

Formulation and Evaluation of Polyherbal Oil

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ABSTRACT

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The aim of present study involves preparation of polyherbal hair oil using plant materials. The prepared polyherbal hair oil evaluated different parameters within the acceptable limits. Such as phytochemical screening, organoleptic characterization, specific gravity, pH, viscosity, acid value, saponification value, refractive index, and also stability study. Antimicrobial assay of the polyherbal hair oil was studied by the zone inhibition method. And these helps reduces dandruffs and scalp of hairs. And to provide nutrition's of hairs. The antioxidant activity of the oil was studied by DPPH radical scavenging activity. The primary skin irritation test is carried out. Hence, these polyherbal hair oil increases hair growth, reduces hair loss, providing protection against dandruff. Now-a-days increasing demand of herbal formulation than synthetic formulation. They have better safety and also fewer side effects. Polyherbal hair oil using various fresh leaves of Hibiscus Rosa Sinesis, Aloe Barbadensis leaf, curry leaves, amla, shikakai. These formulations coconut oil as the base. Hair care products used both hair tonic as well as hair grooming aids.

Keywords: polyherbal hair oil, antioxidant activity, antidandruff assay, herbs.

I. INTRODUCTION

Hair is one of the vital parts of our body and it influences the overall appearance of person. Hair is a protein filament that grows from follicles found in the dermis. Hair is one of the most important of our body that improves the overall appearance of person.(5)

The hair fall, dandruffs, split ends, gray hair are the major problem associated with hair. Hair loss is distressing condition for an increasing number of men

and women. Hair loss is or alopecia, is a common patient problems/complaint. And a source of significant psychological and physical distress. To overcome this problems, we use lots of hair care products use.(6)

In traditional Indian system of medicine many plants and herbal formulations are reported for hair growth promotion as well as improvement of quality of hair. Herbal care products are defined as those formulation which are used for cleansing, modifying the texture of

hair, changing of colour, giving life to stressed hair and providing nourishment of the hair.(4)

Hair oils are the hair care formulations applied for treatment of hair disorders such as baldness, aggression of hair discoloring of hair, hair falling, dryness of hair. Herbal hair oils are formulated with herbal extracts in oil base (8)

In our study, we have formulated herbal hair oils from Hibiscus Rosasinesis, *Murraya koenigii*, Aloe barbadensis, Phyllanthus embilica, Acacia concinna, Coconut oil used for the best medicine of hair growth.

A. Hibiscus Rosasinesis



Figure1. Hibiscus Rosasinesis

Biological source-dried leaves of hibiscus Rosa sinesis.

Family- Malvaceae.

Uses – Nourishes and thickens hair. emollient, brain tonic, growth of hair, blackening of hair, Luster of hair ,laxative, skin diseases, menorrhagia, treatment of bronchial catarrh, antiscorbutic, depurative.

Plant part used-Leaf (1)

B. Curry Leaves



Figure 2. Curry plant

Biological Source

The species name commemorates the botanist Johann König. The genus *Murraya* commemorates Swedish physician and botanist Johann Andreas Murray who died in 1791. Hence the botanical name of the curry leaves is *Murraya koenigii*.

Family-Rutaceae

Uses- Use prevents hair fall and premature graying of hair.

Plant part used- Leaf (10)

C. Aloe Vera



Figure 3. Aloe Vera

Biological Source- Dried leaves of aloe barbadensis miller

Family-Liliaceae

Uses- Conditioner and moisturizing effect, remove dandruff, boost hair growth, nourishing the hair. Combination of aloe pulp and coconut oil are rich vitamins and minerals. These oil used as hair and scalp gives healthy, strong antidandruff free hair (antidandruff activity of the hair.)

Plant part used- whole plant. (2)

D. Amla



Figure 4. Amla

Biological Source- Dried fruits of phyllanthus emblica.

Family Phyllanthaceae.

Uses- Hair conditioner ,treats scalp ailments ,promotes hair growth .amla is rich source of vitamin c ,tannins ,and minerals such as phosphorus ,iron ,calcium which provide nutrition to hair and also causes thick and dark hair.

Plant part used-Fruit (15)

E. Shikakai



Figure 5. Shikakai

Biological source-

It consist of the fruits of the plant acacia concinna. Linn.

Family- Leguminosae

Uses- It is used as natural hair wash for sensitive scalps or to control dandruff. It promotes hair growth strengthen hair roots and lengthy beautiful hair .these is used for herbal hair oil.

Plant part used- Fruit (8)

F. Coconut Oil



Figure 6. Coconut Oil

Biological source- Oil is derived from dried fruits of Cocus nucifera.

Family- Arecaceae

Uses- Nourishes of hair, moisturizing effect vehicle, stimulates hair growth by unclogging pores.

Plant part used-Fruit (6)

II. METHODS AND MATERIAL

Collection and authentication of plant materials

The Polyherbal hair oil was prepared by collecting and using various plant materials these are, hibiscus rosasinesis leaf, curry leaf, aloe Vera leaf, amla, shikekai, coconut oil, are collected local region near Karad. Collected plants were identified by Dept. Of Botony, Yashwantrao Chavan College Of Science, Karad. The collected leaves were dried in the shade and then powder to coarse consistency and stored in an air tight container at room temperature. (13)

Culture

Clinical isolates of candida albicans was procured from Rajarambapu College of pharmacy, kasegaon, Maharashtra for the in-vitro studies.

3. Formulation of polyherbal hair oil

All herbs of crude drugs are collected and dried under shade. Drying under shade will retain active constituents. Hence, shade drying is preferred over artificial drying. The dried crude drugs were made into coarse powder using mixer. Later on, all these coarsely powdered drugs are passed through mesh number 80. This, obtained powders are blended together to get uniform mixture. Now coconut oil and aloe Vera pulp is added. These all dried powders of mixed well. Now contents were boiled 15 min and were filtrated through muslin cloth. To filtrate, coconut oil was added to make up volume. Finally, prepared polyherbal hair oil. And these are it was placed in amber colored bottle. (12)

Table 1. Formula for herbal oil

Sr.no.	Ingredients	F1 (2%)	F2 (4%)	F3 (8%)
1	Hibiscus rosasinesis	6gm	12gm	16gm
2	Curry leaf	6gm	12gm	16gm

3	Aloe Vera leaf	6gm	12gm	16gm
4	Amla	6mg	12mg	16mg
5	shikekai	6mg	12mg	16mg
6	Coconut oil	50ml	50ml	50ml

EVALUATION OF POLYHERBAL HAIR OIL

Phytochemical Screening of Polyherbal Hair Oil preparations

The Prepared herbal oils were subjected to various qualitative chemical analysis for identification of various plant constituents like alkaloids, glycosides, flavonoids, tannins, phenols, steroids and saponins by using different techniques. (13, 14)

Physical Evaluation

In the test, the herbal oil was observed for colour, odor, physical state, solubility, specific gravity, PH, viscosity, refractive index, acid value and saponification value. were determined manually. (4)

Primary Skin Irritation Test

The prepared formulations are assessed for primary skin irritation test on our primary irritation test on our hand, little amount of F1, F2, F3, were applied on test site. The test site was observed for erythema and edema for 5 to 6 hrs. (8)

Antidandruff activity evaluation (anti-microbial activity) cup plate method

The polyherbal hair oil was carried out diffusin dependent antimicrobial activity by zone inhibition method. The plate was incubated at 37°C for 2 days. Zone of inhibition was measured.

Antioxidant activity

DPPH radical scavenging test

One ml of oil solutions (20, 30, 40, 50 and 60 µg/ml. in acetone) was added to one ml of DPPH solution (0.2Mm in acetone). After a 30min of reaction at room temperature, the absorbance of the was measured at 517nm. The antioxidant activity of the oil is measured against ascorbic acid as standard. (15)

Stability Studies

Prepared polyherbal hair oil is observed for stability conditions. The polyherbal hair oil is observed for 1, 2,3,4,5 and 6 months intervals. (2)

III. RESULTS AND DISCUSSION

Phytochemical screening of polyherbal hair oil preparations

Table 2. phytochemical evaluation of polyherbal hair oil

Name of the Test	Results
Alkaloids	-ve
Flavonoids	+ve
Steroids and Terpenoids	+ve
Glycosides	+ve
Tannins	+ve
Saponins	-ve
Phenols	+ve

Physical Evaluation

Table 3. organoleptic characteristics of polyherbal hair oil

parameters	F1	F2	F3
Colour	Greenish brown	Greenish brown	Greenish brown
odour	Pleasant	Pleasant	pleasant
Physical state	Liquid with greasy in nature	Liquid with greasy in nature	Liquid with greasy in nature
solubility	Non-polar solvents	Non-polar solvents	Non-polar solvents
Specific gravity	0.98	0.88	0.84
pH	5.95	5.78	5.53
Viscosity	0.0505	0.0525	0.0549
Acid value	9.452	14.366	16.85
Saponification	18.659	27.368	24.785

value			
Refractive index	1.5047	1.5837	1.7345
Skin irritation	No irritation	No irritation	No irritation

Antidandruff activity evaluation (anti-microbial activity) cup plate method

Antidandruff activity was carried out by measuring the zone of inhibition of different concentrations of polyherbal hair oil. all polyherbal hair oil showed good more activity as standard. Whereas F3 showed more activity against fluconazole .shown in table 4.

Table 4. zone of inhibition of polyherbal hair oil

Microorganism (candida albicans)	Zone of inhibition in cms				
	F1	F2	F3	Standar d (Fluconazole)	Control (Coconut oil)
TRIL1(cm)	1.3	1.3	1.5	1cm	0.9cm
TRIL2(cm)	1.2	1.2	1.4		
TRIL3(cm)	1	1.3	1.5		
AVG.(cm)	1.1	1.17	1.4		

Antioxidant activity

DPPH radical scavenging test

Antioxidant activity was carried out in DPPH radical scavenging assay. Polyherbal hair oil concentrations three showed more scavenging activity as compared to other concentrations. Antioxidant activity of polyherbal hair oil was studied by DPPH method, by taking ascorbic acid as standard. And results shown in table 5, 6, 7 and figure.7, 8, 9 respectively.

Table 5. absorbance and % radical scavenging activity values of different concentrations of F1

Concentrations (µl/ml)	Absorbance	% Radical Scavenging Activity
20	0.235	35.26%
30	0.341	47.66%
40	0.362	58.49%
50	0.414	56.79%
60	0.448	66.57%
Standard(Ascorbic acid)	0.06	88.79%

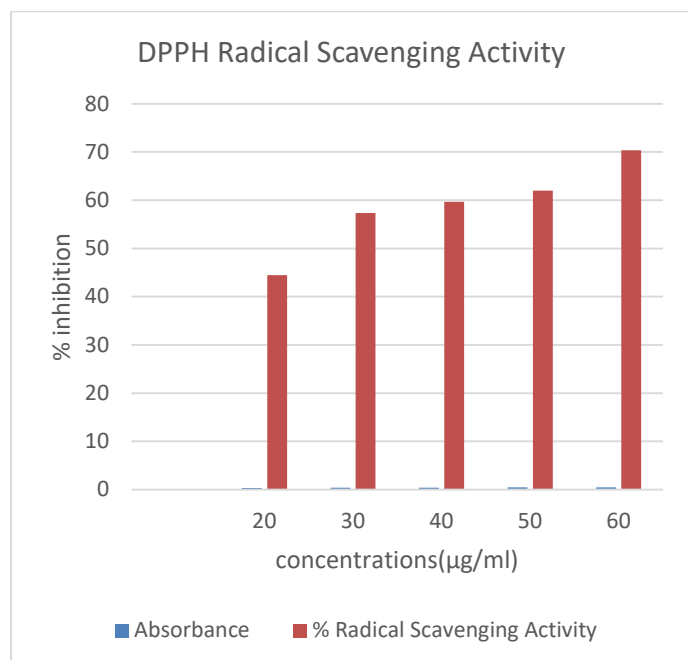


Figure 7. Effect of polyherbal hair oil 1- on DPPH Scavenging Activity

Table 6. absorbance and % radical scavenging activity values of different concentrations of F2

Concentrations (µg/ml)	Absorbance	%Radical Scavenging Activity
20	0.272	38.87

30	0.368	54.45
40	0.384	56.88
50	0.422	58.90
60	0.468	69.22
Standard (Ascorbic Acid)	0.06	88.79%

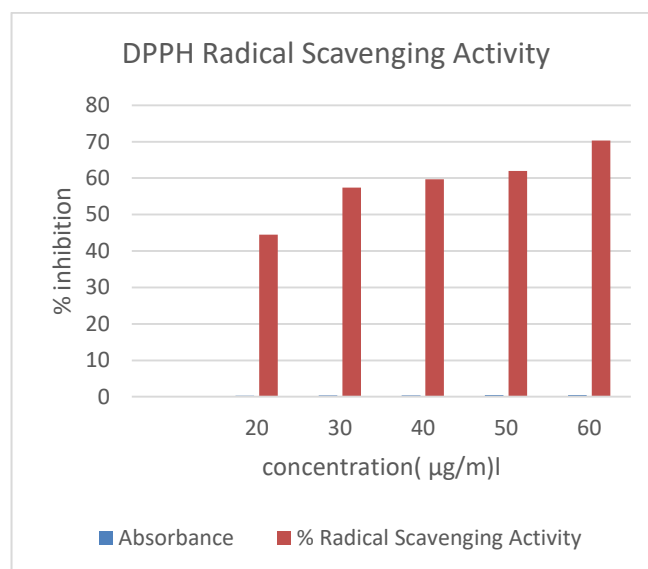


Figure 8. effect of polyherbal hair oil 2-on DPPH Radical Scavenging Activity

Table 7. absorbance and % radical scavenging activity values of different concentrations F3

Concentrations (µg/ml)	Absorbance	% Radical Scavenging Activity
20	0.327	44.48
30	0.396	57.38
40	0.419	59.64
50	0.439	62.00
60	0.485	70.33
Standard (Ascorbic Acid)	0.06	88.79

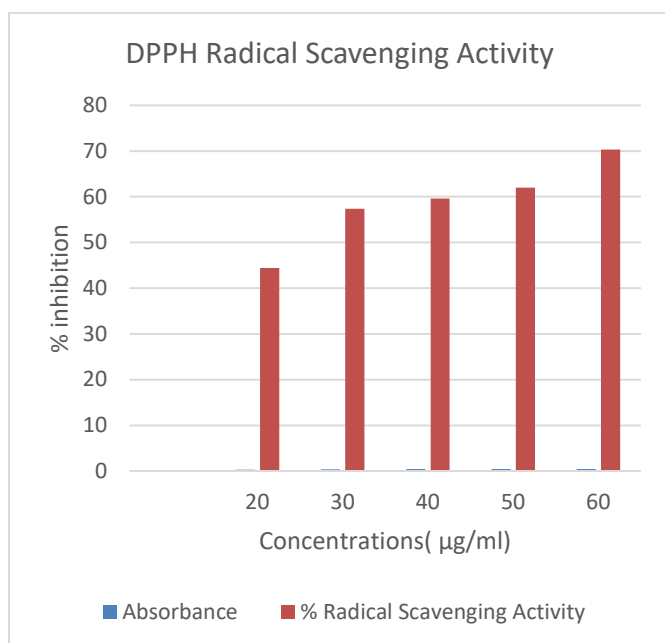


Figure 9. Effect of polyherbal hair oil 3- on DPPH Radical Scavenging Activity

IV. CONCLUSION

Polyherbal hair oil is one of the most well recognized hair treatments. Herbal formulations provides best mixture of vitamins, antioxidants, essential oils, and also provides nutrients of hair growth. These formulations maintaining good hair growth of hairs, stopping hair loss, reduces dandruff of hairs, also shining of hairs.

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