

Formulation and Evaluation of Polyherbal Hair Oil

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Abstract—Currently herbal cosmetics are widely used by the people due to their fewer side effects with a more safety. This research paper presents the formulation and evaluation of a Polyherbal Hair Oil prepared as an effective product for promoting health of hairs and common hair concerns. The present work was marked to formulate herbal oil for application in hairs using numerous herbs. To harness the synergetic benefits of natural plant-based ingredients, a Polyherbal Hair Oil was formulated by infusing coconut and till oil with homogenous extracts of Neem leaves, amla, hibiscus (flowers and leaves), Brahmi and Curry Leaves. Physicochemical analysis confirmed its suitability for topical application, exhibiting favourable parameters such as pH, viscosity, and density. Accelerated stability testing indicated that the formulation remains stable under different storage conditions, ensuring a prolonged shelf life. Efficacy assessments, carried out through both in vitro and in vivo models, demonstrated its potential to stimulate hair growth, enhance scalp condition, strengthen hair fibers, and reduce dandruff. Safety evaluations confirmed excellent skin tolerance along with microbiological safety. Collectively, these results suggest that the Polyherbal Hair Oil is a safe and effective cosmetic preparation for improving hair health and addressing multiple hair-related concerns.

Index Terms—Herbal Cosmetics, Polyherbal Hair Oil, Synergistic, Formulation, Evaluation, Herbal Ingredients.

1. INTRODUCTION

The popularity for herbal cosmetics has better-quality awareness in traditional treatments for hair care. Amongst these, Polyherbal hair oil formulations have appeared as promising results due to their ability to nourish the hair, improve scalp health. Hair oils are broadly used hair care preparations noted for preventing and treating conditions such as baldness, scalp disorders and hair damage, and similarly promoting healthy hair growth. Hair care plays a

vigorous role in personal grooming, with strong, shiny, and healthy hair as a sign of strength and attraction. The present research emphasizes on the formulation and evaluation of Polyherbal hair oil as a potential cosmetic preparation for enhancing overall hair health. The formulation of Polyherbal hair oil includes the addition of numerous herbal ingredients and potential uses for scalp and hair health. Frequently used active constituents include coconut oil, amla, hibiscus, Curry leaves and neem leaves, which are rich sources of minerals, antioxidants, vitamins and other bioactives. All these constituents nurture hair follicles, soothe the scalp, strengthen hair strands, and help control dandruff. Amla is a rich source of vitamin C, tannins, and essential minerals which offers nutrition to the hair and improve its natural dark colour. Hibiscus, containing calcium, iron and vitamins such as B1, riboflavin, niacin, and C, which gives thicker hair growth and supports prevent premature graying. Compared with synthetic products, herbal hair oils are well-thought-out safer and more beneficial. Objective of this research is to examine the preparation of polyherbal hair oil and estimate its efficiency as a cosmetic formulation for hair care. Evaluation includes physicochemical characterization, stability studies, and safety testing to ensure the formulation's quality, stability, effectiveness, and safety.

DEFINITION OF HERBAL OIL

Herbal oils are concentrated extracts obtained from different plants parts, including leaves, flowers, seeds, and fruit, by using processes such as distillation or cold pressing. Essential therapeutic compounds of these oil and volatile oils of the plants, gives valuables in aromatherapy, cosmetics and traditional medicine. Herbal oils have different medicinal uses like anti-inflammatory, antimicrobial, and antioxidant properties.

2. EXPERIMENTAL WORK

2.1 Material and methods

2.1.1 Collection of plant part

For the preparation of herbal hair oil various plant materials were collected namely Neem, Amla, Brahmi, Hibiscus and Tulsi from the different area of Trimbkeshwar, Mahiravani and my own Garden, Nashik, India.

2.2 Formulation

Sr. No	Ingredients	Quantity	Uses
1	Coconut Oil	65%	Moisturizing
2	Till Oil	15%	Nourishing
3	Neem Leaves	3%	Cleansing, Antibacterial
4	Amla	4%	Antioxidant
5	Hibiscus Flowers	3%	Hair Conditioning, Thickening of hair
6	Brahmi Leaves	7%	Nourishing, Scalp Health & Promotes Hair Growth
7	Curry leaves	3%	Moisturizes the scalp

2.3 Procedure

The herbs used in the present study for making herbal hair oil were dried, crushed, and passed in sieves and it was used in coconut oil base.

- Collect and weigh all herbal raw ingredients such as Neem Leaves, Amla, Hibiscus Flowers, Brahmi Leaves and Curry leaves.
- Add Coconut oil, and till oil as mentioned in above table.
- Boil herbal products in the above oil formulation up to 30 to 35 mins.
- Keep aside for overnight.
- Filter the total preparation by using muslin cloth.
- And then collect the final polyherbal hair oil in the bottle.

Formulated Herbal Hair Oil



2.4 Evaluation parameters

For evaluation test of prepared herbal hair oil was estimated for product performance which includes physicochemical parameters.

2.4.1 Organoleptic Property

Colour: Manual assessment done by naked eyes.

Odour: Manual assessment done by taking smell.

Grittiness: Applied on skin and gently rubbed skin and observed.

Sensitivity: Applied to the skin and wide-open to the sunlight for 5 minutes to check for any irritation over skin.

Sedimentation: Preserve the whole formulation aside for overnight and check for sedimentation.

2.4.2 pH Determination

The pH of herbal hair oil was determined using pH meter.

2.4.3 Viscosity Measurement

The viscosity of prepared herbal hair oil was estimated by Ostwald's Viscometer. By using the following equation viscosity of prepared herbal hair oil was calculated.

η_1 = Viscosity of water

ρ_2 = Density of sample

t_2 = Mean time of oil from A to B

ρ_1 = Density of oil

t_1 = Mean time of flow of water from A to B

2.4.4 Acid Value

For determination of the acid value, 10 ml of oil was added with 25ml of ethanol and 25ml of ether. Phenolphthalein was used as an indicator, and titrated using a 0.1M potassium hydroxide solution. By using

the following equation acid value of prepared herbal hair oil was calculated.

n = Number of ml of 0.1M KOH

w = Wt. of oil

2.4.5 Specific Gravity

Specific gravity bottle was used for the determination of prepared herbal hair oil.

2.4.6 Stability Study

This test performed by observing the formulated herbal hair oil in a closed container at cooled and dry place.

3 RESULTS AND DISCUSSION

The results of the preparation and evaluation of Polyherbal Hair Oil show promising results concerning its physicochemical properties, stability, efficacy, and safety.

3.1 Formulated Polyherbal Hair Oil

3.1.1 Physicochemical Properties

pH: The pH Polyherbal Hair Oil is found to be 6.2

3.1.2 Viscosity Measurement

The viscosity of the formulated oil was measured 0.94 centipoise.

3.1.3 Stability Testing

It is performed by keeping the prepared herbal hair oil in a closed container at cooled and dry place.

3.1.4 Safety Assessment

Skin Irritation Test done by Patch testing on human subjects proved no signs of skin irritation or sensitization, indicating that the compatible with Polyherbal Hair Oil skin.

Evaluation Parameter

Sr. No	Parameter	Result
1	Colour	Brownish
2	Odour	Characteristic
3	Specific Gravity	1.09
4	Viscosity	0.94 cps
5	pH	6.2
6	Acid Value	5.1
7	Skin Irritation Test	No Irritation

4 CONCLUSIONS

Polyherbal Hair Oil as a natural, effective and safe formulation for hair as a hair care cosmetic. All these herbal ingredients which is having various aids with

good combination will give the countless effect for hair. The combination of herbal ingredients gives consumers a sustainable substitute to conventional hair care products. The herbal extracts and constituents selected for the preparation of these formulations were described to have growth of hair, control dandruff hair thickening, and stop hair fall properties, and it promoting shiny, strong and healthy hair growth. Formulation was prepared and evaluated by different parameters like pH, organoleptic properties (colour, odour, Grittiness, sensitivity, sedimentation) acid value, viscosity, specific gravity, and stability test. As per this study it can be concluded that the formulated herbal hair oil has good quality and stable formulation.

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