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A review on antioxidant activity of poly herbal hair oil formulation

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Abstract
Antioxidants are helpful in increasing the blood circulation and thus help in hair growth as well as in the treatment a lot of diseases. Alopecia is a dermatological disorder with psychosocial implications on patients with hair loss. The Antioxidant property of plant and oil can be utilized in hair fall. The objective of present study involves preparation of herbal hair oil using Amla, Brahmi, tridex, neem, shikakai andits evaluation for increase in hair growth activity. Herbal hair oil formulation showing moderate antioxidant activity when compared with standard. It can be used as herbal hair oil for hair growth and other Free radical damage within cells has been linked to a range of disorders including Cancer, Arthritis, Aatherosclerosis, Alzheimer's disease & diabetes.
The presence of number of phytochemicals and botanicals in the herbal products have dual stuff, one that they are used as cosmetics for body care and another that phytochemicals amend the biological functions of human body naturally results in healthy skin and hairs. Herbal hair oil not only moisturizes scalp but also converse dry scalp and dry hair conditions.

Keywords: cosmetics, herbal hair oil, hair oil formulation, tridax procumbens, banyan tree aerial root [3]

Introduction

Herbal formulations have always attracted considerable attention because of their good activity and comparatively lesser or nil side effects as compared to synthetic drugs. Alopecia is a dermatological disorder with psychosocial implications on patients with hair loss. The objective of present study involves preparation of herbal hair oil using,

- Amla. (Emblica officinalis)
- Bramhi (Bacopa monnieri)
- Tridex Procumbens (T. procumben)
- Shikakai (Acacia Concinna)
- Neem. (Azadirachta indica)
- Hibiscus. (Genus Hibiscus)
- Almond oil. (Prunus Amygdalus)
- Coconut Oil (Cocous Nucifera)
- Fenugreek. (Trigonella Foenum gracecum) [4]

Antioxidant activity and its evaluation for increase in hair growth activity and other uses of antioxidants. Hair oils are the hair care preparations used for the prevention and treatment of baldness or other ailments, aggression of hair. They also promote luxurious growth hair. Oral minoxidil increase growth of body hair. Applied topically (2% twice daily) it promotes hair growth in male pattern baldness and alopecia areata. The response is slow (takes 2-6 months) and in complete, but up to 60% subjects derive some benefit, albeit for short periods. Baldness recurs when therapy is discontinued. The mechanism of increased hair growth is not known, may involve:

a. Enhanced microcirculation around hair follicles.
b. Direct stimulation of resting hair follicles.
c. Alteration of androgen effect on genetically programmed hair follicles. The improvement has been shown to peak at one year with a slow decline in regrowth over subsequent years.

Long term treatment with local side effects may be a problem with continuing use of minoxidil lotion.
On the basis of market survey carried out on crude drugs used presently for herbal hair oils gives us clue for selection of drugs for hair oil.
Hence the present study was aimed to evaluate the hair growth activity of herbal formulations, which includes oil extract of all the mentioned drugs in various concentrations. In order to justify the traditional claims now a days multi-ingredient hair oils are prepared and tested for their hair growth activity and antioxidant activity due tom this used other diseases [5].

Antioxidant activity

Antioxidants are helpful in increasing the blood circulation and thus help in hair growth as well as in the treatment a lot of diseases. The Antioxidant property of plant and oil can be utilise in hair fall [6].

Benefits of antioxidants for hair

1. The use of antioxidant for hair gives you the multiple benefits.
2. It will increase your immune system and also fight the sign of hair fall.
3. Antioxidant boost the blood circulation and nutrient supply to the scalp cells, which encourages the hair growth.
4. It also help to reduce frizz and calm the split ends.
5. Antioxidant fight the sun damage by protecting the cuticles [7].

Some of the common antioxidants for hair growth are

Table 1: Amla: (Emblica officinalis)

Herbal Excipients	Antioxidant property
1. Amla	Gallic acid, ascorbic acid and phenolic Compounds.
2. Shikakai	Help in lessening the rate of hair thinning.
3. Brahmi	Improving memory, reducing anxiety, and treating epilepsy.
4. Tridax procumbens	Tannins, flavonoids, Saponin
5. Banyan treeaerial. roots	Esters, glycosides, leukocyanidin, quercetin, sterols
6. Hibiscus	Vitamin C, flavonoids, and amino acids
7. Fenugreek	Phenolic and flavonoid compounds
8. Coconut Oil	Nutrients.
9. Almond oil	Vitamin E

Family**:** Euphorbiacae

1. Benefits of Amla for Hair growth

- It is rich in vitamin c, tannins and minerals such as phosphorus, iron and calcium
- It provide nutrition to hair and also causes darkening of hair.
- Strengthen the scalp and hair.
- Reduce premature pigment loss from hair, or greying.
- Stimulate hair growth.
- Reduce hair loss.
- Prevent or treat dandruff and dry scalp [8].

Fig 1: Amla

2. Brahmi: (**Bacopa monnieri**)
Family- Arecaceae
Benefits of bramhi for hair growth

- It helps in hair growth and hair health.
- It helps in giving the necessary nourishment to the scalp improving the hair growth.
- It helps in treating temporary baldness because of its bio-chemical compounds.
- It strengthens the hair follicles and it very soothing.
- It helps in overall health of hair making it longer and thicker [9].

Fig 2: Brahmi [10]

3. Neem: (Azadirachta Indica)

Family: Meliaceae [10]

Fig 3

Fig 4

Benefits of neem for hair growth

4. Shikakai: (Acacia Cincinnal)
Its botanical name is **Acacia Cincinnal.**

Family: Fabaceae

Fig 5

Role of Shikakai in Hair growth

- The bark contains saponin, which on hydrolysis yields lupeol, spin sterol and acacic acid lactone.
- The sugars identifiedare glucose, arabinose and rhamnose. It also contains hexacosanol.
- The saponin of bark shows spermicidal activity against human semen.
- The tender leaves, which are acidic, are used in chutneys.
- The leaves contain oxalic, tartaric, citric, succinic and ascorbic acids.
- It promotes hair growth, strengthen hair root [11].

Benefits of Shukakai for hair

1. Shikakai can make your hair soft and shiny.
2. Heals your scalp and prevents the agony of a dry scalp.
3. Fight that stubborn dandruff with shikakai.
4. Soothes an itchy scalp.
5. Is a gentle [12].

5. Tridax procumbens Linn
Family: (Compositae)

- A weed found throughout India is employed as indigenous medicine for a variety of ailments including jaundice.
- It is commonly used in Indian traditional medicine as anticoagulant, antifungal and insect repellent; in bronchial catarrh, diarrhoea and dysentery.
- It possesses wound healing activity and promotes hair growth. Tridax procumbens is also dispensed as 'Bhringraj', which has a great reputation in Ayurvedic medicines for liver disorders.
- The hepatoprotective action has been demonstrated. We have reported recently the antioxidant property of Tridax procumbens on the protective potential of Tridax procumbens [13].

Benefits for hair growth

- Reduce white hair.
- Reduce fungal infections.
- Prevent hair loss [14].

Fig 6: Tridax procumbens [14]

6. Banayan Tree Aerial Root
Family: Moraceae

Benefits for hair growth

- Hair Growth Stimulant
- Remedy For Hair Problems
- Solution For Long Hair
- Very effective in hair fall control and makes hair strong from roots [15].

Fig 7: Banayan Tree Aerial Root [16]

7. Fenugreek
Family: Fabaceae
Benefits of fenugreek for hair growth:

- Fenugreek is a rich source of iron and protein, which are essential nutrients for hair.
- Inflammation of the scalp can lead to a host of other issues for hair, such as shedding.
- Antioxidant and Anti-inflammatory properties:
- Antimicrobial Dandruff Treatment:
- Reduces Hair Loss
- Promotes Hair Growth
- Boosts Shine.
- Revives Damaged Hair.
- Fights Dandruff [17].

Fig 8: Fenugreek [17]

8. Coconut Oil (Cocos Nucifera)
Family: Arecaceae

1. Moisturizing your hair and reducing breakage
2. Protecting your hair from protein loss and
3. Damage when wet protecting your hair from environmental damage like wind, sun, and smoke [18].

Benefits of coconut oil for hair growth:

- Lice prevention
- Dandruff treatment [19]

Fig 9

9. Almond oil: (Prunus Amygdalus)
Family: Rosaceae

Benefits of Almond oil for hair growth
Fights inflammatory scalp conditions.
Strengthens hair by infusing hair with moisture and nutrients, almond oil protects against routine damage like brushing, heat styling, and coloring.
Promotes hair growth
Almond oil is thick and nourishing and can assist in moisturizing over processed and dull hair, making it smooth and silky.
Treating hair loss & Split ends [20].

Fig 10: Almond oil [21]

Methodology
Direct Boiling Method
1. First is the direct boiling method in which the crude drugs were powdered.
2. Weighed and directly boiled in Coconut & Almond oil with continuous stirring.
3. Heating until the drug had completely extracted in the oil base [22].
- The Composition of the oil [23]
- Amla, Neem, Shikakai, Brahmi

4. Banyan Tree Aerial Root, Fenugreek, Tridax procumben [24]
5. All are mixed in 100ml of the Coconut & Almond Oil.
6. After extraction completed then they are filtered by muslin cloth individually.
7. The herbal hair oil taken in beaker and covered by aluminium foils and keeps in freezer in cool condition [25].

Evaluation of Herbal Oil Preparation
The prepared oils were then subjected to physical evaluation [26].
Physical evaluation
In physical evaluation, parameters like [27]

Specific gravity
Take two specific gravity bottle, rinsed it with distilled water, dry it in oven for 15min, cool, closed it with cap and weight it (a). Now fill the same specific gravity bottle with the sample and closed it with cap and again weight it (b). Determine the weight of sample per milliliter by subtracting the weight (b-a) [28].

PH
PH of the poly herbal hair was detected using pH meter. Take the formulated oil in beaker individually now deep the ph meter in beaker and weight for 1minute till the reading come, as the pH meter show the reading note it down individually. Before using pH meter deep, it into the water [29].
Refractive index: Determine the Refractive Index formula is.
n= c/v [30]

Viscosity
Viscosity is determined by means of Brook field's viscometer. In which firstly take sample of prepared oil and then use spindle no 63 for viscosity determination now start brook field viscometer and weight for 1 min and reading is noted down in centipoise [31].

Acid value [32]
The acid value of the prepared oil was calculated by using formula

Acid value = 5.61n\w [33]

All are determine and formulations were subjected to biological evaluation [34].
The results of primary physical screening are given in below [35].

Conclusion
- Our study showed that the herbal hair oil is showing good antioxidant activity.
- The Antioxidant property of plant and oil can be utilised in hair fall as well as It may be in the treatment of cancer and various other diseases [36].
- Antioxidants are widely used as ingredients in dietary supplements and have been investigated for the prevention of diseases such as cancer, coronary heart disease and even altitude sickness [37].
- Our herbal oil may be shows good antioxidant activity so it may be used various diseases Like Free radical damage within cells has been linked to a range of disorders [38].

Disease Including [39]
- Cancer
- Arthritis
- Diabetes and many other diseases [40].

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