

A Review on Herbal Hair Dyes

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Abstract: *In recent years, there has been a notable surge in interest in herbal hair dyes as customers look for more natural substitutes for traditional hair colouring products. This abstract investigates the growing appeal of herbal hair dyes by analysing their ingredients, effectiveness, and possible advantages over synthetic alternatives. Botanical substances like henna, indigo, and amla are used in the formulation of herbal hair dyes. These organic materials provide a wide range of colours, from rich browns to vivid reds, giving consumers a variety of colour options for hair colouring.*

Keywords: hair dye, temporary, semi-permanent, melanin, Annona squamosa, antioxidants

I. INTRODUCTION

The need for safer substitutes for traditional cosmetics has caused a noticeable shift in the beauty business in recent years, with a focus on natural and sustainable goods. Herbal hair dyes have become a popular choice in this context for people looking to improve their hair colour without sacrificing their health or the environment. Herbal hair dyes use the power of plant components to create brilliant, long-lasting colours, in contrast to conventional hair dyes that are packed with artificial chemicals.

This introduction aims to investigate the growing trend of herbal hair dyes, emphasizing their ingredients, potency, and possible benefits over synthetic alternatives.

Herbal hair dyes provide a wide range of hues and mild, nourishing effects on the hair and scalp. They are frequently made with ingredients from plants, such as henna, indigo, and amla. Customers are increasingly turning to herbal alternatives as a safer colouring option as worries about the health dangers linked with synthetic dyes continue to grow.

Additionally, because they use sustainably obtained botanicals rather than toxic chemicals, herbal hair dyes have a limited environmental impact, which appeals to eco-conscious consumers.

Within this framework, this essay aims to explore the realm of herbal hair dyes in further detail, looking at their effectiveness, advantages, and drawbacks. This research intends to give useful insights into the role of herbal hair dyes in defining the future of cosmetic formulations and consumer preferences by putting light on the rising trend towards natural beauty solutions and the ramifications for the hair care industry.

HAIR SCALP ANATOMY:

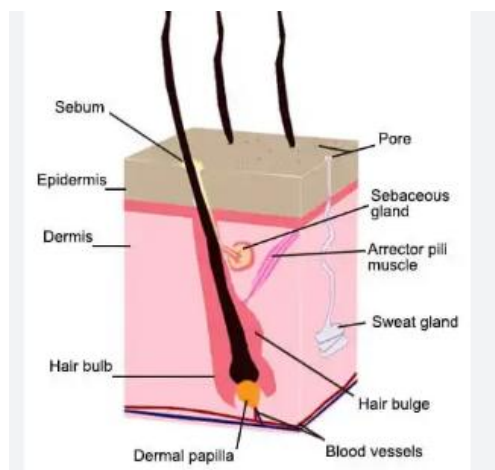


Fig 1: Anatomy Of Hair Scalp

- Hair follicles, which connect the deep layers of the subcutaneous layer and the dermis, are where hair on our bodies develops. The hair shaft is produced by these follicles, sometimes referred to as hair bulbs
- Through tiny blood arteries that pass through the middle of the hair, the hair shaft receives blood flow and the essential nutrients—such as vitamins, amino acids, and mineral salts—that it needs to be healthy.

II. TYPES OF HAIR DYE

2.1 Temporary:

- These types of hair colour are used to give the hair a temporary coloration.
- The colorants that are applied won't seep into the surrounding tissue or hair.
- possibly removed water with ease after shampooing.
- Temporary hair colouring occasionally uses a puffer spray to apply finely divided metals.
- Simple colouring materials are dissolved in an aqueous or hydroalcoholic solution and rinsed.

2.2 Semi-Permanent:

- In instance, nitro phenylene diamines, nitroaminophenes, or both aminoanthraquinones are considered semi-permanent dyes.
- Shampoo is the most commonly used base
- Adding solvent may improve colorants' overall performance.
- The majority of them are primary dyes, which have a natural affinity for hair due to their cationic nature

2.3 Permanent:

- Most widely used hair colour products.
- The dyes are formed during the dyeing process and aren't in the solution before to application.
- They cause considerable harm to the hair.
- Permanent dye systems provide the ability to tint hair a shade lighter than its natural colour.
- comprises components;
- intermediate dye
- Agent oxidizing

2.4 Demi-permanent:

- Demi permanent hair colour is the somewhat more durable relative of semipermanent colouring.
- Permanent colour never completely fades, but demipermanent colour, according to hairdresser Larry Sims, may last up to 30 washes that is.
- provided you don't mind skipping extremely hot showers.

III. INGREDIENTS' FUNCTION IN THE FORMULATION

LAWSONIA INERMIS (HENNA):



Fig 2: Heena

Henna is used as a hair colour since ancient times and goes by several common names, including Alcana, Cypress bush, Egyptian Rivet, Henna Tree, Inia, Kokkhau, Krapin, Madayanti, and Mehndi. A red pigment called lawsone, with a concentration of 1 to 1.5%w/w, is the primary colouring ingredient in henna.

The ingredients of henna are the fresh and dried leaves of the lawsoniainermis plant, which is a member of the Lythraceae family. Added ingredients to henna include sugar, resin, and gallic acid. It can be used as a single colour or in combination with other colours to treat hair. Moreover, conditioners and shampoos include it. Because henna contains carbohydrates, the paste's viscosity is ideal for adhering to hair. Lawsone, the main ingredient in henna, has antibacterial and antifungal qualities in addition to imparting an orange red colour. Additionally, by keeping the pH of the scalp balanced, it stops premature hair loss.

Biological Source:

Originally from northern Africa, Asia, and Australia, tropical shrubs or small trees belong to the Lythraceae family of loosestrife plants. The leaves are the source of henna, a reddish-brown dye that is frequently used to colour fabrics and create temporary body art.

Chemical Components:

Henna leaves contain an active ingredient called lawsone. Gallic acid, white resin, sugars, tannins, and xanthenes are among the other chemical components of henna.

Use's:

- Henna prevents rapid hair loss and turning Gray of the hair by balancing the pH of the scalp.
- Jaundice.
- Skin disease
- Smallpox

INDIGOFERA TINCTORIA (INDIGO):



Fig3: Indigo

The vivid blue-black hue of indigo, a natural dye made from the leaves of the Indigofera tinctoria plant, makes it a popular ingredient in herbal hair colours. When indigo is utilized in hair dyes, the result is hair that has rich, cool-toned colours ranging from deep browns to striking blacks.

Long-lasting colour that progressively fades with time is produced by indigo's binding to the protein in the hair shaft. A wider range of hues, including burgundy and brown tones, may be achieved by combining indigo with henna, another natural dye.

A range of hair care products, including shampoos, conditioners, and hair treatments, are made with natural components. Those looking for natural substitutes for commercial hair care products find it intriguing due to its nourishing and soothing qualities.

All things considered butterfly pea provides a plant-based alternative for people who want to emphasize the inherent beauty of their hair while embracing the advantages of plant-based components.

Biological Source:

The tropical Indigofera plant's leaves, woad (*Isatis tinctoria*), or Chinese indigo (*Persicaria tinctoria*) can all be used to make indigo dye, which has a greenish dark blue hue.

Chemical Components:

Indole alkaloids include indigo, indirubin, isatin, isoindigo, hydroxyindirubin, 2-hydroxy-1,4-benzoxazin-3-one, tryptanthrine, quinazoline-2,4-dione

Use's:

In addition to giving hair a deep black colour, indigo powder is a natural treatment for early greying.

PHYLLANTHUS EMBLICA (AMLA):



Fig 4: Amla

Whole fruit is included as a potent component into hair care products.

Amla is the most abundant and concentrated source of vitamin C, coupled with tannins found in many other plants. Fruit extract helps to prevent hair loss and promote hair growth. The tannins in the fruit bond with the vitamin C in the fruit to prevent it from being lost due to heat or light.

Biological Source:

Amla fruits are edible and are mainly found in regions of India, Southeast Asia, China, Iran, and Pakistan

Chemical Components:

Ellagic acid, Gallic acid, Emblicanin A & B, Phyllembein, Quercetin, and Ascorbic acid

Uses:

- Amla can support the growth of healthy, glossy hair because of its antimicrobial and antioxidant properties.
- It enhances the hair follicles, preserves the colour of the hair, and prevents early greying.

IV. MATERIALS AND USE'S

Table No.1

Ingredients	Uses
Henna	Prevents rapid hair loss
Amla	Preserves the colour of the hair
Indigo	Giving hair a deep black colour
Sodium benzoate	Preservative

BENEFITS OF HERBAL HAIR DYES:

- **Composed Of Natural Materials:** herbal hair colours are made with plant extracts like amla, henna, and indigo, which are kinder to the hair and scalp than the artificial chemicals used in conventional dyes.
- **Decreased Allergic Responses:** Because herbal hair dyes are hypoallergenic, they put those with sensitive skin or allergies at risk of allergic reactions or irritation of the scalp.
- **Nourishing properties:** A lot of the plant substances used in herbal hair dyes, including henna and amla, include natural conditioning agents that help strengthen and nourish the hair, making it pliable, glossy, and smooth.
- **Permanent colour:** Herbal hair colours generally offer permanent colour that fades gradually without harsh lines or roots, however they may need to be applied more often than synthetic dyes

APPLICATION OF HERBAL HAIR DYES:

The application of herbal hair dyes typically involves several steps to achieve desired results:

1. **Preparation:** First things first, make the natural hair dye per the directions provided by the manufacturer. To do this, you might need to combine the powdered herbs with water or other liquids to make a paste-like mixture.
2. **Hair Preparation:** Before you start using the dye, make sure your hair is clean and clear of any residue or styling products. Certain natural hair dyes suggest using a clarifying shampoo to get rid of any residue that can prevent the dye from penetrating the hair.
3. **Protective Measures:** To avoid skin discoloration, apply a barrier lotion or oil over the hairline, ears, and neck. Wearing gloves might also be a good idea to prevent discoloration on your hands.
4. **Sectioning:** Use hair ties or clips to separate your hair into manageable parts. This will guarantee uniform dispersion and complete covering of the dye.
5. **Application:** Apply the herbal hair dye to each area of hair, working your way down to the ends, using a brush or applicator. For optimal effects, make sure the dye is well absorbed into the hair.
6. **Processing Time:** Let the herbal hair dye finish processing as directed by the manufacturer. Depending on the desired colour intensity and kind of hair, this might take anywhere from 30 minutes to several hours.
7. **Rinsing:** Following the processing period, use lukewarm water to thoroughly rinse the hair until the water runs clear. Then, use a mild shampoo and conditioner to help seal in the colour and get rid of any leftover dye residue.

STANDARD HAIR DYES USED FOR THE STUDY:

- **Standard I:** Synthetic hair dye with paraphenylenediamine, marketed as Permanent hair colour (Natural black), was the type of hair dye utilized in the study.
- **Standard II:** Semi-synthetic hair dye, promoted as an Indica herbal hair colour, contains Amla, Henna, Indigo and Para-phenylenediamine

V. CONCLUSION

Finally, herbal hair colorants present a strong case for becoming an attractive substitute for conventional synthetic hair colouring products.

Natural ingredients, mild formulas, and possible health advantages for scalp and hair have made herbal hair dyes more and more popular among customers looking for more environmentally friendly and safer cosmetic options.

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