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Formulation and Evaluation of Herbal Hair Dye

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ABSTRACT:
From the decades health of humans is thought to be the primary benefit of medicinal plants, which are also thought to be beneficial.Some naturally occurring medicinal herbs are so widely used that we don't even realize they have therapeutic value.The Annona squamosa, or custard apple, is a fantastic natural source of copper, which provides hair with the dark colour of melanin that it lacks.Thus, if you have a lot of grey hair, eat custard apple to prevent more colour loss in your hair.Applying dye to change the colour of hair is a frequent process among women.Cosmetic goods containing hair dye are used to colour hair. The hair dye is categorized into three categories based on colour resistance: temporary, semipermanent, and permanent. The chemical diffuses intensely into the cortex in the oxidation system.

KEY WORD: hair dye, antioxidant, Annona squamosa, temporary, semipermanent, permanent.

1. INTRODUCTION

The process of changing the colour of one's hair is called hair colouring or dying. The primary causes of this are cosmetics, which aim to revive white and Gray hair, alter hair that is seen to be more attractive or stylish, or return hair to its natural colour after it has been bleached by the sun or hair colour treatments. [1]

The goodness of natural substances is all present in the created herbal dye. Because of the precisely balanced herbal blend, this formulation functions not only as a hair dye but also as a hair nourisher and growth promoter.[2]

Researchers from France have discovered that hair colouring was used by the Egyptians, Greeks, and Romans several thousand years ago.Many different extracts form 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. [3]

Thisistemporary,semipermanent,permanent hair colour etc. The colouring of the hair is an ancient technique that involves treatment of the hair with various chemicals compound.Hair dye has been utilized Ancient Egyptian times when Rameses fortified red hair colour usingHenn.In ancient Greece, hair was treated with a sort of ointment composed of pole and yellow flower petals after being bleached with a potassium solution rinse.Natural herbal hair colour is preferable to chemical-based hair dye, which can lead to skin conditions and other skin-related illnesses. [4]

Advantage

1. Appearance of actual human hair fiber used in a natural way.
2. Can be worn in a natural hairstyle.

3. Able to both perm and color.
4. Moves similar to that of natural hair.
5. Less prone to thermal injury.[5]

Disadvantage

1. More costly
2. Require additional upkeep and attention.
3. Needs to be styled.
4. May cause itching because they weigh more than synthetic wigs.
5. More vulnerable to environmental harm and sun fading.[6]

1.1. Role of ingredients used in the formula:

1.1.1. Shilakai:

Spinasterol, Lactone, Hexacosanol, Spinasteron, Calyctomine, Racimase-A Oleanolic acid, Lupeal, Betulin, Betulinic acid, and Betulonin acid are among its constituents. The extract that is extracted from its pods is used to treat dandruff and cleanse hair. Known as acacia concinna or shikakai,has a significant amount of vitamin C, which is good for hair. Shikakai keeps hair glossy andhealthy by naturally lowering pH levels while preserving natural oils in the hair. Amala, Reetha, and Shikakai complement one another and are therefore combined to create healthy, lustrous hair because they are also helpful at nourishing and strengthening hair. Each of these components is available in two different forms: a dried fruit form and a powdered form. All hair types can be accommodated by Amala, Reetha, and Shikakai. [7]

1.1.2. Coffee

Herbs can be added to hair colorants in the form of powder, aqueous extract, or seed oil to create a range of colour tones from reddish brown to blackish brown. Herbal medications, such as coffee powder made from its seed, are applied as hair colorants.

1.1.3. Hibiscus: [8]

It works wonders for boosting the activity of hair growth. Naturally rich in calcium, phosphorus, iron, vitamin B1, vitamin C, riboflavin, and niacin, hibiscus helps to prevent premature greying of hair and encourage the growth of thicker hair. The purpose of this flower is to manage dandruff.

Through the production of flavonoids like anthocyanins and other phenolic components, hibiscus has antioxidant capabilities. By conditioning the hair, it can be utilized to revitalize it.

1.1.4. Custard apple pulp powder:

For both men and women, it also helps to prevent premature greying of the hair.Custard apples provide hair with the dark melanin colour it lacks and are an excellent natural supply of copper.When used on the hair loss, fruit paste can provide one thick, long, glossy, and beautiful hair.scalp. The significant iron content of custard apples enhances blood circulation, encouraging hair follicles to encourage hair growth on the scalp.

1.2. Hair colour types: [9]

1.2.1. Temporary:

1. These are the kinds of hair colours that are used to temporarily colour hair.
2. The colorants utilized don't seep into the surrounding tissue or hair.
3. Easy to remove with a single shampooing.

4. A puffer spray is sometimes used to apply temporary hair colouring that contains finely crushed metals.
5. These metals, which are primarily employed in high lighting, include aluminium, bronze, and brass. They can be applied to hair untreated or anodized in a variety of colours, and they produce a metallic impression.
6. For transient colour, crayons, setting lotions, and powders are utilized.
7. Another option for temporary hair colouring is to use the leuco derivative of a basic dye, such as crystal violet.
8. A variety of products, such as rinses, lotions, aerosols, and crayons, are used to temporarily color hair.

1.2.2. Semipermanent:

1. The majority of them are simple colour products, which naturally bond with hair due to their cationic nature.
2. Metalized dyes combined with aminophenol or aromatic diamine nitro derivatives.
3. The addition of solvent can improve colorant performance.
4. The most widely utilized base is shampoo.
5. The primary ingredients of semipermanent dyes are either nitrophenylene diamines, nitroaminophenes, or aminoanthraquinones.

1.2.3. Permanent: -

1. Most popular hair dye products.
2. The dyes are formed during the dyeing process and are not present, as such in the solution before application.
3. Consists of two parts Dye intermediate & Oxidant agent
4. Dye intermediates are blends of primary intermediates and coupling agent or modifier, in a suitable base.
5. During dying of hair, the intermediate solutions are mixed and applied to the hair.

2. MATERIAL AND METHOD: -

2.1 MATERIAL: -

TABLE 2.1 Formulation of herbal hair dye ingredient

S.NO.	Ingredients	Quantity
1.	Shikaki	2gm
2.	Coffee	3gm
3.	Hibiscus	2gm
4.	Custard apple pulp powder	3gm

2.2 Methods of hair dye preparation:-

Weighing: - After that, a worker weighs out the batch's ingredients. There are some components that the batch needs very little of. However, if a big batch is being prepared and a number of ingredients are required in big quantities.

Mixing: - After weighing and checking, the elements in a formula that doesn't require premixing are simply mixed together. Themixture. All of the ingredients are thoroughly combined.

Filling:-The completed hair colouring product batch was placed in the filling section. Next, the hair dye measurement on the weighing balance.

Packaging: - The plastic bags are transported to the packaging line from the filling area. The product is fully packaged, and its label provides comprehensive information. Following that, the product is brought to the warehouse where it will be distributed.

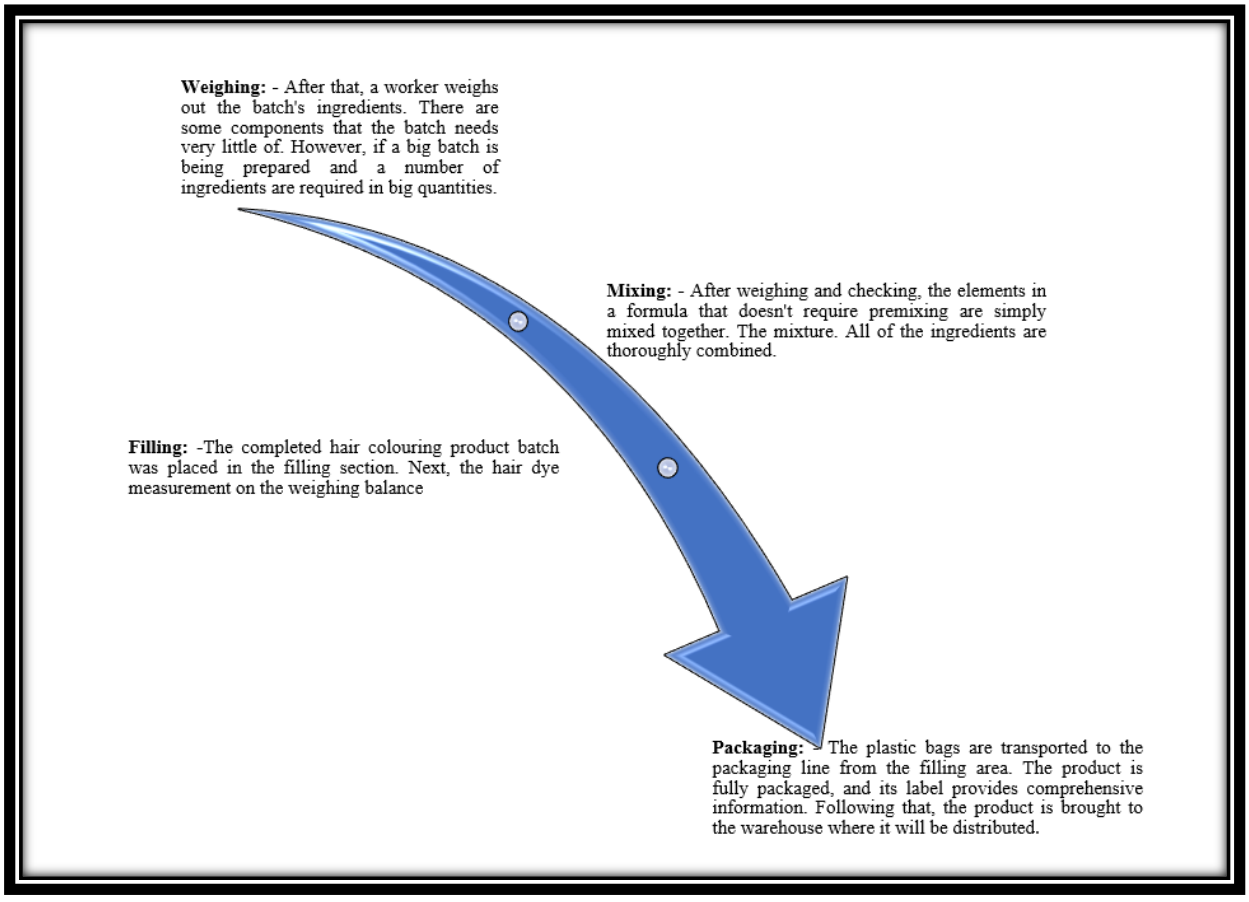

FIGURE 2.1 METHOD OF FORMULATION

3. RESULT AND DISCUSSION: -

3.1 Evaluation parameter of the herbal hair dye: -

The produced herbal hair dye was assessed according to a number of parameters, including organoleptic, physio-chemical, phytochemical, and rheological aspects.

3.1.1. Organoleptic evaluation:

Table 1 illustrates the meticulous documentation of organoleptic characteristics for a range of sensory characteristics, including colour, odour, and taste. Separate experiments were conducted on the powders and raw medicines. by morphological and organoleptic characteristics, such as appearance, texture, colour, and odour.

TABLE 3.1 Organoleptic evaluation of herbal hair dye

S.No.	Parameters	Results
1.	Color	Greenish brown
2.	Odur	Characteristics
3.	Texture.	Fine
4.	Appearance	Powder

3.1.2. 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. Table 2 reflect the above findings.

TABLE 3.2 Physicochemical evaluation of herbal dye:

S.NO	PARAMETER	RESULT
1.	**pH**	**6.5**
2.	**L.O.D.**	**1.7%**
3.	**Ash value**	**0.17**

FIGURE 3.1 pH Testing

3.1.3. 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 were used to the presence of carbohydrates. The aqueous extract of formulated herbal face pack was evaluated for the presence or absence of different phytoconstituents as pre standard procedure and norms. The result of Phytochemical screening is highlighted.

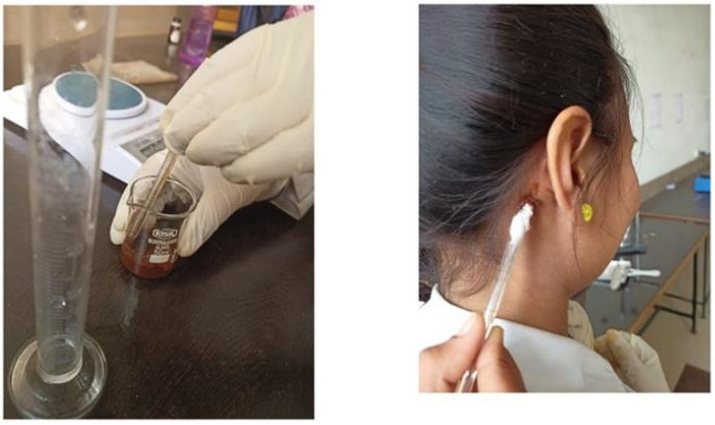

FIGURE 3.2 PATCH TEST

3.1.4. Hair dye testing: -

In order to achieve thick, lustrous, beautiful hair, one can apply fruit paste to the hair and the chop off or eat the fruit.This also contributes to a significant reduction in hair loss and the incidence of irritation.The nutrients are more effectively absorbed and the hair follicles are nourished when the paste is massaged into the hair. This is a result of the fruit's high iron content, which encourages increased blood flow to the scalp, encourages the growth of hair, and increases hair thickness.

FIGURE 3.2 TESTING OF DYE

4. COUCULSION:

It provides a useful natural substitute. An herbal hair pack gives the hair a nearly gender-neutral colour. The benefits of cosmetics made using herbs are their non-toxic characteristics. It relieves the scalp of extra oil, which aids in the treatment of dandruff. The hair pack with an herbal formulation that is great for hair maintenance and contains the goodness of plant powder.These days, people welcome natural remedies with open arms because they are less likely to have adverse effects and are safer than items made of chemicals.The results of this study indicate that the herbal hair pack has some helpful features, but more research is required to fully understand these benefits.

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