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Research Article

Formulation And Evaluation Of Herbal Hair Oil

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ABSTRACT

Currently, shampoo, conditioners and also some hair tonics formulations using the herbal extract are popular hair care products. The herbal hair oils are critical part of herbal natural cosmetics. The herbal formulations probably have less side effects as compare with the synthetic one. The main goal of present study is the preparation of herbal hair oil using the various herbal ingredients like curry leaves, rose petals, hibiscus, rosemary, meth, coconut oil, almond oil, and also evaluation of herbal oil formulation was performed by determining various parameters, like pH, viscosity, saponification value and are reported in this paper. By taking mixture of above crude drugs the formulation was prepared by the boiling method in the form of hair oil. Herbal hair oil is greater and also used in lot of aliments of hair. From the both prepared formulations F1 formulation have characteristic results. This prepared formulation has anti-hair fall and also other properties such as anti-dandruff effect, reduces hair pigment, helps to improve blood circulation of the scalp and roots, reduces hair graying, anti-fungal effect.


INTRODUCTION

Firstly, the Hair is one of the vital parts of the human body which is considered to be protective appendages on the body. Hair is accessory structure integument along with sebaceous glands, sweat glands and nails. Hair is made up from strong structural protein named as kerotin. It almost present on all surfaces of human skin except the palms, lips, soles, and certain genital parts. The growth of hair is same to skin cells.

Mainly Each hair grows in three cyclic phases, which are the, antigen (growth), cartage (involution) and telegenic (rest). The first antigen phase can be as short as 2-6 years of time period. In the cartage phase, the activity of growth increases and hair moves to the next phase, and second phase the cartage phase is between 2-3 weeks. The last Telegenic phase is a state at which

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the hairs move into the resting state. This phase lasts for about 2- 3 months.

There are main 3 gland involved in structure of hair

- 1) Epidermis
- 2) Dermis
- 3) Oil glands

Generally, 50 to 100 hairs are known to be shed everyday and an increase in number more than 100 constitutes states of hair loss. In India around the 6000 manufacturers for herbal medicines are available. According to WHO around 80% people of the world uses herbal medicines. It is common in women and men also. A hair follicle is generally a tube-like structure (pore) that surrounds the root and strand of a hair. The hair follicles exist in the top two layers of our skin. Generally human beings born with over 5 million hair follicles in your body and on your head over one million hair follicles. As you age, hair grows out from hair follicles.

The Main function of hair Follicle is to :-

- 1) To promote growth of hair
- 2) Help to repair skin after the wound or an injury.
- 3) Forms the new blood vessels.
- 4) Form new neuron cells of nervous system (neurogenesis).

Hair care products is defined as the formulations which is used for the reason of cleaning, editing the hair texture, providing nourishment to the hair, and also for retaining the healthful appearance of hair. Hair oil is the one of important hair care preparation which is used for prevention, treatment of baldness, care and other ailments of hair. Various Hair oils also promote the luxurious growth of hair. Some herbal drugs are used in hair oil as hair tonic. The oil should be infused with the proper herbs to complement the other Ingredients. Along with the sebaceous glands, sweat glands, and nails, hair is one of most essential body parts, it is regarded as protective appendages on the body and is a accessory structure of integument. Making the various hair oils and combining with other medications that promote hair growth is the traditional method used in India specially followed by women's. The one of main purpose of preparing hair oil is to calm the scalp and to promote the hair growth in both men and women. Herbal cosmetics are now excessive in demand because of increasing hobby of humans to closer to them additionally natural cosmetics are more effective with negligible side effects and components are without problems.

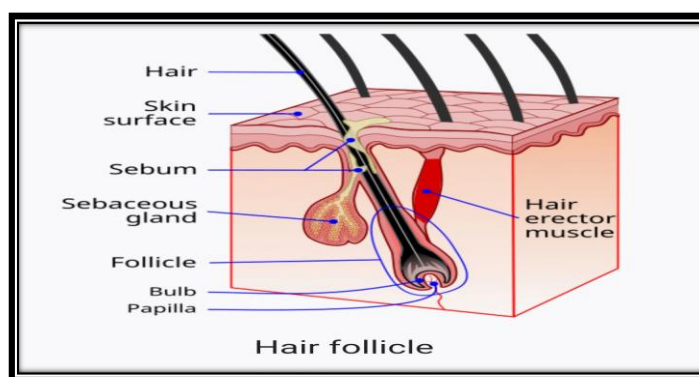


Fig 1 : structure of hair

Now a days hair loss and dandruff in hair is major problems associated with hair in both women and men's. Therefore it has great importance to develop the new theories for the treatment of hair

problems. Along with the good shampoo and conditioner, great hair oil completes hair care. Also various hair care products such as hair serum, hair gels hair masks, hair dyes are available in

market. Hair care products are mainly categorized into two main categories, hair tonics and the hair grooming aids. The hair oils which contain herbal drugs are called hair Tonics, these are formulated by using herbal extracts in an oil base. Herbal hair oil Moisturizes scalp as well as reverse dry scalp and the dry hair conditions.

Hair plays very important role in human Life cycle. In India the various traditional ways of preparing of hair oils put together with various hair growth promoting drugs. Indian women are also Known for their long, healthy, shiny hairs, so it is not surprising that hair care features prominently in their self-care rituals The Charka Samhitha, the gold standard of ayurvedic treatment, describes the importance of oiling the hair and also scalp to maintain good hair health and to prevent hair loss. The hairs on our head is known as the first line defense against the sun's Ultraviolet (UV) rays. The hair care product are nothing but those formulations which are used for modifying the texture of hair. Herbal cosmetic are highly used due to their less adverse effects and the ingredients used in these preparations are easily available.

Hair oils are formulated by using both synthetic as well as natural Ingredients. Synthetic hair oils are the hair care products which are made by chemical or the artificial substances. They are used to provide shine as well as excellent conditioning and they also helps in reducing the frizz. Natural hair oils are the hair care products are rich sources of vitamins, minerals as well as the fatty acids which

are the vital elements present in the human cells and these elements are also present in the skin and hair of human body. So, they are one of the maximum properly identified product for the treatment of hair. Now a days hair care beauty is delivered with herbs, and they are well recognized as compared to the artificial ones. Hence, when we apply these natural hair oils, we allow these vital nutrients to absorb well into the scalp and hair, therefore it helps for a healthy regeneration of the scalp as well as the strong and healthy hair growth. Apart from the stimulating hair growth and hydrating your scalp, hair oil also strengthens the hair. And they also provide important minerals and nutrients for the scalp. This will help not only to prevent the external damage but also help to strengthens the hair as well. The main purpose of oiling is a prerequisite to Condition the scalp. An massage with the oil is also reason to increases the growth of hair by stimulating the hair follicles and also by improving blood circulation to the scalp. Herbal formulation is completely made by natural sources derived from the plants. Various types of oils are there like almond oil, coconut oil, castor oil, onion oil, bhringraj oil are applied to scalp admixture with adding suitable herbal drugs. Among these oils coconut oil is the foremost worthy oil base because coconut oil get absorbed into the our hair strands better than other oils and it is also economical compared to other hair oils. Hence coconut oil with added herbal drugs is mentioned method for best hair Growth.



Fig 2: Herbs

➤ Problems related to hair:

- Dry hair
- Split ends
- Oily hair
- Frizzy hair
- Limp hair
- Hair loss
- Heat damage
- Color damage

➤ Benefits of Herbal Hair Oil

- The hair oil helps prevent hair loss and reduces frizz. The ends of the human hair need special care, and vegetable oil help to pamper the throughout the diet.
- Gives shine to hair.
- It helps to relieve stress.
- Regular use of hair oils helps to cure the problem of premature grey hair.
- It gives natural beauty to the hair. The Vegetable oil contains vitamins as well as minerals nutrients that act as hair nourishment.
- Helps to keep scalp moist.
- Help improves hair growth.
- It prevents dandruff.
- Help for longer and stronger hair
- Help to maintain the color of hair
- Maintain the hair health.

➤ Ideal characteristics of Hair oil

- It must impart pleasant smell to the hair.
- It should not have any side effects.
- It must be fluently removed on irrigating with the water.
- It should give luster to the hair.
- It should be retain them soft and flowing.
- It should Keep the brain cool.
- Should not be sticky.

➤ Disadvantage of hair oils

- The use of so much oil can weigh down the hair and damage the scalp
- People can make oil which can damage the any individuals scalp. If any person have a sensitive scalp, he should not use herbal hair oil when you are in good strength as this will only cause scalp issues and if your hair is oily, it will cause excessive oiliness.
- Hair oil can also cause seborrheic dermatitis or dandruff.

➤ Various herbal oils available in the market are

- Bhringraj hair oil
- Brahmi Hair Oil
- Cantharidin hair oil
- jasmine hair oil
- Onion hair oil
- Coconut Hair oil
- Amala Hair Oil

AIM

To the study of preparation and Evaluation of the Herbal Hair Oil.

These Herbal hair oils are natural oil products with essential properties for treatment of hair problems like thinning of hair and dry or flaky scalp.

These hair oils are used for moisturizing purposes as well as to promote hair growth, to improve circulation of blood in the scalp, for prevention of dandruff and to add volume to the hair shaft.

OBJECTIVE

These herbal hair oil can enhance hair growth, strengthens the hair follicles, controls hair loss, and leaves hair shiny and fresh.

Herbal hair oil is one of important type of herbal cosmetics which we can used to treat various hair problems.

I. Formulation of Herbal Oil

Firstly, various ingredients used in herbal hair oil are accurately weighed Take Accurately weighed dried herbs such as rosemary, amla, curry leaves they were grinded and mixed in castor oil.

The above ingredients were taken in beaker and boiled on a hot water bath for 15 min.

Then filter this above boiled mixture by muslin cloth. Then in filtrate add coconut oil to make up volume.

And then finally ad small amount of Colour and flavoring agent, and fragrance was added to the oil and it is stored in umber colored bottle.

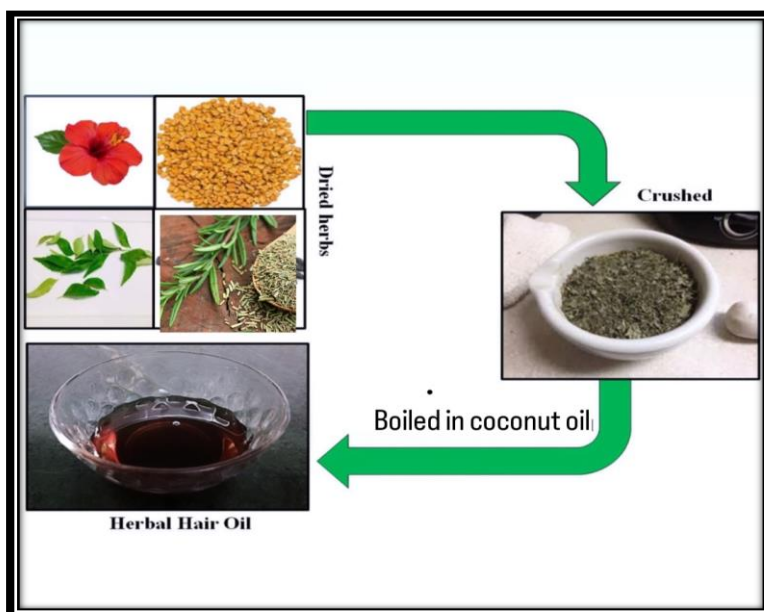


Fig 3 : Method of Preparatio

Formulation Tables

Sr.no	Ingredients	Quantity (100ml)
1	Almond Oil	15 ml
2	Hibiscus	3 gm
3	Fenugreek seed	4 gm
4	Castor oil	10 ml
5	Rose petals	3.5 gm
6	Lavender Oil	1 ml
7	Curry Leaves	5 gm

8	Amla	4 gm
9	Rosemerry	2.5 gm
10	Coconut Oil	60 ml

1) Formulation Table, F1

Sr.no	Ingredients	Quantity (100ml)
1	Almond Oil	14 ml
2	Hibiscus	1 gm
3	Fenugreek seed	2gm
4	Castor oil	11ml
5	Rose Petals	2gm
6	Lavender Oil	1ml
7	Curry Leaves	4 gm
8	Amla	3gm
9	Rosemerry	4 gm
10	Coconut Oil	60 ml

2) Formulation Table, F2

❖ **Procedure**

- 1) Take Accurately weighed all the dried and fresh herbs and leaves.
- 2) Mix required quantities of Coconut oil, Castor oil, and the Almond oil as mentioned in the above tables.
- 3) Then add dried amla, methi seeds, curry leaves, hibiscus, to the oil mixture.
- 4) Then boil this, mixture up to 30 minutes under low flame.

5) After that the whole preparation was filtered using the muslin cloth.

6) Add lavender oil for the Fragrance purpose.

7) Use same procedure for preparation of second formulation with required quantities of herbs.

❖ **Ingredients**

Drug with their information

Coconut oil



Fig 4: coconut oil

Botanical name	Cocos nucifera
Kingdom	Plantae
Order	Arecales
Family	Arecaceae
Genus	Cocos
Species	C.nucifera

Chemical Constituents	Glucose, amino acid, electrolytes, calcium
Uses	<ul style="list-style-type: none"> - Helps to promote hair growth. - To prevent dandruff. - Helps to moisturize hair follicles. - Used as vehicle. - Makes hair look shinier.

Almond oil



Fig 5 : Almond Oil

Botanical name	Prunus amygdalus
Kingdom	Plantae
Order	Rosales
Family	Rosaceae
Genus	Purnus
Species	P. amygdalus
Chemical constituents	Fixed oil, proteins, olein,
Uses	<ul style="list-style-type: none"> - Strengthen the hair - Protect the hair from sunlight. - Use as scalp treatment.

Amla



Fig 6 : Amla

Botanical name	Phyllanthus Emblica
Kingdom	Plantae
Order	Malpighiales
Family	Euphorbiaceae
Genus	Phyllanthus
Species	P. Emblica
Chemical constituents	Ascorbic Acid, ellagic acid, gallic acid
Uses	- Reduce premature pigment loss from hair or greying. - Stimulate hair growth. - Reduce hair loss.

Hibiscus



Fig 7 : Hibiscus Flower

Botanical name	Hibiscus rosa-sinensis
Kingdom	Plantae
Order	Malvales
Family	Malvaceae
Genus	Hibiscus L.
Species	H. Rosa-sinensis
Chemical constituents	Polyphenols, Steroids, Amino acids, Lipids
Uses	<ul style="list-style-type: none"> - Improves hair growth. - Cure dandruff and itchiness. - Prevent premature greying.

Fenugreek seed



Fig 8 : Fenugreek Seed

Botanical name	Trigonella foenum-graecum L.
Kingdom	Plantae
Order	Fables
Family	Fabaceae
Genus	Trigonella
Species	T. Foenum-graecum
Chemical constituents	Proteins, Lipids, Alkaloids, Vitamin
Uses	<ul style="list-style-type: none"> - Revives damaged hair. - Fights dandruff. - Controls scalp inflammation. - Add shine and soft texture. - Prevents premature gray hair.

Rosemerry



Fig 9 : Rosemary

Botanical name	Rosmarinus Officinalis
Kingdom	Plantae
Order	Lamiales
Family	Lamiaceae
Genus	Rosmarinus
Species	R. rosmarinus
Chemical constituents	Camphene, ketoneas, aldehydesc, esters
Uses	<ul style="list-style-type: none"> - Boosts the blood circulation - Helps to control hair loss - It relives scalp irritation and balance scalp irritation. - Gets rid of dandruff - Promote hair growth and makes hair stronger

Curry Leaves



Fig 10 : Curry Leaves

Botanical name	Murraya koenigii
Kingdom	Plantae
Order	Sapindales
Family	Rutaceae
Genus	Murraya
Species	M.koenigii
Chemical constituents	Thujene, jasmone
Uses	- Promotes hair growth. - Strengths the hair.

Lavender oil



Fig 11 : Lavender Oil

Botanical name	Lavandula Spica L.
Kingdom	Plantae
Order	Lamiales
Family	Lamiaceae
Genus	Lavendula
Species	L. angustifolia
Chemical constituents	Linalyl acetate, linalool
Uses	Flavoring agent.

Castor oil



Fig12 : Castor Oil

Botanical name	Ricinus communis L.
Kingdom	Plantae
Order	Malpighiales
Family	Euphorbiaceae
Genus	Ricinus
Species	R. Communis
Chemical constituents	Ricinoleic acid, glycerides, stearic Acid
Uses	<ul style="list-style-type: none"> - Lubricate the hair shaft. - Increases flexibility. - Treats dandruff.

Rose Petals



Fig 13 : Rose Petals

Botanical name	Rosa Centifolia
Kingdom	Plantae
Order	Rosales
Family	Rosaceae

Genus	Rosa
Species	R. Centifolia
Chemical constituents	Flavonoids, carotenoids, chlorophylls
Uses	- helps to reduce oiliness - help to reduce dandruff - act as a mild astringent.

II. Evaluation of Herbal Hair Oil

Some of the Evaluation test of hair oils are

- 1) colour
- 2) odour
- 3) viscosity
- 4) specific gravity
- 5) Acid value
- 6) Stability Test
- 7) Grittiness
- 8) Sensitivity test
- 9) pH determination

1) Colour - colour of the prepared herbal hair oil was detected by naked eyes.

2) Grittiness – oil is rubbed on skin and observed.

3) pH determination – Take a pH paper and deep the paper in the prepared hair oil. And check for the colour change

4) Viscosity – By using the ostwald's viscometer the viscosity of prepared hair oil is determined at room temperature.

5) Sensitivity test - The prepared herbal hair oil was applied on 1 cm skin of hand and was exposed to the sunlight for 4 to 5 min.

6) Saponification value – accurately weight 250 ml of oil in a conical flask, and 10ml of ethanol, ether mixture (2:1) was added to it.

To this above mixture 25ml of 0.5N, the alcoholic KOH was added and then it Was kept undisturbed for the next 30min. and the flask was cooled.

Formulation Table

Sr.no	Ingredients	Quantity (100ml)
1	Almond oil	15 ml
2	Hibiscus	3 gm
3	Fenugreek seed	4gm
4	Castor oil	10ml
5	Rose petals	3.5gm
6	Lavender oil	1ml

Then the above solution was titrated against 0.5N HCL by using phenolphthalein as a indicator. In the same way blank Titration was performed without taking oil (sample).

The amount of KOH in mg used calculated using formula to determine saponification value -

Saponification Value = $56.1 (B-S) N/W$

Where,

B – Volume in ml of standard Hydrochloric acid required for the blank.

S - Volume in ml of standard Hydrochloric acid required for the sample

N - Normality of standard Hydrochloric acid.

W - weight of the oil taken in gram for the test.

7) Stability Study – This stability test is performed by keeping the formulated herbal hair Oil in a closed container and stored at cooled and dry place.

III. Result and Discussion

To the most of hair treatments herbal hair oil is mostly used. herbal hair oil moistures the dry scalp as well as reverses dry scalp and also dry hair condition. Herbal hair oil provides numerous essential nutrients required for normal functioning of the sebaceous gland as well as to promote neutral hair growth. This prepared herbal hair oil is evaluated by testing various parameters like pH, skin irritation test, sensitivity test, viscosity and grittiness test, etc.

From above prepared formulation we have further passed F1 batch for further process

7	Curry leaves	5 gm
8	Amla	4gm
9	Rosemerry	2.5 gm
10	Coconut oil	60 ml

Evaluation Parameter

Sr. no	Parameter	Observation
1	Colour	Pale Yellow
2	Odour	characteristic
3	pH	6.5
4	Sensitivity test	No sensation
5	Grittiness test	Smooth
6	Irritation test	No irritation

CONCLUSION

Generally, the herbal formulation helps to provide good blend of vitamins, essential oil and terpenoids. The final formulation prepared were assessed for characteristics like the texture, consistency, spreadability, and also skin irritancy. All these introductory requirements fulfilled the expectations. The resulting formulation have pH value within the Indian Standard Specifications permitted range and were found to be relatively close pH value to the pH range of skin. The use of plant based herbal drug product as a source for anti-fungal as well as antibacterial chemicals has been demonstrated successfully. Hence it is concluded that this prepared herbal hair oil is useful for good hair growth, providing protection against dandruff and hair fall with no side effect to the person.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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