



PREPARATION AND EVALUATION OF MULTIPUPOSE POLYHERBAL HAIR OIL

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Abstract: Herbal cosmetics have gained widespread popularity among the general public due to their perceived advantages of fewer side effects and enhanced safety and security features. The herbal products contain a variety of phytochemicals and botanicals that serve a dual purpose. Firstly, they are utilized as cosmetics for body care. Secondly, the phytochemicals naturally enhance the biological functions of the human body, resulting in healthy skin and hair. Herbal hair oil goes beyond scalp moisturization by effectively addressing dry scalp and hair conditions. Additionally, it provides essential nutrients needed to support the normal functioning of the sebaceous gland and stimulate natural hair growth. This product is rich in natural ingredients, such as Amla, Hibiscus, Kalonji, Bhingraj, Fenugreek seeds, Camphor, Coconut oil & Almond oil.

Index Terms - Polyherbal, Hair growth, Kalonji, Hair oil, Amla

I. INTRODUCTION

Hair is one of the vital parts of the body considered to be a protective appendage on the body. Hair, a protein filament that emerges from dermal follicles, is a significant characteristic of mammals. While commonly linked to hair development, types, and maintenance, it serves as a vital biomaterial primarily composed of protein, especially alpha-keratin.

Herbal extracts refer to the extracts obtained from herbs. This time-honored methodology traces its origins back to the sacred Vedas, making it an ancient practice. Indian herbs serve as a rich resource for the cosmetic industry. Hair oils containing herbal remedies are known as hair tonics and are crafted using herbal extracts in an oil base. These hair care formulations are applied to treat various hair disorders, including baldness, greying of hair, hair fall, and hair dryness. [1]

These plant extracts, blended with oil, have therapeutic properties. Herbal hair oil moisturizes the scalp and effectively addresses the issues of dry scalp and hair. Packed with essential nutrients, it supports the normal functioning of the sebaceous gland and fosters natural hair growth. The present study was conducted with the primary aim of exploring these benefits. [2-4]

II. MATERIAL & METHOD

Sr. No.	Ingredient Name	Quantity
1.	Amla	20gm
2.	Hibiscus	20gm
3.	Kalonji	20gm
4.	Bhingraj	20gm
5.	Fenugreek seeds	10gm
6.	Camphor	5gm
7.	Coconut oil	q.s
8.	Almond oil	q.s

Table no. 1 Formulation of Hair Oil

IMPORTANCE OF INGREDIENTS:

1. Amla

Phyllanthus Emblica, commonly known as Amla, is highly regarded for its rich vitamin C content and numerous health advantages. The powdered form of amla is popularly called gooseberry. Within hair tonics, amla plays a crucial role, effectively promoting hair growth and enhancing hair pigmentation. Its ability to strengthen and nourish hair roots leads to improved color and radiance.[5]

2. Hibiscus

Hibiscus contains calcium, phosphorus, iron, vitamin B1, riboflavin, niacin, and vitamin C. These components are utilized to encourage the growth of thicker hair and prevent premature graying of hair. [6] The leaves and blooms of Hibiscus rosa-sinensis are thought to offer hair growth and anti-graying effects, according to traditional texts. Furthermore, in India, herbal products for hair development on the market include extracts from various portions of Hibiscus rosa-sinensis. Hair development is stimulated by the leaves and flowers, while ulcer healing is aided by the blooms [7]

3. Kalonji

Nigella sativa (N. sativa), commonly known as black-caraway or "Kalonji," is a globally recognized seed. Its fixed oil contains various chemical elements, including thymoquinone, thymohydroquinone, dithymoquinone, thymol, nigellidine, carvacrol, nigellimine, nigellidine, and alpha-hederin. Research has revealed its impact on multiple body functions, demonstrating various pharmacological actions such as antibacterial, antiviral, anti-inflammatory, and wound healing properties. Additionally, it has applications in managing acne vulgaris, skin cancer, pigmentation, and various cosmeceuticals. [8]

4. Bhringraj

Eclipta alba (L.) Hassk. also known as Bhringraj belongs to the family Asteraceae. Bhringraj Taila is employed both as an oil and lepa (paste) to address diverse hair-related issues, such as hair fall, premature graying, dandruff, alopecia areata, and to enhance hair growth. It can be used internally, as nasal drops, or applied locally for these purposes. There are lot of references in Ayurvedic classics to prove its hair growing activity. Many preparations are given for hair related problems like BhringrajGhrit, Kesharanjanyoga, BhringrajTaila, ChandanadiTaila, MahanilaTaila etc. [9]

5. Fenugreek seeds

Before application, fenugreek (Trigonella foenum-graecum) seeds are soaked for 30 minutes. Fenugreek, also known as methi, holds significance not only as an essential ingredient in regional cuisine but also for its numerous benefits in home remedies, such as aiding digestion and reducing hair loss. Hair loss is a widespread problem in the modern world. Methi contains ample amounts of folic

acid, vitamin A, vitamin K, and vitamin C, contributing to hair softening and restoring its shine. [10-13]

6. Camphor

Camphor enhances blood circulation, leading to a cooling effect on the scalp. Consequently, as the blood flow increases towards the hair follicles, one can observe the positive impact of stronger and healthier hair. Camphor enhances prominent sensations of cooling and warming. Camphor appears to potentiate the sensations of both warming and cooling stimuli applied to the hairy skin [14]

7. Coconut oil

Cocos nucifera, generally known as coconut oil or copra oil, is a member of the Arecaceae family. It's utilised to hydrate hair, prevent hair breakage, improve blood flow and circulation, and function as an antibacterial agent. (6,13) [15]

Coconut stimulates the scalp, promoting cell growth and maintaining strong hair. It enhances blood circulation and, enriched with numerous vitamins, minerals, and amino acids, strengthens hair strands, ultimately contributing to thicker hair growth. [16]

8. Almond oil

Almond oil rich in vitamin E used in the treatment of hair loss and strengthen the hairs. Traditionally, almond seeds have been attributed to having properties that promote hair growth. These seeds are rich in proteins, vitamins, and tocopherol, making them an excellent source of essential nutrients. The extract from P.dulcis seeds demonstrates a notable capability in encouraging hair growth. [17]

METHOD OF PREPARATION:

Different ingredients used in the formulation of herbal oil are presented in Table 1. Precisely all the dried and fresh herbs were weighed and grinded in the mixture and mixed in Coconut oil & Almond oil. After that mixing, keep aside for overnight Next day, the above content was boiled for 15 min. and was filtered through muslin cloth. To the filtrate coconut oil was added to make up the volume. [18]

III. EVALUATION OF FORMULATION:

The formulated herbal oil was evaluated for parameters like pH, acid value, Saponification value, refractive index, viscosity and organoleptic parameters etc. [19,20]

1. Acid value:

10ml of oil was added with 25ml of ethanol and 25ml of ether. Phenolphthalein was added as indicator and titrated with 0.1M potassium hydroxide solution,
 $\text{Acid value} = \frac{5.61n}{w}$ Where,
 n= Number of ml of 0.1M KOH
 w= Weight of oil

2. Saponification value:

2g of oil was accurately weighed and transferred into a 250ml of iodine flask. 25ml of 0.5M alcoholic potassium hydroxide was added and boiled under reflux on a water bath for 30mins. Phenolphthalein was added as indicator and titrated against 0.5M HCl ('a' ml). Similarly blank was performed ('b' ml) without the sample.

Saponification Value: $\frac{28.05(b-a)}{w}$ Where,
 w= weight in grams of the solution.

3. pH:

pH of the herbal oil was detected using pH meter.

4. Viscosity:

Viscosity was determined using Ostwald's viscometer.

5. Specific gravity:

Specific gravity of the prepared oil was determined using pycnometer or specific gravity bottle.

6. Refractive index:

It was determined using refractometer.

7. Organoleptic property:

Colour, odour, skin irritation was determined manually. Oil was applied on hand and exposed to sunlight for 5mins to check for any irritation over skin.

The prepared Polyherbal hair oil using the above mentioned ingredients was evaluated for the following parameters and the results are tabulated in Table No.2

Sr.No.	Parameters	Observation
1	Colour	Greenish brown
2	Odour	Characteristic
3	Specific gravity	1.097
4	Viscosity	0.971 Poise
5	pH	6.7
6	Acid value	4.4
7	Saponification value	112.07
8	Irritation test	No irritation
9	Refractive index	1.404

Table 2: Evaluation of Hair oil

IV. RESULT AND CONCLUSION:

This study presents Polyherbal hair oil is highly favored and widely utilized in various hair conditions. It facilitates hair growth, enhances the hair's beauty, and safeguards against hair loss. Additionally, the oil not only promotes hair growth but also delivers essential moisture to the scalp, resulting in beautiful and healthy hair. It provides various essential nutrients required to maintain normal function of sebaceous glands and promotes natural hair growth. Formulation was done and evaluated by means of various parameters. Moreover, the hair oil is designed to maintain stability at room temperature, ensuring that all ingredients contribute to its effectiveness and safety over its shelf life. In the present day, natural remedies are increasingly being utilized worldwide due to their safety and minimal side effects in comparison to chemical-based products. Herbal formulations can be easily prepared at home using readily available ingredients. At last, it can be concluded that the Polyherbal hair oil formulation have significant quality.

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