



# Formulation And Evalution Of Herbal Hair Dye

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**Abstract**— The medicinal plants are considered to be effective and for most important for the human health. Some of the natural medicinal plants are so common that we use them in daily life without knowing their medicinal important. Custard apple (*Annona squamosa*) is a great natural source of copper and gives hair the dark melanin colour and that it lack. Therefore if you are dealing with too many greys consume custard apple to stop your hair from losing colour further. Hair color change by dye application is a common procedure among women. Hair dye cosmetic products are used for colouring hair. Hair dye classified according to color resistance, into classified, according to color, resistant, into temporary, semipermanent, and permanent. In oxidation system, there is an intense diffusion of the molecule into the cortex, what promotes a longer color resistance. Dye and color precursors present difference related to chromophore groups.

**Keyword** : hair dye, temporay, semipermanent, permanent, *Annona squamosa*, Antioxidant.

## Introduction

Hair colouring or dying, practices of changing of the hair color. The main reason for this are cosmetic to recover white and grey hair, to change the regarded as more fashionable or desirable, or to restore the original color after it has been decoloured by hair dressing or sun bleaching. The prepared herbal dye contain all the goodness of natural ingredients. Apart from acting as a hair dye, this formulation, because of the perfect blend of herbal, also act as a hair growth promoter, hair nourisher.

French researchers have found that Egyptians, Greek and Roman were using to dye their hair several thousand years ago. Many different extracts from plant were used for the purpose of hair dyeing in Europe and Asia before the invention of modern dyes. There are three type of hair dye. This is temporary, semipermanent, permanent hair color etc.

## Advantage

Natural appearance of use of real human hair fibre.

May be styled as a natural hair.

Able to color and perm.

Moves like natural hair.

Less susceptible to heat damage.

## Disadvantages

More expensive.

Need more maintenance and care.

3 Requires styling.

May be heavier in weight than synthetic wigs, which may be lead to itching.

More susceptible to sunlight fading and environmental damage.

## Methods of hair dye preparation

### 1. Weighing :

Next a worker weigh out of the ingredient for the batch. For some ingredients, only a small amount of is necessary in the batch. But if a very large batch is being made, and several ingredients are needed in large amounts.

### 2. Mixing :

In a formula in which no pre mixing is required, after checking and weighing, the ingredients are simply mixed together. The ingredients are completely mixed with each other.

### 3. Filling :

The finished batch of hair dye products formed place in the filling area. Then the measured amount of hair dye on the weighing balance.

### 4. Packaging :

From the filling area, the plastic bag are taken to the packaging line. The packaging complete and the labelling of the product write the with full information. Then the product are then taken to the warehouse to await distribution

## Role of ingredients used in the formulation :

**Shilakai :**

Shikakai or acacia concinna, has rich amount of vitamin C, which is beneficial for hair. Shikakai naturally lowers the pH value and retain the natural oils of the hair and keeps them lustrous and healthy. It is also effective in strengthening and conditioning hair, Amala, reetha and Shikakai compliments each other, therefore, they are mixed together to have healthy and lustrous hair. All of these ingredients come in two forms, one as a dried fruit and other in powdered form. Amala, Reetha and Shikakai suit all hair and help prevent split ends, hair fall, dandruff, greying of hair and other hair related problems, to make hair soft and shiny.

**Coffee**

In hair colorants, herbs can be used in the form of powder, aqueous extract or their seed oil to impart shades of different colour varying from reddish brown to blackish brown. The herbal drugs like coffee powder obtained from its seed are used as haircolorant.

**Hibiscus :**

It is excellent for increase in hair growth activity. Hibiscus is naturally enriched with Calcium, Phosphorus, Iron, Vitamin B1, Vitamin C, Riboflavin and Niacin, which help to promote thicker hair growth and decrease premature graying of hair.

**Types of hair dyes :****Temporary :**

- These type of hair colours used to colour the hair for temporary.
- The colorants which are used doesn't penetrate into the hair or surrounding. 3. Can be easily rinsed off water one shampooing.
- Temporary hair coloring some time used to apply finely ground metals by means of a Puffer Spray.
- Such metals, which include orasse, bronze and aluminum, both untreated and anodized in

**Semipermanent :**

- Most of them are basic dye stuffs, whose cationic character gives them a natural affinity for the hair.
- Metalized dye stuffs in combination with nitro derivatives of aromatic diamines or aminophenols.

**Permanent :**

Most popular hair dye products.

The dyes are formed during the dyeing process and are not present, as such in the solution before application.

Consists of two parts

. Dye intermediate

. Oxidizing agent

**Evaluation of the herbal hair dye :**

The prepared herbal hair dye was evaluated for its various parameters such as organoleptic, physio-chemical, phytoconstituents and the rheological aspect.

**Organoleptic evaluation :**

Organoleptic characteristics for various sensory characters like colour, odour, taste etc. were carefully noted down as illustrated in Table 1. The raw drugs and powders were separately studied by organoleptic and morphological characters like colour, odour, texture and appearance.

**Physio - chemical evaluation :**

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

**Phytochemical evaluation**

Prepared herbal hair dye was subjected to Phytochemical screening to reveal the presence or absence of various phytoconstituents as Carbohydrate, Lipids, alkaloids, Sugar etc. The formulation when dissolved individually in 5 ml of water and filtered was used to test the presence of carbohydrates.

**Rheological evaluation :**

Physical parameters like tapped or bulk density, tapped density, the angle of repose, Hausner ratio and Carr's index were observed and calculated for the in-house formulation. Bulk density symbolizes the adjustment of particle or granules collectively in the packed form. The formula for the determination of bulk density,  $D = M/V$  where M is the mass of the particle and V is the total volume occupied by them. This is determined using a graduated cylinder.

**Patch test**

This usually involves dabbing a small amount of aqueous solution of hair dye behind the ear or on the inner elbow in an area of 1 sq. cm and leaving it to dry. The signs of irritation or feeling of non-wellness are noted, if any. Measured small quantities of the prepared hair pack were applied to the specific area for the fixed time. Irritation, redness and swelling were checked and noticed at regular intervals up to 24 hours if any.

**Stability test**

Stability testing for the prepared formulation was performed by storing at different temperature conditions for the time period of one month. The packed glass vials of formulation were stored at different temperature conditions for the physical parameters like colour, odour, pH, texture and

**Application of custard apple****For Better Hair Growth :**

To have thick, long, shiny, and lustrous hair, one can apply the fruit paste on the hair and the scalp or consume the fruit. This helps with bringing down the occurrence of inflammation and reducing hair fall to a large extent. When the paste is massaged into the hair, then nutrients are better absorbed and the hair follicle is nourished as well.

**For A Luxurious, Moisturized Hair:**

To have lovely shiny and beautiful hair is a must for us all and a desire too. This is why, we shall look at the oil of the custard apple seed for the same. It helps tame the mane with frize and waves, and also softens out coarse hair too. What the oil does is to hydrate the scalp and moisturize it as well, and this makes the hair lustrous, shiny and full of volume too.

**Good For Fetal Skin And hair :**

The fruit when broken down for nutritional value shows us how abundantly blessed it is with Vitamins A and C. And it is these two vitamins that helps best with skin and eyes and hair of the fetus maintenance. This is why, it is safe as pronounced by doctors for expectant mothers to consume and have everyday.

**Keeps scalp healthy :**

Apart from benefiting your skin, custard apples also help keep skin infections at bay because they are full of vitamin C. Additionally, a rich source of antioxidant, it helps inhibit any sort of infection in the scalp and keeps in healthy and nourished. Since it also helps in regulating sebum production area the and eliminate dead skin cells to restrict the growth of bacteria. This is also a great way to promote new hair growth.

**Prevent premature greying :**

Just like eating custard apples is a great way to keep premature ageing of the skin at bay, it also helps to deal with premature greying of the hair in both men and women. One of the main reasons for premature greying is a shortage of copper in the body. Custard apple is a great natural source of copper and gives hair the dark melanin colour and that it lacks. Therefore, if you are dealing with too many greys, consume custard apples to stop your hair from losing colour further.

**Helps To Gain Weight :**

It is highly calorie laden, and the sugars found in the fruit are responsible for pepping up the metabolism rate in the body too. This in turn makes the eater more hungry than before and the food intake at meals would be much better. Hence, if you or someone you know has an issue with eating, a custard apple a day can help them beat the eating disorder. Healthy weight would be gained too.

**For A Better Immune System :**

Medicinal science and experts always recommend a fruit, and in this case, a custard apple to are for your immunity. Custard apples are an excellent source of vitamins and antioxidants and is also known to help beat inflammation in the body, and boost the immune system strong and healthy. The fruit helps the body to be strong against the pathogens and the free radicals around that scavenge over the human body.

**For A Strong Dental System :**

Chomping and munching on the fruit brings in a lot of health benefits for sure, but the skin of the fruit should not be thrown out. This is because, the enzyme in the skin of a custard apple can help with stronger teeth and gums, overall dental health is always wished for and desired, no matter what. So before you throw the skin out the next time, wash it well and chew on it to reap the benefits of the same. It is antimicrobial and

antiseptic at the same time, which helps promote the fight against bacteria and plaque formation.

**For A Better Vision :**

We wonder why is custard apple better to have when you suffer from eye problems and visionary issues. The answer lies in the fact that custard apple has plenty of vitamin C and Riboflavin as well which helps combat the onslaught of free radical destruction to a very large extent. In turn, when you consume a custard apple a very large by medical source that the eyesight is kept in good health and steady.

**Helps To Eliminate Lice :**

The paste of the fruit has plenty of enzyme and antioxidant in it, but the skin is also strong enough to ward off pathogens, infections and lice too. Applying the paste of the flesh and the skin on lice infected hair can eliminate dandruff and lice in a week.

**Thwarts off Diabetes :**

For those that suffer from diabetes, we know how annoying it is to them because they feel that the sweetness of life has been robbed. This can be prevented to a large extent when you consume the sweet custard apple, which has a lot of fiber in it. The fruit is known to bring down the sugar absorption in the body, and also helps prevent the occurrence of type 2 diabetes too from happening.

**For Better Cardiovascular Health :**

Custard apples have a well-balanced ratio of potassium and sodium in it, which helps with the regulation and the controlling of blood pressure in the body. Even the level of magnesium in the fruit is high which helps in smoothing out the working of the muscles and does not allow jerking or cramping of the muscles to happen.

**Lower The Risk of Arthritis :**

Thanks to the abundance of magnesium in the fruit, a custard apple has a lot of power to equalize the water balance distribution in the body. The fruit is also known to remove the acid from every joint in the body which helps in bringing down the inflammation and the pains associated with arthritis. The fruit also helps in bringing down the occurrence of rheumatism, which is why even doctors worldwide would ask you to consume a custard apple everyday so that you can fight the weakness of the muscle internally.

**Conclusion :**

Herbal based hair dye has been prepared. It offers a natural alternate, which can be used. A herbal hair pack colour the hair in a almost gentle manner. The advantage of herbal based cosmetics are their non toxic nature. It helps to treat dandruff by removal of excess oil from scalp. The herbal formulation hair pack containing the goodness of powder of different plants, which excellent for hair care. Natural remedies are widely accepted with open hands nowadays as they are safer with minimal side effects as compared to the chemical based 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 benefits of this herbal hair pack.

#### Result:

The prepared herbal hair dye contains all the goodness of natural ingredients. Shikakai is packed with vitamin A, C, D and K, which together form a powerful antioxidant. This antioxidant is probably the only thing your hair needs to clean the scalp of the sebum buildup unclog pores, and hair growth. Coffee for hair strengthens hair by improving the overall quality and texture of it. Hibiscus is excellent for hair growth activity. Custard apple pulp powder is help with premature greying of hair. Custard apple is a great natural source of copper and gives hair the dark melanin colour. Organoleptic evaluation finding revealed that the pack is smooth and pleasant smelling powder. Phytoconstituents, which acts as true nourisher for the scalp as well as hair. The protein of hair stability tests performed at different temperature. The formulation was found to be stable.

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