

A Review of the Natural Herbal Hair Dye for Hair Colour

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Abstract:

As consumer preference shifts toward "clean beauty," herbal hair dyes have emerged as a significant alternative to conventional synthetic formulations. This study examines the composition and performance of botanical dyes derived from sources such as Henna (*Lawsonia inermis*), Indigo (*Indigofera tinctoria*), and Amla (*Phyllanthus emblica*). Unlike traditional oxidative dyes that rely on ammonia, parabens, and p-phenylenediamine (PPD), herbal alternatives utilize natural pigments that coat the hair shaft without compromising the structural integrity of the cuticle. Findings suggest that while herbal dyes offer a diverse color palette and superior scalp compatibility, their efficacy is influenced by application technique and botanical purity. This research underscores the potential of herbal formulations to provide a safer, eco-friendly solution for long-term hair color management. Traditional market dyes often rely on a harsh combination of ammonia and peroxide, which can strip the hair of its natural integrity and trigger acute allergic reactions. Beyond surface-level damage, recent studies have raised alarms regarding long-term systemic risks. Frequent exposure to the chemicals found in synthetic dyes has been linked to an increased risk of serious conditions, including: Breast cancer Urinary bladder cancer Non-Hodgkin's lymphoma.

Key words: Henna (*Lawsonia inermis*), Indigo (*Indigofera tinctoria* L.), Amla (*Phyllanthus emblica*), Bhringraj (*Eclipta prostrata*), Hibiscus (*Hibiscus rosasinensis*).

1. Introduction:

Since ancient times, various plant-based materials such as henna, chamomile, indigo, and others have been used to color grey hair. However, instead of achieving a natural black shade, these ingredients often produce red to copper tones. Hair depigmentation can occur due to several factors, including genetic influences, environmental conditions, and the use of alcohol-based preparations.

Although permanent synthetic hair dyes are available in a wide range of shades and can retain natural shine, they have the major drawback of causing allergic reactions in some individuals. Certain products marketed as "natural" hair colors still contain up to 13% phenylenediamine— a synthetic dye known to stain the skin and clothing during application.

Therefore, there is a need to develop a formulation made entirely from plant-derived ingredients that is safe to use and does not cause skin staining or hypersensitivity. In this study, an attempt was made to formulate natural black hair colorants using a combination of selected plant materials. The investigation was guided by the experiences of individuals who have been using various herbal ingredients for hair coloring without encountering issues such as irritation, allergy, or sensitivity.

The primary objective of the present work is to develop natural and safe hair colorants using plant-based materials.

The Benefits of Herbal Hair Dyes

Transitioning to plant-based hair color offers a holistic approach to beauty, focusing on health as much as aesthetics. Here are the primary advantages:

- **Gentle, Natural Ingredients:** Formulated with potent botanical extracts like Henna, Indigo, and Amla, these dyes avoid the aggressive synthetic chemicals (like ammonia and parabens) found in traditional products.
- **Scalp-Friendly & Hypoallergenic:** Because they lack harsh synthetic fixatives, herbal dyes are significantly less likely to cause redness or irritation. This makes them the ideal choice for those with sensitive skin.
- **Deeply Nourishing:** Unlike chemical dyes that strip the hair of moisture, herbal ingredients act as natural conditioners. They help seal the cuticle, leaving your hair softer, shinier, and more resilient against breakage.
- **Graceful Aging (Seamless Fading):** While you might apply them more often, herbal dyes fade naturally over time. This prevents the "harsh root line" effect, allowing for a more subtle and manageable transition between colors.

Natural Herbal Hair Dye

- **HENNA**



SCIENTIFIC NAME – *Lawsonia Inermis*

FAMILY – Lythraceae

COMMON NAME – Henna

MEDICINAL USES – Hair color, regulated blood pressure, headache reliever, wound healing.

PROPERTIES – Anti-bacterial, anti-oxidant, anti-inflammatory.

- **INDIGO**



SCIENTIFIC NAME - *Indigofera tinctoria* L.

FAMILY - Fabaceae (Pea or bean family)

COMMON NAME - Common indigo, true indigo, Indian indigo, and Bengal indigo.

MEDICINAL USES – Epilepsy, bronchitis, liver disease, and psychiatric illness.

- **AMLA**



SCIENTIFIC NAME – *Phyllanthus emblica*

FAMILY – Phyllanthaceae

COMMON NAME – Amla

PROPERTIES – Immune boosting, anti-oxidant, anti-inflammatory.

MEDICINAL USES – Boost immunity, improve digestion, and manage diabetes.

- **BHRINGRAJ**



SCIENTIFIC NAME – *Eclipta prostrata*

FAMILY – Asteraceae

COMMON NAME – Bhringraj

MEDICINAL USES – Treat hair loss, premature graying, and dandruff while promoting hair growth.

- **HIBISCUS**



SCIENTIFIC NAME – *Hibiscus rosasinensis*

FAMILY – Mallows

COMMON NAME – China rose, shoe flower

MEDICINAL USES – Lowering blood pressure, aiding weight management, and providing high antioxidant levels. It acts as an anti-inflammatory, helps manage blood sugar, supports liver health, and is used in haircare to prevent loss.

Application Of Natural Herbal Hair Dye

Applying herbal hair dyes is more of a ritual than a chore. Since these dyes work by coating the hair shaft rather than chemically altering the core, the process requires a bit of patience and precision.

1. Preparation & Priming

- **Mix the Paste:** Follow the specific instructions to blend your herbal powder with water (or the recommended liquid) until it reaches a smooth, yogurt-like consistency. Let it sit if the instructions require "dye release" time.
- **Cleanse Your Canvas:** Start with clean, damp, or dry hair (depending on the brand). Use a clarifying shampoo beforehand to strip away oils and silicones that might block the natural pigments from sticking.

2. Setting the Stage

- **Skin Protection:** Natural dyes like henna or indigo can stain quickly. Apply a thick layer of petroleum jelly or coconut oil around your hairline, ears, and neck.
- **Suit Up:** Use gloves and old towels. Herbal pastes can be messy, and "earthy" stains are surprisingly stubborn.

3. The Application Process

- **Sectioning:** Divide your hair into four or more quadrants using clips. This ensures you don't miss those tricky middle layers.
- **Saturate:** Using a tint brush or your gloved hands, apply the paste from root to tip. Herbal dye isn't like chemical dye—you need to "mud" it on thickly to ensure every strand is fully encased.

4. Development & Rinsing

- **Processing:** Wrap your hair in a shower cap or plastic wrap to keep the paste warm and moist. Wait time varies—anywhere from 45 minutes to 4 hours—depending on how deep you want the color.
- **The Big Rinse:** Rinse with lukewarm water until the water runs clear.
- **Pro Tip:** Many enthusiasts suggest skipping shampoo for the first 24–48 hours to allow the herbal pigments to oxidize and "set" into their final shade.
- **Condition:** Finish with a moisturizing conditioner to help detangle and add shine.

The result is usually a multi-tonal, healthy glow that looks far more natural than synthetic alternatives.

Conclusion

The prepared herbal hair dye does not cause any side effects or skin irritation. Instead, it helps nourish both the scalp and the hair. Additionally, the formulation supports dandruff management by reducing excess oil on the scalp. With regular use, this herbal dye provides smooth, manageable, and frizz-free colored hair, offering benefits to both consumers and the industry. Being entirely natural in origin, the formulation delivers effective results compared to marketed products while remaining cost-efficient.

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