



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; 7(3): 3254-3256
Received: 23-03-2018
Accepted: 27-04-2018

NS Yamani

Assistant Professor, Bharat
School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

Sudha

Bharat School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

Jyotsna

Bharat School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

K Pratyusha

Bharat School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

J Pratyusha

Bharat School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

Kartheeka

Bharat School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

Correspondence**NS Yamani**

Assistant Professor, Bharat
School of pharmacy,
Mangalpally, Ibrahimpatnam,
Telangana, India

Formulation and evaluation of polyherbal hair oil

NS Yamani, Sudha, Jyotsna, K Pratyusha, J Pratyusha and Kartheeka

Abstract

Herbal formulations are known for their use since ancient times with minimal side effects and enhanced activity due to their origin. These oils are used to treat hair problems like thinning of hair and dry or flaky scalp. Apart from their moisturizing purposes they are also used to promote hair growth, improve circulation of blood in the scalp, prevent dandruff and add volume to the hair shaft. The aim of present work is to formulate herbal hair oil from the leaves of *Azadirachta indica*, leaves and flowers of *Hibiscus rosa-sinensis*, leaves of *Murraya koenigii*, leaves of *Bacopa monnieri*, fruits of *Phyllanthus emblica*, and roots of *Withania somnifera* in coconut oil. The formulated hair oil was evaluated for different properties such as viscosity, refractive index, acid value, saponification value, and pH and reported.

Keywords: herbal hair oil, hair fall, anti-dandruff, formulation and evaluation

Introduction

Hair loss is a distressing condition for greater number of men and women. Therefore it is of great importance to develop new theories for the treatment of hair loss. A large number of herbal oils have been formulated till date, of which very few are reported to show maximum activity. Along with good shampoo and conditioner, great hair oil completes hair care [1]. Hair oils are the hair care preparations used for the prevention and treatment of baldness or other ailments, aggression of hair [2]. Hair care products are categorized into two main categories, hair tonics and hair grooming aids. Hair oil those which contains herbal drugs are called hair tonics, these are formulated by herbal extracts in an oil base [3]. Herbal hair oil not only moisturizes scalp but also reverse dry scalp and dry hair conditions.

Amla is rich in vitamin C, tannins and minerals such as phosphorus, iron and calcium which provide nutrition to hair and also causes thick and dark hair [4]. It contains essential fatty acids which strengthen hair follicles and is an effective agent against dandruff. Owing to high iron and carotene content, it stimulates hair growth.

Hibiscus consists of calcium, phosphorus, iron, copper, zinc, vitamin B1, riboflavin, niacin and vitamin C, used to stimulate thicker hair growth by strengthening the strands and prevents premature graying of hair [5]. Oil of hibiscus effectively revives the scalp and prevents it from turning dry. Hibiscus shows potential for cancer treatment and as a weight loss aid, along with other uses [6].

Brahmi contains alkaloids which enhance protein kinase activity and relieve stress. The active ingredients in this herb can affect hormonal balance in the body and positively impact the balance of [7] stress hormones in our body. The rich biochemical compound in the form of antioxidants prevents temporary or permanent baldness.

Fenugreek seeds are packed with proteins which prevent baldness and also contain nicotinic acid which encourages hair growth and lecithin with energizing hair follicles [8].

Ashwagandha has antioxidant and hormone balancing properties which reduces hair fall and promotes shiny hair [9].

Neem contains several fatty acids such as linoleic acid, stearic acid, oleic acids that nourishes and revitalize rough hair to a smooth silky texture [10]. Curry leaves has antibacterial antifungal and anti-inflammatory properties which fights against dandruff and infections of the scalp [11].

In our study, we have prepared hair oil from the extracts of amla fruits, hibiscus flowers and leaves, neem leaves, curry leaves, fenugreek seeds, herbs of brahmi and roots of ashwagandha. The formulated oil was evaluated for different properties.

Material and Methods**Collection of plant part**

For the preparation of herbal hair oil various plant materials were collected viz., Amla, Brahmi, Bhringaraj, curry leaves and ashwagandha from the local market, Hyderabad, leaves of *Azadirachta indica* and hibiscus were collected from botanical garden of BSP,

Ibrahimpatnam, Hyderabad and were identified and authenticated from department of pharmacognosy, BIT, Ibrahimpatnam (TS).

Formulation of herbal hair oil

Herbs of all the crude drugs are collected and dried under shade. Drying under shade will retain the active constituents. Hence shade drying is preferred over artificial drying. The dried crude drugs were made into coarse powder by using mixer. Later on all these coarsely powdered drugs are passed through mesh number 80. Thus obtained powders are blended together to get a uniform mixture. Now coconut oil is added and mixed well. Now the contents were boiled for 15 min and were filtered through muslin cloth. To the filtrate coconut oil was added to make up the volume. Finally small amount of flavoring agent was added to the oil and it was placed in amber colored bottle.

Table 1: List of ingredients used for herbal hair oil preparation

S. No	Ingredients	Quantity		
		3%	6%	9%
1.	Coconut oil	30ml	30ml	30ml
2.	Hibiscus	3 gms	6 gms	9 gms
3.	Amla	3 gms	6 gms	9 gms
4.	Neem	3 gms	6 gms	9 gms
5.	Ashwagandha	3 gms	6 gms	9 gms
6.	Fenugreek	3 gms	6 gms	9 gms
7.	Curry leaves	3 gms	6 gms	9 gms
8.	Brahmi	3 gms	6 gms	9 gms

Evaluation of herbal hair oil

Organoleptic property: Different organoleptic properties like Color, physical state, odour, polarity and solubility was determined manually.

Primary skin irritation test: The prepared formulations were assessed for primary skin irritation test. Healthy human volunteers were selected for the study. The hair of each volunteer of 1cm² was shaved which could accommodate three test sites. It was cleaned with surgical spirit. The quantities of formulations were applied over the respective test sites were observed for erythema and edema for 48hrs after application.

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

Viscosity: It is an index of resistance of a liquid to flow, the higher the viscosity of the liquid, the greater is the resistance to flow. The viscosity was determined using Ostwald's viscometer.

Table 2: Evaluation of hair oil at different concentrations

S. No	Concentration (%)	Viscosity	Acid Value	Ph	Specific Gravity	Saponification Value	Refractive Index
1.	30	30.977	2.36	8.1	0.939	180	1.473
2.	60	34.984	1.98	7.2	1.099	221	1.496
3.	90	37.923	1.47	6.4	0.984	256	1.579

Conclusion

India has a wide variety of medicinal herbs with various cosmetic and healing properties. The herbal constituents chosen for the formulation of hair oil were reported to have antidandruff, hair thickening and hair fall control properties, which when used together elicited a synergistic effect in promoting healthy and shiny hair growth. The formulation

Refractive index: It was determined using refractometer.

Acid value: Preparation Of 0.1 KOH molar solutions: Weighed 0.56 g KOH pellets and dissolved in 100 mL of distilled water and stirred continuously. The prepared 0.1 molar KOH solution was filled in the burette.

Titration: Measured 10 mL oil and dissolved in a 50ml mixture of Ethanol and Ether (1:1) and shaken. Added 1 mL of phenolphthalein indicator and titrated against 0.1 molar KOH solution.

Saponification value: Accurately measured and transferred 1 mL of oil into a 250 mL of conical flask and 10 mL of ethanol: ether mixture (2:1) was added. To this mixture 25 mL of 0.5 N alcoholic KOH was added. Kept the flask aside for 30 min and was cooled. The cooled solution was titrated against 0.5 N HCl using phenolphthalein indicator. Similarly the blank titration was performed without taking oil (sample). Amount of KOH in mg consumed was calculated as below.

$$\text{Saponification value} = 28.05 \cdot (X-Z)/W$$

Where,

X = ml of KOH required to neutralize the substance,

Z = ml of KOH required for blank, and

W = Weight of the sample taken for the test (g).

Specific gravity: Take the specific gravity bottle, rinsed it with distilled water, dry it in oven for 15 minutes, cool, closed it with cap and weigh it (W₁). Now fill the same specific gravity bottle with the sample and closed it with cap and again weigh it (W₂).

Determine the weight of sample per milliliter by formula (W₂-W₁).

Results and Discussion

1. Organoleptic property

The prepared oil was checked for their physical properties and their results are as below:

Color: Greenish brown color

Physical state: liquid with greasy in nature

Odour: pleasant

Polarity: Non polar

Solubility: soluble in non-polar solvents

2. Primary skin irritation test

This test was performed to evaluate the irritation of the formulated oil on the skin of human volunteers. The prepared formulation did not show any erythema/edema on the intact skin of humans. This shows that the formulated oil was safe for use on human beings.

was proven to be safe for human use.

Acknowledgment

We would like to express our honest gratitude to and Dr. Marina D'Souza, Principal, Bharat School of Pharmacy for her constant support and completion of the work and Dr. Yogesh Biradar for his encouragement. We would also like to

convey our sincere thanks to our honorable chairman Ch. Venugopal Reddy for providing the facilities to carry out the work.

References

1. Akshay Negi, Dr. Luv Kush. *Trichophoric Ayurvedicophore*. 2013; 2(7-2278-0211):128-131.
2. Swarnlata saraf, Manjusha jharaniya, Anshita gupta, Vishal jain, Shailendra Saraf. *Herbal hair cosmetics: Advancements and recent Findings*. 2014; 3(2):2277-7105.
3. Uno H, Stenn KS, Massenger AG, Baden HP. *Molecular and Structural Biology of Hair, Quantitative models for the study of hair growth in vivo*. N.Y. Acad. Sci. 1991; 642:107-124.
4. Pooja Banerjee S, Megha Sharma, Rajesh Kumar Nema. *Preparation, evaluation and hair growth stimulating activity of herbal hair oil*. 2009; 1(1):261-267.
5. Mithal BM, Shah RN. *A hand book of cosmetics*. 1st ed. Vallabhprakashan, New Delhi, 2000, 141-143.
6. Evans WC, Trease and Evans. *Pharmacognosy*. 15th Ed. W.B. Saunders Harcourt Publishers Ltd., 2002, 292.
7. *Indian Pharmacopoeia*, 2014.
8. Adhirajan N, Ravi Kumar T, Shanmugasundaram N, Mary Babu J. *Ethnopharmacology*. 2003; 88:235-239.
9. Shah CS, Qudry JS. *A Text book of Pharmacognosy*. 11th Ed. B.S. Shah Prakashan, Ahmedabad, 1996, 119.
10. *The Aurvedic Formulary of India*, Government of India, Ministry of Health and family planning, Department of health, Delhi, 1st ed. 1978; 1:99.
11. Wagner H, Bladt S, Zgainski FM. *Plant drug analysis*. Verlas, Berlin, 1994, 291-304.