



# FORMULATION AND EVALUATION OF HERBAL HAIR DYE

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**Abstract**— Loss of colour in hair is because of shifted reasons like hereditary impact, impact of ecological variables, utilization of alcoholic arrangements, and so forth. However, the long-lasting engineered hair colours are accessible in various variety goes and hold normal radiance, they have the main detriment of creating easily affected responses in certain people. In the current examination different blends of powdered leaves and hair care plants like Henna, Indigo, Bhringraj, Amla, Shikakai, Gulvel, Brahmi, Jatamansi and Shatavari were assessed for their shading and awareness responses. Henna and Indigo detailing was viewed as reasonable normal colorant.

The current examination, endeavors were made to make a powder home grown hair colour that gives rosy earthy coloured tone to hair, looking like normal Hair tone with better coloring impact and more prominent maintenance limit on correlation with showcased natural hair colour plan. Most of the showcased Herbal hair colour definitions contain para-phenylenediamine at 20-25% fixations which is the primary element of business engineered colours. Setting off unfavourably susceptible skin responses in many people is known. Ayurvedic powder hair colour absent any trace of any engineered specialist was ready in present examination Work and assessed for coloring productivity.

**Keywords:** *Natural Hair Colorants, Dye Yielding Plants, Hair Care Plants, Henna, Indigo.*

## I. INTRODUCTION

From old day's different materials from plants like Henna, Chamomile, Indigo, and so forth are utilized to colour the silver hair to get regular dark colour yet rather than getting dark colour individuals get red to copper colour. Loss of variety in hair is because of fluctuated reasons like hereditary impact, impact of natural variables, utilization of alcoholic arrangements, and so forth. However long-lasting engineered hair colours are accessible in changed

variety and reaches hold regular brilliance, they have the main burden of creating overly sensitive responses in certain people. Some hair colours showcased as regular colour, contain 13% of phenylenediamine which is an engineered hair colour and mess the skin and garments during use.

Graying of hair is attributed to reasons like genetics, stress, nutritional deficiency and disease. The primary reason of premature graying is hereditary and it is reported that by the age of fifty, half of the world's population will have fifty percent gray hair. Hence there is a huge demand for hair dyes in the market. Natural dyes also act as mordants because they contain tannins. Tannins create affinity between dyes and hair and thus improve color and fastness of dye. Natural hair colorants that are currently marketed mainly contain henna along with plant components that need to be used in the paste form. However, such preparations have several disadvantages like lengthy preparation time, messy application, poor rinsability, lack of a standard coloring and limited color shades. Inorganic salts like aluminum sulphate, copper sulphate, lead acetate and potassium dichromate act as mordants are also added to improve and protect the color produced by the dye. Use of these chemicals can result in unpleasant side effects, including temporary skin irritation and allergy, hair breakage, skin discoloration, unexpected hair color and cancer. Since the conventional methods of hair coloring by the use of natural or synthetic colorants has limitations, an attempt has been made in this study to formulate a gel for hair dye using herbal extracts and other additives from plant source having good coloring property that is safe and ready to use.

In comparison to natural hair dyes, synthetic hair dyes are reported to cause skin and other skin related

diseases. The manufacturing process is hazardous to health of the people involved in the process and its applications leads to environmental pollution and also causes potential side effects to the consumers of the product. The fear of side effects from the synthetic dyes has limited its use by health conscious customers throughout the world and has to overcome various regulatory barriers before it reaches its destination. A dye can generally be described as a colored substance that has an affinity to the fiber, fur or hair. The dye is generally applied as aqueous solution, and may require a mordant to improve the fastness of the dye on the fiber, fur or hair. Natural dyes also referred as mordant dyes. Different mordant will give different hue color with the same dye. A mordant is thus an agent which allows a reaction to occur between the dye and the fiber, hair or fur.

## II AIM AND OBJECTIVE

### Aim:

A Brief Review on Formulation and Evaluation of Herbal Hair Dye By Using Natural Ingredient.

### Objective of the study:

1. To achieve sustained improvement in Product using Herbal components compliance ratio
2. To make a powder home grown hair colour to achieve rosy earthy colored tone to hair.
3. To formulate and evaluate a cosmetic preparation herbal hair dye made from herbal ingredients.
4. Reduces the rates of healthcare associated infections.

## III. ROLE OF INGREDIENTS USED IN THE FORMULATION OF HERBAL HAIR DYE.

### A. Henna

Lawsone acts as a non-oxidizing hair coloring agent at a maximum concentration of 1.5% in the hair dyeing product. Other constituents in henna such as flavonoids and gallic acid act as organic mordants to the process of colouring. Henna ultimately trying turning grey of hair, since it is stacked with tannins, a plant compound found in a tea that adds to their rich shading. It have vitamin E, which assists with mellowing hair. The natural leaves of the plant are rich in proteins and antioxidants that support hair health.

### Reetha

Reetha is plentiful in vitamin A, D, E, K, saponin, sugars, unsaturated fats and adhesive. Reetha removes helpful for the advancement of hair development and decreased dandruff.

### Shikakai

Shikakai is an astonishing spice that is ordinarily tracked down in the tropical woods of India. Shikakai is a strong normal home grown plant that keeps on being utilized by age to age.

### Tea powder

Being rich in polyphenols, selenium, copper, phytoestrogens, melatonin, tea also has been used in traditional Chinese medicine and in Ayurvedic medicine has been used since long as hair colourant. The tannins present in tea are known to increase the color intensity of hair.

### Hibiscus

It is magnificent for expansion in hair development movement. Hibiscus is normally enhanced with Calcium, Phosphorus, Iron, Vitamin B1, Vitamin C, Riboflavin and Niacin, which help to advance thicker hair development and diminishes untimely turning gray of hair.

### Amla

Amla powder upgrades the retention of calcium, assisting with making better bones, teeth, nails, and hair. It keeps up with the hair tone and forestalls untimely turning gray, reinforces the hair follicles.

### Rosemary

Here is a short rundown of its purposes and advantages to hair. Hair Growth - Stimulates and improves circulation to the scalp thus encouraging hair growth.

Hair Cleanser - Due to its antibacterial quality it gently cleanses hair.

Shine - Increases shine.

Scalp issues - Relieves irritated, dry, flaky, dandruff ridden scalps.

## IV. MATERIALS AND METHODS

Sr. No.	Ingredients	Quantity
1	Henna	35 gm.
2	Amla	07 gm.
3	Reetha	3 gm.
4	Shikakai	3 gm.
5	Bhrinjraj	3 gm.
6	Tea powder	2 gm.
7	Rosemary	2 gm.
11	Lavender oil	5 drops
13	Hibiscus powder	2 gm.
14	Indigo powder	2 gm.

Table 1: The composition of formulation is reflected in the following table.

### Methods:

For the preparation of herbal hair dye, we have selected different herbal ingredients such as Henna, Reetha, Amal, Shikakai, Tea powder, Lavender oil, Rosemary, Indigo powder, Brahmi, Hibiscus powder etc.

1. This all ingredients were collected from the authorized stores of the local market in the powdered form.
2. The all the ingredients was weighed and passed through Sieve no. 24.
3. Then all ingredients were mixed uniformly to prepare homogenous mixture of a powder form of dye.
4. The homogenous mixture was weighed and packed in a plastic bag.

## V. EVALUATION OF THE HERBAL HAIR DYE

### A. Organoleptic evaluation of hair dye:

1. Colour of formulation
2. Odour of Formulation
3. Appearance
4. Texture

### B. Physio - chemical evaluation:

The physical and chemical features of the herbal hair dye were evaluated to determine the pH, its moisture content for the purpose of stability, compatibility and the amount of inorganic matter present in it.

### C. Phytochemical evaluation:

#### a. Molisch's test

Take 1 gm of sample in dry test tube  
Take 2 ml of distilled water in a sample  
Add 2 to 3 drops of Molisch's reagent to solution  
Observe colour change at junction of two layers

#### b. Volatile oil test:

Sample + alcoholic solution of Sudan III  
Observe the colour

#### c. Mayer's test (For alkaloid):

Sample + Mayer's reagent  
Observe the colour

#### d) Rheological evaluation:

## VI. APPLICATION OF HAIR DYE

The pack, which is as powder, ought to be utilized week after week on wet hair, shaping a glue of in water with ideal consistency. It ought to be applied uniformly on the hair with the assistance of a brush, covering the roots to the hair tip.

The scalp ought to be covered. It should be left for 2-3 hours on the scalp for complete drying. Then it should be removed by washing with plain water.

## VII. RESULT AND DISCUSSION

### A. Organoleptic evaluation:

Sr. No.	Parameters	Observations
1	Color	Green
2	Odour	Characteristics
3	Appearance	Powder

### B. Phytochemical Evaluation:

Sr. No.	Parameters	Results
1	pH	6.5
2	L.O.D.	1.7%

## VII. CONCLUSION

Contamination, maturing, stress and brutal environments seriously influence the nature of hair. In this exploration, we found powerful properties of the home-grown hair pack and further examinations are required to have been performed to investigate more helpful advantages of this natural hair pack. Natural cures are generally acknowledged with open hands these days as they are more secure with negligible secondary effects when contrasted with the synthetic based items.

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