

Research Article

Formulation and biological evaluation of some Herbal hair nourishing formulations

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Abstract

Cosmetics are being used on a large scale for its various utilities in day-to-day life. Mankind uses various products to enhance beauty and elegance to look young and charming. Now a days, herbal cosmetic are widely used because of the belief that they have fewer side effects and better safety along with a longer shelf life.. Hair is one of the primary parts of the body which acts as a protective appendage. The objective of the present work is to formulate hair nourishing preparations for general purpose (daily use) using alcoholic and aqueous extracts of various herbs. The formulations were evaluated for their efficacy and were tested on rabbits to determine the best formulation among them from the hair growth promotion point of view.

Keywords: hair, oil, herbs, cosmetics, formulation, evaluation.

INTRODUCTION

Hair is an epidermal derivative which is one of the vital parts increasing the overall elegance of the body. Hair fall, dandruff, lice, split ends, grey hair are few problems involved with hair faced by human beings.¹ A hair has a root, a shaft and a tip.² It is

composed of various types of proteins.³ In ageing person, melanin, which is the pigment responsible for colour of hair, stops working and hair turns white.⁴ Many cosmetics are available nowadays to solve these problems and Hair oil is one among them.⁵ Herbal cosmetics are in high demand due to the increasing interest of mankind towards them because they are more effective with nil or less side effects, easily available ingredients etc. Hair care cosmetics are now added with herbs and they are well recognised compared with synthetic ones.⁶ Herbal hair oil is more preferred and is used in the repairment of many ailments of hair.⁷ Hair They promote hair growth, improve elegance of hair and prevent hair fall⁸. Hair oil not only promotes hair growth but they also provide necessary moisture to the scalp rendering in beautiful hair⁹. Hair tonics maintain the lipid levels.¹⁰ The present work was aimed to prepare and evaluate a polyherbal hair nourishing formulation based on the aqueous and alcoholic extract containing herbs like centella asiatica, jatamansi, bringaraj, hibiscus, tinospora cordifolia in coconut oil. All these herbs have well known traditional potential in the treatment of hair care.

Materials and Methods:**Collection of Plant Materials:**

The polyherbal hair oil was prepared by collecting various plant materials like bringaraj leaves, hibiscus leaves, centella, jatamansi, tinospora cordifolia from herbal garden and coconut oil was procured from local market [Table : 1].

METHODOLOGY:**Preparation of hair-nourishing Formulation**

For the preparation of hair nourishing formulation, plants taken were

Centella asiatica

Nardostachys jatamansi

Eclipta alba

Hibiscus rosa sinensis

Tinospora cordifolia

Alcoholic & aqueous extracts of the above five plants were obtained & then formulation was made by mixing above drugs in different combinations using coconut oil as base.

Extracts were taken, mixed with coconut oil & stirred properly. Then was kept at hot plate at 60-°C for 30 minutes. Meanwhile the volume was make up

to the required volume. Then it was cooled & kept at room temperature. Preparation was filtered through cotton & was kept in properly closed containers.

Table 1: Composition of Herbal hair nourishing formulations from Herbal drugs.

Formulation	Centella asiatica(g)	Nardostachys jatamansi(g)	Eclipta alba(g)	Hibiscus rosasinensis(g)	Tinospora cordifolia(g)	Coconut oil(ml) q.s
RS-1(alc.)	2	2	2	2	2	100
RS-2(alc.)	3	3	-	-	-	60
RS-3(alc.)	-	-	2	2	2	60
RS-4(alc.)	2	-	2	-	-	20
Formulation	Centella asiatica(g)	Nardostachys jatamansi(g)	Eclipta alba(g)	Hibiscus rosasinensis(g)	Tinospora cordifolia(g)	Coconut oil(ml) q.s
RS-1(aq.)	2	2	2	2	2	100
RS-2(aq.)	3	3	-	-	-	60
RS-3(aq.)	-	-	2	2	2	60
RS-4(aq.)	2	-	2	-	-	20

Table 2: Measurement of Rabbits hair after one week (length of hair in mm)

FORMULATION	I gp	II gp	III gp	Avg.
RS-1(alc.)	1.21	1.23	1.24	1.23
RS-2(alc.)	1.10	1.12	1.11	1.10
RS-3(alc.)	1.14	1.18	1.16	1.16
RS-4(alc.)	1.17	1.15	1.14	1.15
RS-1(aq.)	1.18	1.17	1.19	1.19
RS-2(aq.)	1.08	1.07	1.08	1.06
RS-3(aq.)	1.11	1.12	1.12	1.12
RS-4(aq.)	1.11	1.12	1.10	1.11
Normal	1.04	1.05	1.06	1.04
Standard(Coconut oil)	1.06	1.06	1.06	1.06

Table 3: Measurement of Rabbits hair after second week (length of hair in mm)

FORMULATION	I gp	II gp	III gp	Avg
RS-1(alc.)	2.24	2.23	2.24	2.24
RS-2(alc.)	2.09	2.07	2.08	2.08
RS-3(alc.)	2.16	2.16	2.17	2.16
RS-4(alc.)	2.00	2.01	2.00	2.01
RS-1(aq.)	2.15	2.14	2.14	2.14
RS-2(aq.)	1.99	1.98	1.98	1.98
RS-3(aq.)	2.05	2.04	2.04	2.04
RS-4(aq.)	1.98	1.99	1.97	1.98
Normal	1.89	1.90	1.91	1.90
Std.(Coconut oil)	1.94	1.93	1.92	1.94

Table 4: Measurement of Rabbits hair after third week (length of hair in mm)

FORMULATION	I gp	II gp	III gp	Avg
RS-1(Alc.)	3.53	3.54	3.52	3.52
RS-2(Alc.)	3.12	3.12	3.12	3.12
RS-3(Alc.)	3.26	3.28	3.27	3.27
RS-4(Alc.)	3.09	3.10	3.08	3.09
RS-1(Aq.)	3.32	3.33	3.32	3.32
RS-2(Aq.)	2.94	2.95	2.94	2.94
RS-3(Aq.)	3.02	3.02	3.02	3.02
RS-4(Aq.)	2.89	2.88	2.90	2.89
Normal	1.94	1.94	1.94	1.94
Std.(Coconut oil)	1.97	1.98	1.96	1.98

Table 5: Measurement of Rabbits hair after fourth week (length of hair in mm)

FORMULATION	I gp	II gp	III gp	Avg
RS-1(Alc.)	4.32	4.33	4.34	4.34
RS-2(Alc.)	4.02	4.02	4.02	4.02
RS-3(Alc.)	4.15	4.17	4.16	4.16
RS-4(Alc.)	4.04	4.05	4.03	4.04
RS-1(Aq.)	4.08	4.06	4.07	4.06
RS-2(Aq.)	3.88	3.89	3.89	3.89
RS-3(Aq.)	4.02	4.02	4.02	4.02
RS-4(Aq.)	3.96	3.97	3.95	3.96
Normal	1.98	1.97	1.96	1.96
Std.(Coconut oil)	2.96	2.95	2.97	2.96

Accordingly eight formulations were made out of which 4 were alcoholic & 4 were aqueous as shown in the Table 1.

Application of formulations on animals

Two Rabbits of either sex were procured from Jamia Hamdard (Hamdard University), New Delhi, India and were used for the present study. The study protocol was approved by the Institutional Ethical Committee and was allotted the CPCSEA No.385. Two Rabbits were used & hair was shaved at six places.

One Rabbit was used for four alcoholic preparations, which were applied on four different places. At one place the standard (coconut oil) was applied, and one point was shaved to observe the normal hair growth without applying any formula-

tion. Similarly second Rabbit was used for four aqueous preparations, which were applied on four different places and standard was applied. Hair growth was noticed at every 7 day & length of hair of each rabbit was measured. The observations are quoted in the tables 2, 3, 4 & 5 as per weekly growth.

RESULTS & DISCUSSIONS:

The formulation RS-1 alcoholic as well as aqueous based gave good results on the hair growth in Rabbits among the four alcoholic formulations. As *Centella asiatica* acts as a hair tonic and the other ingredients added such as *Nardostachys jatamansi* acted synergically on the growth of hairs in Rabbits but as compared to formulation RS-2, which contained only *Centella asiatica* and *Nardostachys jatamansi*, the growth was more in formulation RS-1 as the other

constituents such as **Bhringraj**, **Gudhal** and **Giloe** added to the effect of main drugs. The formulation **RS-3**(aq.) was not so effective in causing hair growth due to lack of hair growth promoter drugs such as **Brahmi** and **Jatamansi**. But the additive effect created by **Bhrinraj**, **Gudhal** and **Giloe** helped in the growth of hair. Also the formulation **RS-4** was good but Bhrinraj is less effective as hair growth promoter as compared to *Centella asiatica*. **RS-2**(aq.) was least effective as alcoholic extract were more effective in coconut oil as base as compared to aqueous extract. Hence it can be concluded that the formulation **RS-1** both alcoholic and aqueous was the best among the remaining as a growth promoter. On the basis of the observations the formulations can be evaluated as- **RS-1>RS-3>RS-2>RS-4** (alcoholic) and in the case of aqueous formulations, they can be evaluated as- **RS-1≥RS-3>RS-4>RS-2**.

RS-1(alc.) is the best among all the formulations, due to the synergistic effect of all the herbal drugs. Hence it is concluded that the Alcoholic Herbal preparation is better than aqueous Herbal preparation.

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YakṣmAnAm

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