

FORMULATION AND EVALUATION OF HERBAL HAIR MASK***Kavita Sharma, Preetam L. Nikam, Tejal Kadam, Bhavik Kalamkar, Rushikesh Kadam**

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ABSTRACT

Hair growth is an important factor to maintain your appearance. The hair follicle is the most important organ in the mammalian system, determining appearance, gender differentiation and providing severe temperature protection. Due to many lifestyle-related changes such as fatigue, anxiety and junk food consumption, young generations have begun experiencing severe hair loss problems. Hair root activation is necessary to improve hair development and prevent hair loss. Hair is the most important organ in the human body. It plays an important role in self-defense, preservation of temperature and provides protection against pathogens. Hair loss can be caused by various factors such as stress, aging and medications. Hair root activation is necessary to improve hair development and prevent hair loss. Hair masks are the best way to restore your hair's natural vitality and moisture, boost its strength and thickness and reduce breakage and damage from styling products. Although hair loss is a natural part of human life, we can give our hair back its beauty by using a hair mask.

KEYWORDS: Onion peel Hair, Growth, Scalp, mask.**MATERIALS AND PROCEDURES**

Herbal hair mask contains herbs that are gathered from adjacent areas. To make the extract, the required parts of herbs including Amla, Wheat Grass, Hibiscus, Neem and Aloe were weighed. Physical appearance, viscosity and pH were determined while homogeneity was observed by eye sensitivity test. Hair growth activity was assessed by Daze eye test and hair weight after 7 days of use. Unaided hair growth was noted within 7 days in case of both males and females while majority of respondents reported noticeable improvement in hair growth after 2-3 weeks of use.

Herbal Hair Mask is a herbal formula that helps to restore the health and strength of your hair by providing moisturizing ingredients. The herbs included in this mask have been shown to promote healthy growth and manageability of the scalp.

Take care of your hair with this herbal hair mask. The ingredients help you to restore shine and healthy looking hair, while inhibiting bacteria and oil production on the scalp. This formulation is designed specifically for all skin types, even if you have sensitive or very dry scalps. With regular use, you can achieve smooth, shiny hair that feels softer than ever.

Herbal hair mask is a natural and organic method of hair growth treatment that helps the scalp to absorb essential elements. The herbal ingredients help to restore balance

in the body's natural system by delivering nutrients, vitamins and minerals directly to your scalp.

1-INTRODUCTION

Hair masks are excellent for protecting your hair from the sun, pollution and the elements. Normal hair development is controlled by a complex and dynamic mechanism that is still unknown. Hair shaft synthesis, elongation, and eventually loss are all part of this cyclical mechanism. Human hair consists of follicles in the antigen, cartage, and telogen stages. In the antigen phase, our hair follicle actively collects cytochrome and grows it quickly. In the telogen stage, our body's cells should be ready to change over into new growth cycles (when we shed them) but because they are not getting enough nutrition in their environment they hibernate which contributes further to dryness; this is why it is so important to feed your hair with moisture rich hair masks regularly to keep it healthy throughout life without affecting its looks!.

Hair masks are a great way to moisturize your hair, especially if you have dry or oily scalp. They can also help to reduce hair loss and promote healthy growth.

If you love your locks, a hair mask is probably something you wouldn't mind using daily. This can help to keep your hair moisturised by locking in moisture, while also restoring its strength and growth.

Hair mask is an excellent exfoliant that can help to keep our hair moisturised. Hair masks are easy to apply, so you will have great results with a minimum of fuss. Our hair mask is something we can manufacture at home. It can help to improve the condition of our scalp and strengthen our hair. There are many different types available on the market, but they all contain the same ingredients. Chemicals are also harmful to our hair. As a result, we have created a chemical-free product. This mask is fantastic. Hair masks are natural and effective to treat hair loss, hair damage and dry scalp. Hair masks

can help to improve the condition of our scalp and strengthen our hair. Once you use these masks daily, it will show results right away. We created this product to help people improve their hair and scalp condition. Our hair mask is easy to prepare, leaving no residues in your head, and it's chemical-free!

Our hair mask is a stimulating, healthy treatment for all types of hair. It nourishes the scalp and strengthens our hair to make it healthier and more beautiful. We use natural ingredients to create this mask.

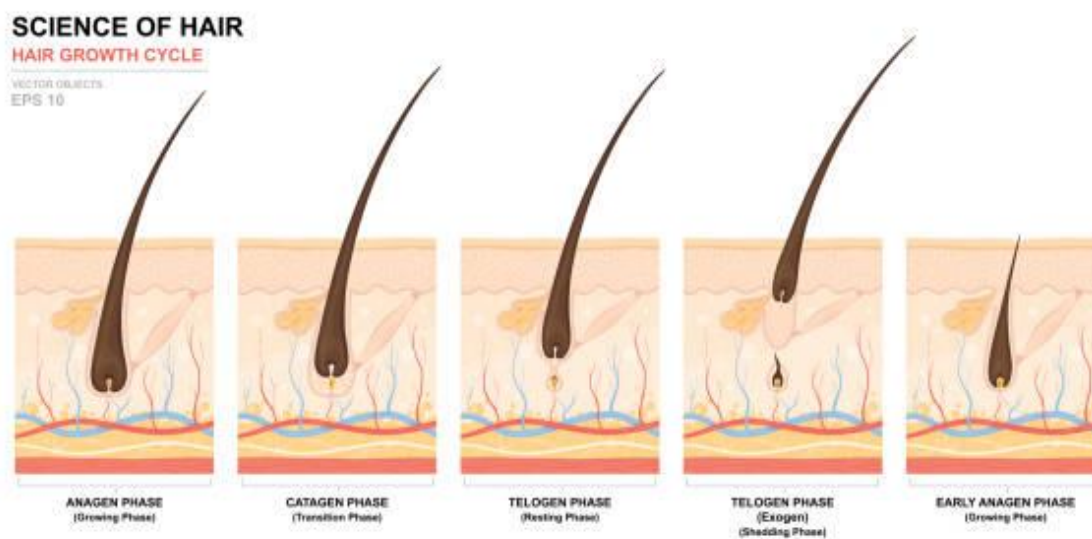


Fig. Hair Growth Cycle.

2. METHODS

Ingredients

Onion peel

Onion juice is also abundant in sulfur and is helpful for hair growth. It provides anti-inflammatory and antioxidant benefits because it has high amounts of quercetin, which fights against free radicals, air pollutants, and toxins that cause damage to hair cells leading to hair loss. Human hair is made of keratin, a protein that has high sulfur content, and onion is abundant in this mineral. Therefore, it is beneficial for your hair strands as it adds strength and elasticity to them. In its absence, your hair can turn brittle and fall off easily.

You can also use onion peels as a hair mask for your dry and dull hair. Onion peels are powerful antioxidants and are rich in fibre, vitamin A, vitamin C, and vitamin E. They are good for the skin and hair and help improve your eyesight. Here are some of the ways to use onion peels.



Hibiscus

The most helpful element for hair is hibiscus or 'gudhal'. It is used to promote hair growth, regret and hair loss. Hibiscus contains amino acids, Vitamin A, C and alpha hydroxyl acids as well as other nutrients that help restore a damaged scalp. This mask will also help with dryness, breakage, and dandruff. Hibiscus is a good source of vitamins and minerals, including Vitamin C, A, E and beta-carotene. Hibiscus also helps with dandruff prevention by maintaining a healthy scalp environment for follicles to grow optimally.



Sweet Neem

Curry leaves contain Vitamin C, Vitamin B, proteins, and antioxidants, all of which contribute to cellular regeneration and promote healthy circulation to the blood vessels in the scalp. These properties help to promote hair growth and skin renewal and boost the overall health of the scalp. The topical application of the ingredient activates the hair follicles and promotes hair growth.

Adds Shine

Curry leaves for hair are extremely useful as they are a rich source of amino acids. Amino acids present in these leaves help retain hair strength and impart shine to the hair.

Controls Hair Loss

Curry leaves are packed with essential nutrients, vitamins, and proteins that help nourish the scalp, strengthen hair follicles, and prevent hair loss. Nutrients like calcium, iron, and phosphorus, give your locks much-needed nourishment.

Prevents Premature Greying

Curry leaves are the ultimate solution for premature greying of hair and they provide the scalp with essential nutrients.



Amla

Amla, often known as Indian gooseberry, is high in vitamin C. It has a lot of health benefits. Powdered Amla is an important ingredient in hair tonics, as it promotes hair growth and improves hair pigmentation. It strengthens the roots, maintains the colour, and increases shine. Hair growth and colour are improved when amla oil is applied to the roots. The most common application

is to reduce baldness and hair loss. The tannin content, which includes tannic acid, ellagic acid, gallic acid, iron, and antioxidant material, prevents dandruff-induced free radical damage to hair follicles.



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Heena

Henna is one of the best hair beauty ingredients that India has shared with the rest of the world. Since years, if not centuries, women have used the power of this natural compound to strengthen, nourish and beautify their tresses. Back then, they would use the leaves of henna for hair treatment; the modern woman use henna powder for hair therapy.

Among the most commonly known benefits of henna for hair is that it is a natural hair colouring agent and conditioner.



Aloe

Aloe vera promotes healthy hair growth thanks to a special enzyme found in aloe called proteolytic enzymes. These enzymes effectively break down dead skin cells on the scalp that may clog hair follicles. If hair follicles are blocked with excess sebum, dirt, or dead skin, they won't be able to grow properly. Aloe can also help cleanse the scalp so more nutrients can penetrate the hair follicle, helping hair grow faster and more efficiently.



Multani Mitti

Multani mitti, also commonly known as Fuller's Earth, is a clay that has many benefits for skin and hair.

Its absorbent properties allow it to sop up oil naturally while it also conditions your scalp. Its abrasive properties exfoliate, which may help remove dead skin and flakes. The clay is rich in minerals — including magnesium, silica, and iron although the exact mineral content will differ.

One of the earliest uses of Multani mitti was as a wool cleaner because of its ability to condition and fluff.



Rose oil

It has been used for centuries as a luxury and a costly perfume. Because of its multilayered complex fragrance, and strong therapeutic properties.

Rose oil will add natural sweet warmth; depth and balance to flower blends and it will add richness to fragrance.



Table 1: Composition of Herbal Hair Mask.

Sr.no	Name	Biological name	Quantity
1	Amla	Phyllanthus Emblica	3 gm
2	Onion peel	Allium cepa	10 gm
3	Henna	Lawsonia inermis	3 gm
4	Aloe	Aloe barbadensis miller	3 gm
5	Hibiscus	Hibiscus rosa- Sinensis	10 gm
6	Sweet neem	Murraya Koenigii	5 gm
7	Multani Mitti	Fuller's earth	q.s
8	Rose oil	Rosa centifolia L	2 -3 drop

Composition of the Constituents (quantity)

The largest dose of Wheat Grass and Hibiscus was taken since they have established hair nutrition properties, and because the scalp becomes dry during dandruff treatment, it is critical to nourish it. Revitalize hair follicles, and promote hair growth. Because neem contain pungent active components in concentrated levels, It should only be used in small doses and amla heena and aloe are used in lesser quantity.

Formulation

The dried herbs were powdered and weighed precisely after being harvested and dried in the shade. In the mortar pestle, all of the components were homogeneously mixed and pass through sieve no.80 as shown in Table 1. Formulation Innovation It comes in the form of a bundle. There are no artificial additives in this recipe. This mask is formulated with dried herbs and powdered, so using it at home is just as easy. It can be prepared in advance and preserved for later use, or you can make it fresh during a relaxing afternoon. Herbal hair masks are an excellent choice for people with dry and damaged hair, because they restore the health of your beautiful locks. But there are also so many benefits to using this

homemade remedy, including improved circulation and other skin benefits.

Herbal hair mask care formulation application The pack, also known as a coarse pack, should be applied to hair on a weekly basis as a semi-solid paste in lukewarm water, since it improves the efficacy of the ingredients. This mask is recommended for frequent use and gives excellent results.

The consistency of this product is thick like honey and dries fairly quickly. It should be applied evenly to the hair with a brush, from the roots to the tips. Herbal hair mask is formulated with natural ingredients that nourish and restore the hair from stress, pollution and dehydration. The pack should be applied to the hair on a weekly basis as a semi-solid paste in lukewarm water. It improves the efficacy of its ingredients.



Use

The Herbal hair mask is a nourishing treatment that helps to prevent greying and hair loss. It enhances the hair's lustre and gloss, making it look more voluminous. Following the creation of the Herbal hair mask, an evaluation is carried out: Herbal Hair Mask is a nourishing, anti-aging and hair growth mask for all hair types. It helps to prevent greying and loss of hair, enhances the lustre and gloss of your tresses, provides the necessary moisture for shiny strands.

Apply to towel-dried hair, to help build and nourish it, which helps prevent greying and hair loss.

Organoleptic Evaluation

The examination of the formulation is performed under this evaluation, and it involves macroscopic aspects of the drug or product, such as colour, scent, and taste, by using sensory organs such as the eyes or nose. Table 2 explains how macroscopic elements like as texture and appearance are incorporated.

Table 2: Features and Observations of Ingredients.

Sr. No	Organoleptic features	Observation
1	Colour	Greenish Brown
2	Odour	Characteristics
3	Texture	Fine
4	Appearance	Coarse Powder

Physicochemical Research

The formulations' physicochemical investigations were carried out as shown in Table 3 to examine physical and chemical characteristics such as pH, ash value, and loss on drying (Moisture content).

Sr. No	Physicochemical Test	Observation
1	pH	5
2	Moisture Content	4.6 %
3	Ash Value	33%

Rheological evaluation

The physical properties of the powdered formulation are examined in rheological examination, as indicated in table 4. The flow ability of powders in this bulk density

tapped density angle of repose hausners ratio Carr's index are assessed using powder rheology.

1	Bulk density	0.3
2	Tapped density	0.2
3	Angle of repose	19.15°
4	Carr's index	23.53%
5	Hausner's Ratio	0.67

Patch Test

In this procedure, a small amount of moistened formulation is applied to the hand's surface, and the effects of the formulation on irritancy and itching have been noticed.

1	Swelling	Nil
2	Redness	Nil
3	Irritation	Nil

Stability test

The powdered formulation was kept at different temperatures (35oC and 40oC) and humidity levels for a period of time. The change in physical attributes was detected under various situations.

1	Change in Colour	Nil
2	Change in odour	Nil
3	Change in pH	Nil
4	Change in Texture	Nil
5	Change in Smoothness	Nil

RESULT AND DISCUSSION

The herbal hair mask has been formulated to harness the benefits of natural herbs and potent phyto-constituents to provide multiple benefits to the hair. In addition to providing moderate nourishment to the hair, the mask also acts as an anti-dandruff agent. One of the key benefits of the herbal hair mask is its ability to effectively remove excess oil from the scalp. Excess oil on the scalp is a common cause of dandruff, and the herbal hair mask can help to address this issue by removing the excess oil and reducing the risk of dandruff. Overall, the herbal hair mask offers a natural and holistic approach to hair care by incorporating the benefits of natural herbs and phytoconstituents. By addressing multiple hair concerns, including dandruff and excess oil on the scalp, the mask can help to improve the overall health and appearance of the hair.

Hibiscus

Hibiscus is a popular ingredient in herbal hair masks due to its potential benefits for hair health. The following are potential results and discussion on hibiscus in a hair mask: • Improved Hair Growth: Hibiscus is believed to promote hair growth by stimulating the hair follicles and increasing blood circulation in the scalp. This can help to promote new hair growth and reduce hair loss. • Reduced Hair Breakage: Hibiscus can help to strengthen the hair and reduce breakage by improving the elasticity of the

hair strands. This can lead to healthier, stronger hair that is less prone to damage. • **Enhanced Shine:** Hibiscus can help to improve the shine and appearance of the hair by smoothing the hair cuticles and reducing frizz. This can lead to hair that is smoother, softer, and more manageable. • **Anti-inflammatory Properties:** Hibiscus has anti-inflammatory properties that can help to reduce scalp irritation and inflammation, which can lead to healthier hair and scalp. In addition to the potential benefits discussed above, it is important to note that the effectiveness of hibiscus in a hair mask may vary depending on factors such as the quality of the hibiscus, the other ingredients in the mask, and individual differences in hair type and condition. Overall, while there is limited scientific research on the specific effects of hibiscus in a hair mask, it is believed to offer potential benefits for hair health and is a natural and safe ingredient to use in a hair care routine.

Amla

Amla, also known as Indian gooseberry, is a popular ingredient in herbal hair masks due to its potential benefits for hair health. The following are potential results and discussion on amla in a hair mask: • **Promotes Hair Growth:** Amla is believed to promote hair growth by strengthening the hair follicles and increasing blood circulation in the scalp. This can lead to healthier, stronger hair that is less prone to breakage. • **Reduces Hair Loss:** Amla can help to reduce hair loss by strengthening the hair follicles and reducing the risk of hair breakage. This can lead to thicker, healthier hair that is less prone to shedding. • **Nourishes Hair:** Amla is rich in vitamins and antioxidants that can help to nourish and protect the hair. This can lead to healthier, shinier hair that is more resistant to damage. • **Improves Scalp Health:** Amla can help to improve scalp health by reducing inflammation and irritation. This can lead to a healthier scalp and reduce the risk of dandruff and other scalp conditions. In addition to the potential benefits discussed above, it is important to note that the effectiveness of amla in a hair mask may vary depending on factors such as the quality of the amla, the other ingredients in the mask, and individual differences in hair type and condition. Overall, while there is limited scientific research on the specific effects of amla in a hair mask, it is believed to offer potential benefits for hair health and is a natural and safe ingredient to use in a hair care routine.

Henna

Henna is a popular ingredient in herbal hair masks due to its potential benefits for hair health. The following are potential results and discussion on henna in a hair mask: • **Natural Hair Dye:** Henna is a natural hair dye that can be used to color hair without the use of harsh chemicals. It can provide a natural red or brown tint to the hair, depending on the length of time it is left on the hair. • **Hair Strengthening:** Henna is believed to strengthen the hair by coating the hair strands and filling in gaps and rough spots. This can lead to stronger, more resilient hair

that is less prone to breakage. • **Nourishes Hair:** Henna contains natural conditioning agents that can help to nourish and protect the hair. This can lead to softer, shinier hair that is more resistant to damage. • **Scalp Health:** Henna has antifungal and antibacterial properties that can help to reduce inflammation and irritation on the scalp. This can lead to a healthier scalp and reduce the risk of dandruff and other scalp conditions. In addition to the potential benefits discussed above, it is important to note that the effectiveness of henna in a hair mask may vary depending on factors such as the quality of the henna, the other ingredients in the mask, and individual differences in hair type and condition. Overall, while there is limited scientific research on the specific effects of henna in a hair mask, it is believed to offer potential benefits for hair health and is a natural and safe ingredient to use in a hair care routine.

Aloe

Aloe vera is a common ingredient in herbal hair masks due to its potential benefits for hair health. The following are some potential results and discussion on aloe vera in a hair mask: • **Moisturizes Hair:** Aloe vera contains a high water content and has natural humectant properties, which helps to hydrate and moisturize the hair. This can lead to softer, more manageable hair that is less prone to breakage. • **Strengthens Hair:** Aloe vera is believed to contain enzymes that can help to remove dead skin cells and sebum buildup from the scalp. This can promote a healthier scalp and strengthen the hair follicles, leading to stronger, more resilient hair. • **Reduces Scalp Irritation:** Aloe vera has natural anti-inflammatory properties that can help to reduce scalp irritation and inflammation. This can help to soothe an itchy, flaky scalp and reduce the risk of dandruff and other scalp conditions. • **Promotes Hair Growth:** Aloe vera contains enzymes that can help to promote hair growth by stimulating blood flow to the scalp and improving the delivery of nutrients to the hair follicles. In addition to the potential benefits discussed above, it is important to note that the effectiveness of aloe vera in a hair mask may vary depending on factors such as the quality of the aloe vera, the other ingredients in the mask, and individual differences in hair type and condition. Overall, aloe vera is a natural and safe ingredient that can offer potential benefits for hair health, and it is a popular choice for those seeking to improve the overall health and appearance of their hair.

Multani Mitti

MultaniMitti, also known as Fuller's earth, is a type of clay that is widely used in skincare and hair care products. When used in a hair mask, MultaniMitti is believed to provide numerous benefits for the hair, including improving hair texture, reducing dandruff and other scalp issues, and promoting healthy hair growth. One of the main benefits of using MultaniMitti in a hair mask is its ability to absorb excess oil and dirt from the scalp and hair. This can help to reduce dandruff and other scalp issues, as well as improve the overall texture

and appearance of the hair. Additionally, MultaniMitti is believed to stimulate blood circulation in the scalp, which can help to promote healthy hair growth. To use MultaniMitti in a hair mask, it is typically mixed with other natural ingredients such as yogurt, honey, or lemon juice to create a nourishing and conditioning treatment for the hair. The mask is then applied to the hair and left on for 30-45 minutes before being washed off with lukewarm water. While there is limited scientific research on the benefits of using MultaniMitti in a hair mask, many people report positive results from incorporating it into their hair care routine. However, it is important to note that Multani Mitti can be drying to the hair if used too frequently, so it is recommended to use it no more than once a week. Overall, Multani Mitti can be a beneficial ingredient in a hair mask for those looking to improve the health and appearance of their hair. As with any new hair care product or ingredient, it is important to patch test first and to consult with a healthcare professional if you have any concerns about its use.

Organoleptic

Based on the evaluation, the Multani Mitti hair pack has a characteristic smell and is coarsely powdered. The physicochemical parameters reveal that it has a minimal loss on drying of 1.26%, a neutral pH of 6.69, and an optimum ash value, indicating the presence of minerals in nominal quantities. It also contains the main phytoconstituents, which provide complete nourishment for both the scalp and hair. Since the ingredients are used in their natural form without artificial additives, the irritancy test for redness and swelling is negative. A rheological evaluation is required to assess the flow ability of the powdered formulation to ensure that it is not too dense or compact, which could cause it to absorb moisture and compromise its stability. The formulation has a very low moisture content. Since the formulation's constituents have a well-established literature review stating them to be an important part of a home hair care cure, and because this article only covers the preparation and evaluation of the formulation, efficacy in a variety of situations is expected. Stability tests were carried out to determine the compatibility of the formulation, including its colour, odour, appearance, texture, and pH. Because the formulation is made using dried herbal materials, it has a low risk of breakdown since it contains a humid substance in either raw or final form. The formulation was stored at room temperature for a month to observe any noticeable changes in colour, odour, texture, or appearance, and the pH of the water was also noted. Since it is a natural herbal-based formulation with no dangerous ingredients, it can be stored easily and used at any temperature in any location in its stable state. However, frequent use of the MultaniMitti hair pack results in a large amount of data, and further testing is needed to fully understand its effectiveness and safety. It is recommended to patch test and consult with a healthcare professional before use, especially for individuals with sensitive skin or pre-existing scalp or hair conditions.

CONCLUSION

The use of a herbal hair mask can provide a light and gentle treatment for dandruff in the hair. Herbal-based cosmetics are known for their non-toxic nature and their ability to nourish both the scalp and hair. By removing excess oil from the scalp, the herbal hair mask can help treat dandruff and result in healthy, problem-free hair with regular use. This study has shown the beneficial properties of the herbal hair mask for dandruff, and further research is needed to discover its additional benefits. As natural therapies are considered safer with fewer side effects, they are widely used all over the world.

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