wrinkled when dry.

Seeds: 6-10

Flowering and Fruiting Time: August – October - November

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

Uses:

Acacia concinna has been used traditionally for hair care in the Indian Subcontinent since ancient times. It is one of the Ayurvedic medicinal plants[17]. Shikkai is used as traditional shampoo. Acacia concinna are used in naturally shampoos or hair powders and the tree is now grown commercially in India and Far East Asia. 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 foaming agents are found in several other plant species used as shampoos or soaps. Saponins from the plant's pods have been traditionally used as a detergent.

Plant Profile 9:

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Liliopsida
Subclass	Commelinidae
Order	Cyperales
Family	Poaceae
Genus	Vetiveria Bory
Species	Vetiveria zizanioides (L.) Nash

**Plant Description:**

Vetiver can grow upto 150 cm (5 ft) high and form clumps as wide. The stems are tall and the leaves are long, thin and rather rigid. The flowers are brownish-purple. Unlike most grasses, which form horizontally spreading, mat like root systems, vetiver's roots grow downward, 2 meters (7 ft) to 4 meters (13 ft) in depth.

Chemical Constituents:

The chemical constituents present in the plant are Vetiverol, Vetivone[18]. Khusimone, Khusimol, Vetivene, Khositone, Terpenes, Benzoic acid, Tripene-4-ol, β -Humulene, Epizizianal, vetivenyl vetivenate, iso khusimol, Vetiver oils,

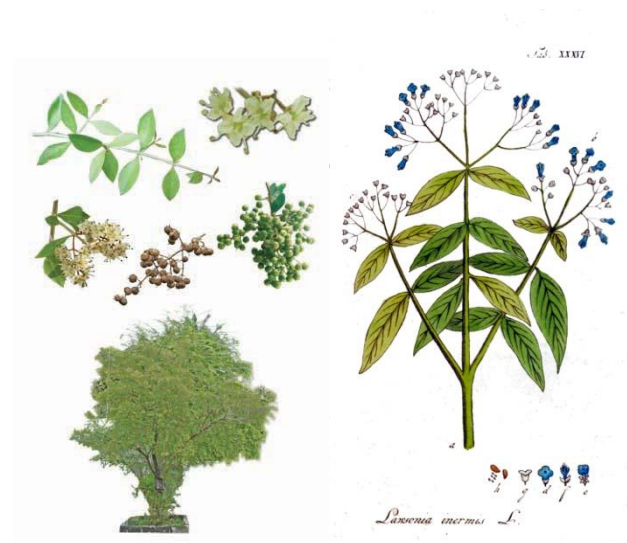
vetivazulen[19]. ϵ Zizaene, prezizaene, β -vetispirene[20]. Among these, the major active constituents identified are khusimol, vetivone, eudesmol, khusimone, zizaene, and prezizaene[21] which are considered to be the fingerprint of the oil[22].

Uses:

Vetiver grass is grown for many different purposes. The plant helps to stabilize soil and protects it against erosion, but it can also protect fields against pests and weeds. Vetiver has favorable qualities for animal feed. From the roots, oil is extracted and used for cosmetics, aromatherapy, herbal skincare and ayurvedic soap. Due to its fibrous properties, the plant can also be used for handicrafts, ropes and more

Plant Profile 10:

Kingdom	Plantae
Subkingdom	Tracheobionta
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Rosidae
Order	Myrtales
Family	Lythraceae
Genus	Lawsonia
Species	Inermis

**Plant Description:**

Henna is a tall shrub or small tree, standing 1.8 to 7.6 m tall (6 to 25 ft). It is glabrous and multibranched with spinetipped branchlets. The leaves grow opposite each other on the stem. They are glabrous, sub-sessile, elliptical and lanceolate (long and wider in the middle ; average dimensions are 1.5-5.0 cm x 0.5-2 cm or 0.6-2 cm x 0.2-0.8 cm) acuminate and have depressed veins on the dorsal surface. Henna flowers have four sepals and a 2mm calyx tube with 3mm spread lobes. Its petals are obvate with white or red stamens found in pairs on the rim of the calyx tube. The ovary is four-celled, 5 mm long and erect. Henna fruits are small, brownish capsules, 4-8mm in

diameter with 32-49 seeds per fruit and open irregularly into four splits.

Chemical Constituents:

The photochemicals that are present in the henna are phenols, anthroquinones and glycosides.

Lawsonic acid is the active constituent of the henna leaves. The other chemical constituents of henna are gallic acid, white resin, sugars, tannins and xanthonones. Lawsonic acid is the main coloring constituent of the henna and is obtained by the degradation of hennosides A, B and C[23].

Uses:

Henna leaves are used as a prophylactic agent against skin diseases by applying the henna paste on the affected areas.

Henna leaves have anti-fungal property and the henna paste can be applied even on the nails or any affected part continuously for 15 days to cure the fungal infection.

The paste of henna leaves can be applied for treating headache and burning sensation of the feet.

The henna leaves act against tubercular bacteria and other bacteria and also in typhoid and haemorrhagia.

Henna is used in the hair care products like rinses, conditioners and applications^[24].

CONCLUSION:

The present review is to know about the various constituents available in herbal extracts such as minerals and amino acids may be the cause for the significant hair growth activity. All these drugs not only show remarkable activity but are also devoid of potential side effects as compared to synthetic drugs. It gets absorbed into the scalp with in a shorter period of time and thus acts as nourishment to hairs. It acts as natural hair nourisher, helping in hair growth by the reduction of hair fall. Due to the addition of Neem it also acts as antidandruff hair tonic. Amla and Eclipta alba helps in thickening and blackening of hair. Hibiscus helps in hair softening resulting in healthy growth. All these dried and powdered drugs mixed with coconut oil in sufficient quantities will give a permanent solution for hair fall and proper hair growth. This hair tonic also effectively used in treating headaches because of cooling effects and thus relieves from stress and strain conditions. It has shown good hair growth results without any allergic or side effects as it is completely constituted with naturally occurring crude drugs.

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