

# **REVIEW ON HERBAL HAIR**

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## **ABSTRACT:-**

The increase in environmental and health hazards in the manufacture of dyes and their use throughout the world is a major concern. This work was made possible while investigating the alternative to the synthetic and semi-synthetic dyes. The present study focuses on the herbal hair dye which shows dying to the applied regions of human hair without causing any hair damage or hair loss or skin irritation when compared to the synthetic and semi-synthetic dyes. The active constituent also prevents the hair from damage caused by Long hair. These natural herbals are henna, clove, Reetha, tea, walnuts, coffee, butterfly pea, bhringraj etc. Herbal hair colour is used in varicolored maladies resembling as dandruff, untimely graying and head lice etc. Herbal hair dyes work on the problem of the Hair loss, Scalp damage and hair cuticle which are safe for use.

**KEYWORDS:** *Natural dye, Synthetic dye, Plant source, Clove, Reetha, Bhringraj, Oxidative hair stains.*

## **INTRODUCTION:**

- In current all the human beings are very careful about their beauty. To look attractive human hairs play an important role in this.
- People with 60 to 70% struggle with the problem of balding and graying of hair.
- The aging starts in people due to vitamin B12 deficiency, thyroid disease or it is due to influenced heredity.
- In adults premature depigmentation is mainly due to factors such as illness, ultraviolet(UV) rays, emotional factors, alcohol consumption some specific drugs, shock etc.
- Hair dyes used which are synthetic in order to change hair colour has high frequency and due to their mechanism of action it may cause damage to structure of hair.
- So Herbal drugs without any adverse effects are used for healthy hair.
- Herbs such as shikakai, henna, bhringraj and more are used in various cosmetic formulations such as herbal shampoo, herbal tablets, herbal hair dye, herbal toothpaste etc.
- The need of herbal based natural medicines is increasing fastly due to their natural goodness and lack of side effects well – known ayurvedic herbal drugs traditionally used as hair colorant and for hair growth are amla, Bhringraj, Henna, Reetha, Methi seed.

## **Hair Scalp Anatomy:-**



- The hair on our body grows from hair follicles, which are located at the junction of the deep layers of the subcutaneous layer and the dermis. These follicles, also known as hair bulbs, are responsible for producing the hair shaft.
- The hair shaft is supplied with blood flow through small blood vessels that run through the center of the hair, providing it with vital nutrients such as vitamins, amino acids and mineral salts that it needs to stay healthy

### **Hair Growth Cycle:-**

As long as new hair cells continue to grow in the hair bulb, the hair continues to grow longer. This growth phase is also called the anagen phase. At any point in time, about 90 percent of a person's total amount of hair is in this growth phase.

Depending on where on the body a hair grows, the growth phase will last longer or shorter: For instance, the growth phase of hair on your head can last several years,, so it can grow to over a meter in length if you don't have it cut. The growth phase is especially short for eye lashes, eye brows, nasal hair and ear hair. Those hairs only grow for about 100 to 150 days, so they can't get that long. At the end of the growth phase, the hair root separates from the papilla. Then a transitional phase called the catagen phase starts, lasting about two to four weeks. When the hair has separated completely from the papilla, the supply of blood is cut off in the final resting phase, which is also called the telogen phase. The hair is gradually pushed out of the skin and eventually falls out. The resting phase can last several months.

### **Causes of hair damage:**

#### **1. Vitamin Deficiency:**

Any deficiency in vitamin B-6, B-12, biotin, vitamin D, or vitamin E can contribute to premature graying. A 2015 report in the journal *Development* cited various studies of vitamin D-3, vitamin B-12, and copper deficiencies and their association with hair graying. He finds that nutritional deficiencies affect pigmentation, suggesting that color can return with vitamin supplementation.

#### **2. Genetics:**

According to a 2013 report in the *Indian Journal of Dermatology, Venereology and*

Leprology, premature graying of a person's hair is largely linked to genetics. Race and ethnicity also play a role. Premature graying in white people can start as early as age 20, according to the same 2013 study, while it can be as early as age 25 in Asians and as early as age 30 in African-American populations.

### **3. Oxidative Stress:**

While graying is mostly genetic, oxidative stress in the body can play a role when the process occurs prematurely. Oxidative stress causes an imbalance when antioxidants are insufficient to counter the damaging effects of free radicals. Free radicals are unstable molecules that damage cells, contribute to aging and disease. Too much oxidative stress can promote the development of diseases, including the skin pigment vitiligo. Vitiligo can also turn hair white due to melanin cell death or loss of cell function.

### **4. Certain medical conditions:**

Certain medical conditions, including autoimmune diseases, can increase the risk of premature graying. In fact, research published in 2008 showed a link between hair abnormalities and thyroid dysfunction. White hair is also common in alopecia areata, an autoimmune skin disease that causes hair loss on the scalp, face, and other parts of the body. When the hair grows back, it tends to be white due to the lack of melanin.

### **5. Smoking:**

A 2013 study published in the Italian Dermatology Online Journal shows that smokers are 2 1/2 times more likely to start going gray. Trusted source 30 years ago as non-smokers. A 2015 study in the Journal of the American Academy of Dermatology also found that smoking is linked to premature graying of hair in young people smokers. A 2015 study in the Journal of the American Academy of Dermatology also found that smoking is linked to premature graying of hair in young people.

### **6. Chemical hair dyes and hair products:**

Chemical hair dyes and hair products, even shampoos, can contribute to premature graying of hair. Many of these products contain harmful ingredients that reduce melanin. Hydrogen peroxide, which is in many hair dyes, is one such harmful chemical. Excessive use of products that bleach the hair will also eventually cause it to turn white.

- To treat mentioned above Hair damage problems we can use Herbal Hair Dyes which are easy & safe to use & has great advantages as compared to the synthetic hair dyes.

#### **Herbal Hair Dyes:-**

Herbal hair dyes are the dyes which are made from natural ingredients such as plants and herbs. These natural ingredients provide color while also nourishing and conditioning the hair.

It includes natural herbs such as henna, clove, Reetha, tea, walnuts, coffee, butterfly pea, bhringraj etc.

Herbal hair dyes work on the problem of the Hair loss, Scalp damage and hair cuticle which are safe for use. We can use herbal hair dye for both colouring the hair as well as for styling the hair.

#### **Types of Herbal Hair Dyes:-**

##### **1. Temporary hair dyes:-**

Temporary hair color is available in a variety of forms including rinses, shampoos, gels, sprays and mousses. The pigment molecules in temporary hair colors are large and cannot penetrate the cuticle layer. The remaining color particles are absorbed into the hair shaft and are easily removed with a single shampoo. It takes approximately a few hours to a day.

## 2. Semi-permanent hair dye:-

Semi-permanent hair color has a smaller molecular size than temporary dyes and is therefore able to partially penetrate the hair shaft. This is why hair color can last 4-6 shampoos or several weeks. Semi-permanents contain no or very low levels of developer, peroxide or ammonia. However, it may contain a toxic compound such as

P-phenylenediamine or other agents

## 3. Permanent hair color:-

All permanent hair dyes and lighteners contain a developer or oxidizing agent and an alkalizing agent. When a dye containing an alkalizing agent is mixed with a developer, a chemical reaction occurs that swells the hair, allowing the dye to enter the cortex where the melanin resides. Ammonia swells the hair cuticle to allow color pigments to penetrate deep into the hair shaft. Permanent colors are truly permanent and do not wash out, although they may fade.

## Materials used in Herbal Hair Dye:-

### 1. Heena:-

- **Synonyms** – Mehandi, Amber, Chestnut.
- **Biological source** - Lawsonia inermis L. commonly known as Heena family – Lythraceae.
- **Geographical source** - native to North Africa and South-West Asia
- **Chemical constituent** - The main chemical constituent is Lawsone . The Lawsone level in dried drug is 1%. Heena leaf also contains Flavonoids, Caumarine & Xanthones.
- **Uses** -
  1. Antibacterial
  2. Antifungal
  3. Prevents premature hair fall by balancing pH of scalp.



## 2. Reetha:-

- **Synonyms** – Soapberry, Aritha, Washnut
- **Biological source** - Sapindus mukorossi belongs to Family - Sapindaceae
- **Geographical source** - Reetha is found in the hilly regions of the Himalayas in India.
- **Chemical constituent** - The main chemical constituent are saponins, sugars and mucilage.
- **Advantages** -
  1. Cleansing the scalp naturally
  2. Preventing hair loss
  3. Promoting stronger hair
  4. Reducing dandruff



## 3. Coffee:-

- **Synonyms** – Brew, Cuppa, Bitter Juice.
- **Biological Source** - The biological source of coffee is its dried ripe seed belongs to Family - Rubiaceae
- **Geographical source** - Latin America, eastern Africa, Asia, and Arabia are leading producers of Coffee.
- **Chemical Constituent** - The main constituents of coffee are caffeine, tannin, fixed oil, carbohydrates, and proteins. It contains 2–3% caffeine, 3–5% tannins, 13% proteins and 10–15% fixed oils.
  - **Advantages** –
    1. Boost hair growth
    2. Reduces Hair Loss



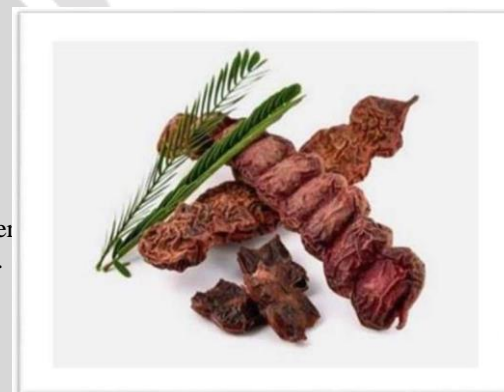
#### 4. Indigo:-

- **Synonym** – Azure, Beryl, Navy
- **Biological source** - extracted from the small, green leaves of the Indigofera plant belongs to Family – Fabaceae
- **Geographical Source** - Mesopotamia, Egypt, Britain, Mesoamerica, Peru, Iran, and West Africa.
- **Chemical Constituent** - indirubin, isatin, isoindigo, hydroxyindirubin, 2-hydroxy-1,4- benzoxazin-3-one, tryptanthrine, quinazoline- 2,4-dione,etc.
- **Advantages** – 1. Help avert excessive dryness & itchiness on the scalp .  
2. Lowers the risk of all kinds of fungal



#### 5. Shikakai:-

- **Synonym** – Virala, Sari, Dipta
- **Biological source** - Acacia concinna belongs to Family Mimosaceae
- **Geographical Source** - Shikakai is grown in Southern Asia including India, Myanmar and Thailand.
- **Chemical Constituent** - The main constituents are Lupeol, spinaster acid, lactone and the natural sugars glucose, arabinose and rhamnose.
- **Advantages** - 1. Controls hair fall  
2. Prevents dryness  
3. Slows down premature graying of hair



**6. Amla :-**

- **Synonym** - Indian gooseberry, Embelic.
- **Biological Source** - Phyllanthus emblica L belonging to the family – Euphorbiaceae
- **Geographical Source** - Amla fruits are edible and are mainly found in regions of India, Southeast Asia, China, Iran, and Pakistan.
- **Chemical Constituents** – Glucogallin, Punigluconin, emblicaninA, Chebulagic acid, Corilagin, Pedunculagin.
- **Advantages** - 1. Upgrades the retention of calcium,  
2. Assisting with making better bones, teeth, nails  
3. It keeps up with the hair tone and forestall untimely turning gray

**Formulation :-**

Sr.no.	Ingredients	Quantity
1	Henna	25gm
2	Amla	5gm
3	Reetha	2gm
4	Shikakai	2gm
5	Bhrinjraj	2gm
6	Tea powder	2gm
7	Rosemary	2gm
8	Gulvel	2gm
9	Brahmi	2gm
10	Jatamansi	2gm
11	Lavender oil	5 drops
12	Peppermint	1gm
13	Hibiscus powder	2gm
14	Indigo powder	2gm

### Method of Preparation of Herbal Hair Dye:-

For the preparation of herbal hair dye, we have selected different herbal ingredients such as Henna, Reetha, Amal, Shikakai, Bhrinjraj, Tea powder, Lavender oil, Rosemary, Gulvel, Indigo powder, Brahmi, Jatamansi, Pepper mint, 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.

### Evaluation Parameters of 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 sampl
- 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



#### D. Patch test:-

This normally include spotting the limited quantity of watery arrangement of hair color behind the ear on or internal elbow in a space 1sq.cm and passing on it to dry. The indication of disturbance or feeling of non-health is noted, if any. Estimated and little amounts of the pre-arranged hair.



**E. Stability test:-**

Solidness testing for the pre-arranged plan was performed by putting away at various temperature condition for the hour of time of one month. The pressed glass vials of definition were put away at various temperature condition for the actual boundaries like tone, smell, pH, surface and smoothen.

**Advantages & Disadvantages of Herbal Hair Dye:-****Advantages:-**

1. Retains Hair health
2. Conditions hair
3. Minimum Environmental Impact
4. Free from harsh chemicals such As ammonia, peroxide, and PPD (p- phenylenediamine)
5. Nourishesh hair follicles

**Disadvantages:-**

1. Difficult to change hair color. Not all herbal hair dyes are Actually natural
2. May leave hair feeling dry

**CONCLUSION:-**

A herbal hair dye colours the hair in combination utmost gentleman. The advantages of herbal predicted cosmetics are their nontoxic nature. It nutrifies the skin of the block and hair. This hair utterance provides vital pabulum to the skin. It helps to treat dandruff by jettison of supererogatory canvas from scalp. Pollution, ageing, stress and harsh climates poorly affect the quality of hair. In this inquisition, we introduce effective plats of the herbal hair pack and farther studies are necessitated to be performed to explore farther useful benefits of this herbal hair pack. Natural remedies are universally accepted with open hands presently as they're safer with minutest side paraphernalia as compared to the chemical predicated products. In this research we found effective properties of the herbal hair pack and further studies are needed to the preformed to explore more useful benifits of this herbal hair pack.

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