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Research Article

Formulation And Evaluation of Herbal Hair Powder Against Dandruff

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ABSTRACT

Herbal cosmetics are formulated, using different cosmetic ingredients to form the base in which one or more herbal ingredients are used to cure various skin ailments. During the early period, all cosmetics items were made in the home. Hair is one of the vital parts of the body derived from ectoderm of the skin and is proactive appendages on the body and considered accessory structure of the integument along with sweat glands, sebaceous gland, and nails. The different parts of the plants are selected for the study having hair care property. The plants are Vettiver Leaf, Rose, Indian Lotus, Ginger, Neem Leaf, Amara Leaf, Shikakai Fruit, Koyya Leaf, Curry Leaf, Henna Leaf, False Daisy, Hibiscus Leaf are collected around Erode. The present work focusses on the potential of herbals extracts from cosmetic purposes. Hence, we conclude that the formulation of polyherbal shampoo powder is effective in reducing dandruff and irritation, less adverse effect, and better conditioning effect. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers.

INTRODUCTION

Herbs are widely used as remedial agents because such drugs are easily available at low cost and comparatively safe and the people have good faith in such remedies. In India, Ayurvedic system evolved over 5000 years ago and is still in practice. In olden times herbal products were used for medicinal purposes, both internally as well as externally. Cosmetic products containing plant material as active ingredient is comes under the category of cosmeceuticals. Appearance of hair


makes an important impact on total body feature. Colour, length and appearance of hair make a significant difference from person to person. Cosmetics that are used for hair care purpose applied orally and should not be used for therapeutic purpose.

HERBAL COSMETICS:

Herbal cosmetics are formulated, using different cosmetic ingredients to form the base in which one or more herbal ingredients are used to cure various skin ailments. During the early period, all

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cosmetics items were made in the home. Natural materials like aromatic materials, spices, herbs, resins, dyes, fats, oils, and the natives of different countries used perfumes. Hair is one of the vital parts of the body derived from ectoderm of the skin and is proactive appendages on the body and considered accessory structure of the integument along with sweat glands, sebaceous gland, and nails. Hair is one of the external barometers of internal body conditions. Shampooing is the most common form of hair treatment. The primary function of shampoo is aimed at cleaning of the hair necessitated due to accumulated sebum, dust, scalp debris etc. Depending upon the type/ nature of ingredients used it may be simple shampoo, anti-dandruff shampoo, anti-septic shampoo and shampoos containing vitamins, amino acids, protein hydrolysate called as nutritional shampoo.

SHAMPOO:

Shampoos are expected to be much more than mere cleaning agents. There are many different varieties of ingredients for making a proper shampoo. Each of these ingredients have a special role in shampoos formulations. The major ingredients are detergents, conditioning and active ingredients for hair manageability, additives that modify the surfactants effect, stabilize the product, and increase its appeal. Hair tonic and conditioners are formulated as shampoos contain a large number of cosmetic products.

HAIR DAMAGE: IT'S CAUSES, PREVENTION, AND CURE:

1. Hair Damage & It's Definition:

Hair damage is essentially ant condition whereby one or more of the hair structures are physically or chemically altered to the extent that they are unable to return their original state.

2. Cuticle loss or erosion:

When Cuticle get damaged or cracked and frayed some of the keratin material can dissolve and disintegrate, making the hair shaft thinner. In

severe cases, entire portions of the cuticle layer can be removed altogether.

3. Longitudinal Rupturing:

With extreme damage, the hair shaft can experience a massive crack along its length, damaging the cortex and medulla. The rupture leaves the hair fibre open and unprotected.

4. Fibril Disintegration:

Excessive damage, the strong proteinaceous fibres of the cortex are weakened and often disintegrate. The fibre fray and give the hair shaft a ragged, unstable alignment.

EVIDENCE OF HAIR DAMAGE:

The by-product of hair damage includes the following:

1. Loss of elasticity and tensile strength
2. Breakage
3. Porosity/ moisture loss
4. Dullness
5. Brittleness
6. Splitting of ends
7. Excessive tangling
8. Fly – A way fibres
9. Limpness/ lack of body

CAUSES OF HAIR DAMAGE:

1. Ultraviolet Exposures:

Ultraviolet rays from the sun can fuse the cuticle layers together, and this fusion causes the hair to be less elastic and more prone to mechanical breakage.

2. Mechanical Manipulation:

Mechanical damage can occur when hair is combed, brushed, blown dry or styled. In fact, virtually any physical manipulation of the hair that entails even minimal tugging and pulling can damage hair.

3. Chemical Processing:

Hair becomes prone to moisture loss since chemical process lift and penetrate the cuticle. Once the cuticle layer is penetrated in this manner, some degree of moisture loss is typical.

4. Thermal Styling:



When couple withy chemical relaxing, heat styling may result in extreme hair dryness.

HAIR DAMAGE AND ITS TREATMENT:

1. Leave – In conditioners
2. Deep penetrating conditioners
3. Reconstructors
4. Moisturizers
5. Laminates
6. Thermal styling/ blow drying lotions
7. Finishing conditioners
8. Pre chemical conditioners
9. Post chemical conditions

DIFFERENT HERBS USED IN HAIR CARE

1. Amla
2. Brahmi
3. Bhringraj
4. Coconut
5. Eucalyptus
6. Henna
7. Neem
8. Gurhal
9. Jatamansi
10. Fenugreek
11. Cedar wood oil
12. Rosemerry oil
13. Shikakai
14. Almond oil
15. Ginko
16. Sandalwood oil
17. Sesame oil
18. Senna
19. Lemon oil
20. Rose oil
21. Sage oil
22. Basil oil
23. Jojoba oil
24. Neem oil
25. Methi
26. Arnica

DANDRUFF:

Dandruff reparents one of the most common dermatological skin conditions and is a chronic,

non-inflammatory condition of the scalp that is characterized by excessive scaling of scalp tissue. Dandruff is apparently caused by the fungus called *Malassezia restricta* and *M. Globosa*, *Malassezia* Formerly called *pityrosporum* is a yeast causing infection of skin and scalp. It often causes itching. Dandruff affects 5% of the population and mostly occurs after puberty, between 20-30 years and dandruff affects males more than females. Symptoms of Dandruff mainly include itching, flakes, redness of scalp. Dandruff can be treated in two ways, by using herbal based anti- dandruff shampoo and by using chemical based anti-dandruff shampoo.

AIM & PLAN OF THE WORK:

The aim of the study is to formulate and evaluate the herbal hair powder against dandruff.

The presence study is designed to be performed in the following steps:

1. To make a complete literature survey for selection of the plants and then to collect and identify the plant material needed for the study.
2. To select appropriate base, active ingredients, and other ingredients for the formulation of antidandruff shampoo.
3. To formulate antidandruff shampoo using selected base, selected active ingredients and other additives.
4. To study the organoleptic properties of formulations like appearance, colour, taste, odor, solubility.
5. To study the physiochemical properties
6. To perform the screening of above herbs for antifungal activity against *Malassezia furfur* using disc diffusion method and also determine the Minimum Inhibitory Concentration (MIC) using Micro broth dilution method.

MATERIALS AND METHODS:

COLLECTION OF PLANTS

The different parts of the plants are selected for the study having hair care property. The plants are Vettiver Leaf, Rose, Indian Lotus, Ginger, Neem



Leaf, Amara Leaf, Shikakai Fruit, Koyya Leaf, Curry Leaf, Henna Leaf, False Daisy, Hibiscus Leaf are collected around Erode. Collected plants parts are washed with tap water and shade dried. Shade dried material was powdered and stored in

air tight container for further use. The purpose of use in the herbal shampoo and its details are mentioned in table.

Table 1

S. NO	INGREDIENT	BIOLOGICAL NAME	USES
1	Vettiver Leaf	Vetiveria Zizanioides	Immune System Stimulation
2	Rose	Rosa Centifolia	Anti Inflammatory, Antiparasitic
3	Indian Lotus	Nelumbo Nucifera	Antifungal, Antipyretic, Emollient
4	Ginger	Zingiber Officinale	Anti-Oxidant and Anti-Inflammatory Properties.
5	Neem Leaf	Azadirachta Indica	Skin Ulcer
6	Amara Leaf	Albizia Amara	Antidandruff
7	Shikakai Fruit	Acacia Concinna	Promote Hair Growth, Control Dandruff
8	Koyya Leaf	Pome Granatum	Bactericidal, Antitumor
9	Curry Leaf	Murraya Koenigii	Promote Hair Growth
10	Henna Leaf	Lawsonia Inermis	Raditionally Used for Dying Hair
11	False Daisy	Eclipta Prostrata	Promotes Hair Growth, And It's a Wonderful Antimicrobial Agent
12	Hibiscus Leaf	Hibiscus Sabdariffa.	Hair Soft and Shine

RESULT AND DISCUSSION:

The herbal shampoo powder is formulated using following natural ingredients, which are tabulated in table 2.

Table 2: Formulation And Composition

S. NO	INGREDIENT	F1 (gm)	F2 (gm)	F3 (gm)	F4 (gm)	F5 (gm)
1	Vettiver Leaf	4	6	7	9	10
2	Rose	7	8	9	10	11
3	Indian Lotus	5	6	6	7	8
4	Ginger	0.5	1	1.5	2	2.5
5	Neem Leaf	3	5	6	7	9
6	Amara Leaf	1	3	4	5	6
7	Shikakai Fruit	7	8	9	10	11
8	Koyya Leaf	5	6	7	8	9
9	Curry Leaf	3	5	6	7	8
10	Henna Leaf	1	3	4	5	7
11	False Daisy	7	8	8	9	10
12	Hibiscus Leaf	5	6	7	9	10

EVALUATION OF HERBAL SHAMPOO POWDER:

1. ORGANOLEPTIC

EVALUATION/VISUAL APPEARANCE:

Organoleptic evaluation parameters like colour, odour, taste and texture are carried out.

Table 3: Evaluation Of Formulation For Physical Appearance



S.NO	ORGANOLEPTIC EVALUATION	RESULT
1	Colour	Greenish Brown
2	Odour	Slight Pleasant
3	Taste	Characteristic
4	Texture	Fine Smooth

- 1. GENERAL CHARACTERISTICS:** **POWDER** Prepared formulations of shampoos are subjected to following evaluation parameters.

Table 4: Evaluation Of Formulation For Physical General Powder Characteristics

Parameter	F1	F2	F3	F4	F5
Particle Size	64	64	64	64	64
Angle of Repose	45° 43°	41° 54°	32° 43°	34° 25°	27°31°
Bulk Density	0.471	0.462	0.51	0.554	0.501
Tapped Density	0.388	0.447	0.453	0.473	0.523

2. PHYSIOCHEMICAL EVALUATION:

The pH of 10% shampoo solution in distilled water is determined at room temperature 25° C.

Table 5: Evaluation Of Formulation For Physiochemical Property

Extractive Parameter	F1	F2	F3	F4	F5
pH	5.1	5.05	4.97	5.02	5.01
Washability	Easily Washable	Easily Washable	Easily Washable	Easily Washable	Easily Washable
Solubility	soluble	soluble	soluble	soluble	soluble

3. DIRT DISPERSION AND MOISTURE CONTENT:

Table 6: Dirt Dispersion And Moisture Content

Parameter	F1	F2	F3	F4	F5
Dirt Dispersion	Moderate	Moderate	Moderate	Moderate	Moderate
Moisture (%)	3.89	3.89	3.89	3.89	3.89

4. FOAMING ACTION AND FOAMING CAPACITY:

Table 7: Foaming Action And Foaming Capacity

Evaluation Parameter	F1	F2	F3	F4	F5
Foaming Capacity	Mild Foam	Good Foam	Good Foam	Good Foam	Good Foam

5. SKIN/ EYE IRRITATION TEST:

Table 8: Skin/ Eye Irritation Test



Parameter	For All Formulation
Skin/ Eye Irritation	No Harmful Effect on Skin

6. DETERMINATION OF ANTI-DANDRUFF ACTIVITY:

Table 9: Determination Of Anti- Dandruff Activity

S. NO	CONCENTRATION OF AQUEOUS EXTRACT I(MG/ML)	ZONE OF INHIBITION MALASSEZIA FURFUR (MM)
1	500	24
2	100	20
3	50	15
4	Ketoconazole 20mg/ml	28



Fig: 1 Zone Of Inhibition Of Anti Fungal Activity

CONCLUSION:

A survey of global hair care market trends indicates that consumers use of herbal products has significant increased over the past years. The present work focusses on the potential of herbals extracts from cosmetic purposes. Hence, we conclude that the formulation of polyherbal shampoo powder is effective in reducing dandruff and irritation, less adverse effect, and better conditioning effect. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers

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