



## **A Review on Herbal Anti-Dandruff Hair Mask**

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### **ABSTRACT**

Hair is a soft part of the body. Therefore, in order to take care of them we have to make a hair mask. Ingredients in the hair mask are added knowing their benefits to the hair. The purpose of applying a hair mask is to remove impurities from the hair follicles. The resulting hair mask is completely chemical free. It contains only natural ingredients that do not damage your hair. Healthy looking hair is a sign of good health, beauty and hair care practices which moulds one's personality. Herbal anti dandruff hair mask helps you smoothen the irritating, oily and flaky scalp by controlling dandruff thus giving you itch free healthy scalp and nourished hairs. The dandruff is a major problem of hair, which cannot be fully cured with the aid of chemical. This chemicals causes split ends and weakens the hair. Hairs are the delicate part of the body. So, accordingly to take care of them we made the formulation of hair mask.

Key words : Hair , Herbal ,Antidandruff

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### **INTRODUCTION**

A hair mask also known as deep conditioning treatment, is a type of hair conditioner to hydrate and improve overall hair health. Hair mask contain natural ingredients which boost hair growth and keep your scalp dandruff free. A Hair mask can help repair damage from heat styling the local environment, and colour treatment. Hair is an important part of the body. Hair mask can helps moisturize our hair. They especially beneficial for dry or damaged hairs. Hair mask may improve the health of our scalp and boost the strength of our hairs. These hair masks are also made at home It has no disadvantages, and it is very beneficial. (2).

There are so many variables which can impact hair in everyday life. Air Pollution, humidity, not enough care and stress are some of the main reason of hair fall. Some of the elements are related to vitamin and mineral deficiencies. Perhaps some of the elements are mainly dependent upon physical state of hairs. Also some environmental factor results in breakage of hair from the shaft. Sometime it can worsen the hair texture, which impact long term hair roughness and hair loss. (6). Hair masks can help to keep our hair moisturised. They are especially good for hair that is dry or damaged. Hair masks can help to improve the condition of our scalp and strengthen our hair. (2).

The Product which is use for cleansing, modifying the texture, changing of the colour giving life to the stressed hair, providing the nourishment to the hair and giving the healthy look to the hair is called as hair care products. There are some type of hair like normal hair, oily hair, dry hair vary from human to human. In day today life dandruff is major and common problem nowadays. In this condition flakes on scalp skin produces, causes itching on skin. (3).

A Yeast like fungus, malassezia, feeds on oils on the scalp of most adults, dry skin, sensitivity of hair care products or contact dermatitis, other skin conditions such as psoriasis and eczema are also the causative factors behind dandruff. Dandruff causes hair loss and embarrassment in public places on the skin in various areas because of dandruff a high level of sebum occurs. Its symptoms are redness, flakes, and itching of the scalp.

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### **HAIR GROWTH CYCLE AND ITS MECHANISM**

The hair growth undergoes a tiresome cycle where the anagen phase followed by the catagen and the telogen phase (7). In the anagen phase, the hair is actively growing while in the catagen phase it is characterized by the degeneration and resorption of the lower region of the hair follicle. The resting phase, where the hair is inactive, is called telogen phase after this phase the growth of the hair follicle resumes in the scalp, a hair growth cycle has three main phases: Anagen, catagen, and telogen.

The anagen phase is the growth cycle typically lasts 3-5 years. On a healthy scalp, there are approximately 1,000,000 hair and 90% of the follicles are continually in the anagen phase of hair growth. The catagen stage follows the end of the growth period when a follicle begins to become dormant. The telogen stage is a dormant or resting period that lasts 3-4 months. When the dormant phase ends, an old hair falls out. A hair follicle then returns to the anagen stage, and a new hair begins to grow. An average rate of hair growth is about half an inch per month depending on hair follicles and age of an

individual. On average, 50-60 scalp hairs are lost daily in a normal hair growth cycle and new hairs begin to grow from these follicles. Hair loss begins when less new hair begins the re-growth stage. (5).

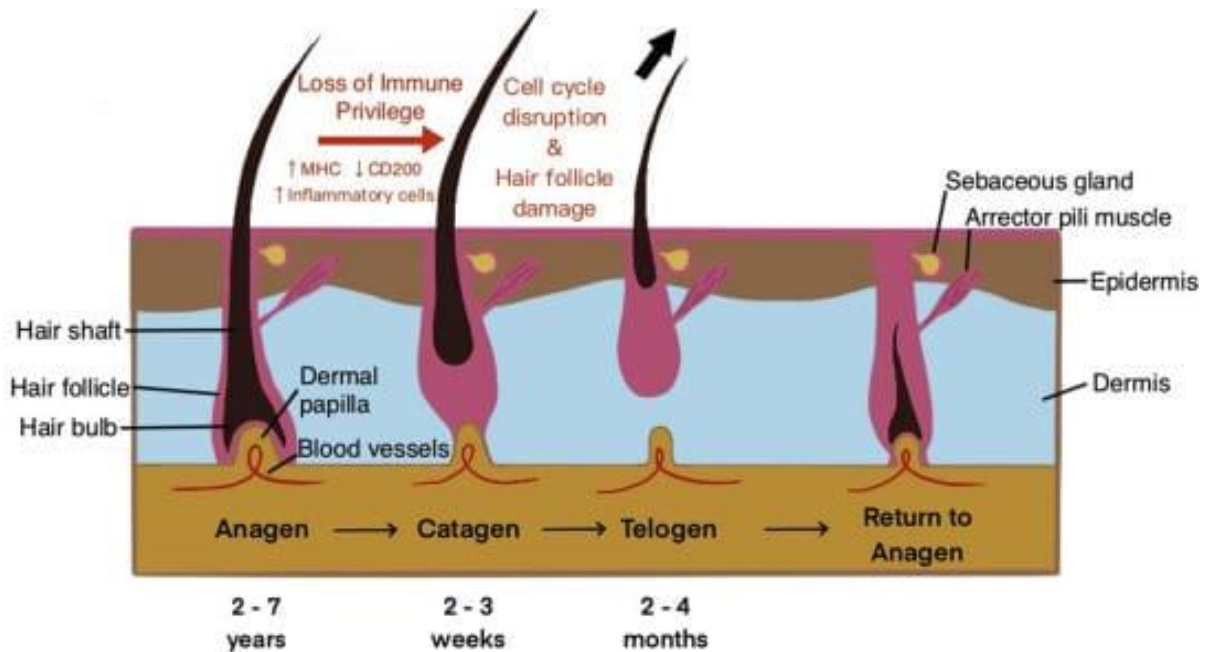


FIG .1 - Hair Growth Cycle And its Mechanism

**DANDRUFF A SCALP DISORDER**

Definition: Dandruff is a common scalp disorder, characterized by presence of corneocytes that form clusters due to their high cohesive power, in the form of flaky white to yellowish scales, accompanied by itching. It has been observed that dandruff occurs mainly between puberty to middle age, the phase when sebaceous glands are most active. (10).

**FIG2 : REPRESENTS THE MECHANISM BY WHICH MALASSEZIA FURFUR CAUSES DANDRUFF**

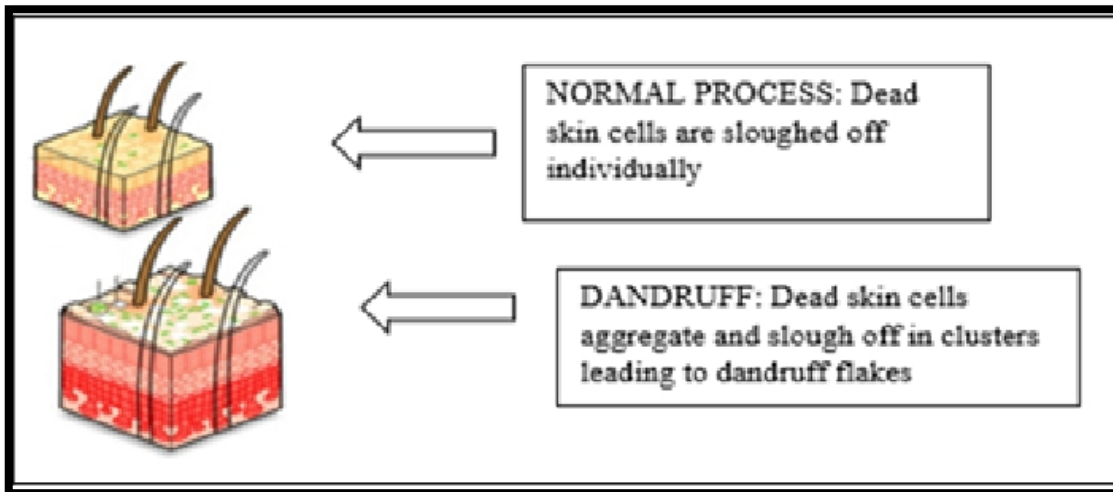
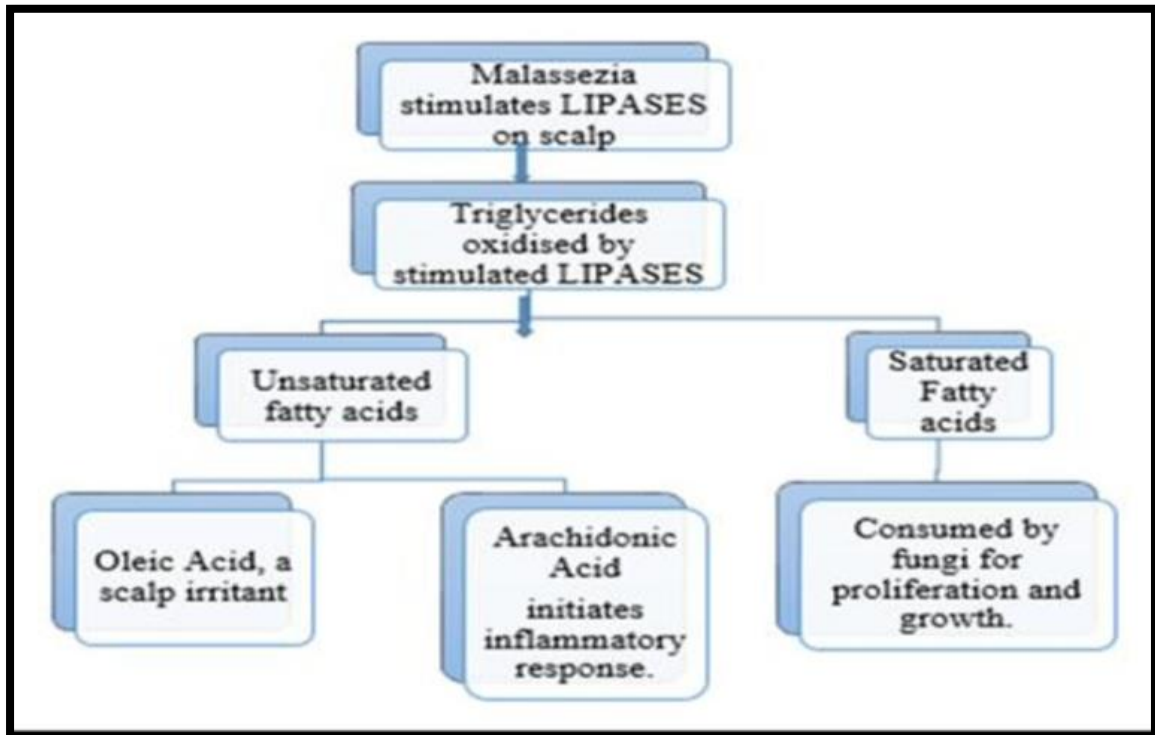


FIG. 3: EXPLAINS ANOTHER MECHANISM BY WHICH DANDRUFF IS CAUSED



#### BENEFITS OF HERBAL ANTI-DANDRUFF HAIR MASK

- ◆ Stimulate hair growth.
- ◆ Cleansing.
- ◆ Remove dandruff.
- ◆ Reduce hair fall.
- ◆ Prevent premature graying.
- ◆ Smoothen the irritating, oily, & flaky scalp.

#### PLANT WHICH ARE USED FOR HERBAL ANTIDANDRUFF HAIR MASK

- ◆ AMLA



FIG .4 Amla

Amla known as source of vitamin C. It is packed with many health benefits. Powdered amla is used as a gooseberry. Amla is a rich essential ingredient in hair tonic to promote hair growth and improve hair pigmentation. It strengthens and nourishes the roots, improves the colour and radiance. Applying amla oil to the roots of hair improves hair growth and colour. A very popular application is to reduce baldness and hair loss. This quality is due to the tannin content in the form of antioxidants. (3). It also has anti-inflammatory, and antibacterial qualities can help prevent dandruff (1). Amla (*Phyllanthus embilica* L.) extract prevent and alleviates hair loss. Also amla extract decrease the expression of 5 alpha reductase. (15)

❖ **BHRINGRAJ**



**FIG. 5 Bhringraj**

Bhringraj (*Eclipta prostrata* or *Eclipta alba*) is a famous herb known for its benefits and usage in hair growth and liver disorders. It is also an effective medicine for skin diseases, cough, asthma, eye disorders and disease related to any part of the head. It improves hair growth, prevents hair fall and treats premature graying of hairs. (17). The medicinal herb Bhringraj is a herb that promotes hair growth. A popular Ayurvedic ingredient used for hair growth. It helps increase blood flow to the scalp by stimulating and inducing hair growth, which is probably lost due to dandruff. It also prevents scalp problems caused by dandruff and irritation and does not affect hair growth. It protects the scalp from irritation caused by dandruff, allowing hair to grow freely. It serves to cleanse the scalp of sebum build up, opening blocked pores, killing bacteria, and promoting hair growth. It hydrates hair while also removing dandruff. It has antibacterial, antifungal qualities, which can aid with dandruff, psoriasis, and other scalp skin irritations and antioxidants. (3). *E. alba* is a well-known drug for its keshya (hair growth promoting) property since ancient times. (16).

❖ **NEEM**



**FIG.6 Neem**

Neem helps to cleanse the scalp. It removes clogged pores and improves hair growth. Regenerative properties are very important for the treatment of dandruff. It provides with preservative and healing properties and can be used for a variety of hair problems. Dandruff can be removed by using neem leaves as a rinse. The most common uses of neem can be found in our hair care rituals. According to Ayurveda, Amla, Amla, Neem and Acacia is a necessary herb for healthy curls, promoting hair growth, reducing hair loss, and making hair more voluminous. (3). Neem produces pain-relieving, anti-inflammatory and fever-reducing compounds that can aid in the healing of cuts, burns, sprains, earaches, headaches, as well as fevers, possibly dengue. On the other hand, the neem tree encompasses the treatment of a variety of physical ailments such as heart disease, diabetes, blood disorders, digestive and nervous



disorders, parasites and, possibly, cancer. Moreover, Neem may also be used as spermicidal as well as mouthwash.(18) *Azadirachta indica* L. (neem) shows therapeutics role in health management due to rich source of various types of ingredients. The most important active constituent is azadirachtin and the others are nimbolinin, nimbin, nimbidin, nimbidol, sodium nimbinatate, gedunin. (19).

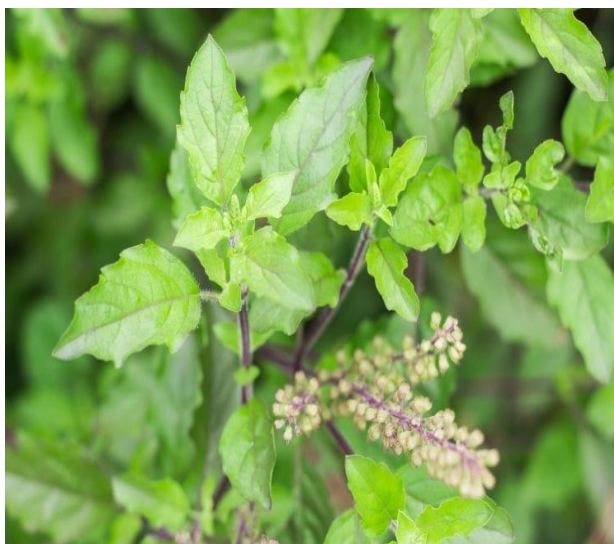
#### ❖ GINGER



**FIG.7** Ginger

Ginger is an excellent hair conditioner rich in minerals and essential oils that makes your hair easy to comb, soft and shiny. Helps relieve itching, dryness and flaky scalp. It has natural anti-Inflammatory and antiseptic properties that help keep the scalp healthy and clean. Its anti-bacterial or anti-microbial properties help it battle skin and scalp problems. Ginger juice can aid to improve scalp health and may even help with itchy scalp and dandruff. (3). The ginger extract (*Zingiber officinale* (L.) is a well known product and widely used for its pleiotropic properties that includes antioxidant, anti-inflammatory, hypoglycaemic, anticancer and antibacterial activities. (20)

#### ❖ TULSI



**FIG.8** Tulsi

Tulsi, or Holy Basil, has been used in religious works for centuries. Contributes to blood circulation, smoothens the scalp, reduces irritation and dandruff, and promotes hair growth. Used in the form of paste to prevent dandruff and keep the base of the scalp clean. (3). *O. sanctum* has also been investigated for various biological activities, including antimicrobial, antifungal, anti-septic, anti-stress, anti-cancer, and antioxidant activity. Therefore, *O. sanctum* could have the potential to be used as a natural antidandruff agent. (11). Having detoxifying properties the Tulsi purifies blood of any toxins that might be present in it. Tulsi may well provide protection from radiation poisoning. It has also been indicated that Tulsi possesses anti cancerous properties. There has come up a belief that a Tulsi leaf swallowed daily will ensure protection from cancer.(21)

## ❖ ALOE VERA



**FIG.9 Aloe-vera**

Aloe Vera is very beneficial for our hair. It helps prevent hair loss. Aloe Vera repairs dead skin cells. It gives light to our hair. It also acts as a good conditioner and leaves our hair all smooth and shiny. It helps to promote the growth of our hair. Aloe Vera prevents itching from the skin and reduces dandruff and repairs our hair. (4). Aloe Vera is a characteristic item which is presently a days utilized in the field of cosmetology. Our definition is to detail a home grown cleanser utilizing a plant extract which is utilized as hair washing and cleanser to treat balding and block twitch scalp and dandruff. (12). Aloe vera contains 6 antiseptic agents: Lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulfur. They all have inhibitory action on fungi, bacteria and viruses.

## ❖ REETHA



**FIG. 10 Reetha**

Reetha or Soapnut is also called as Arishtak in Ayurveda and “Soap nut tree” in India. It is well known for its traditional medicinal uses and is commonly used as a hair cleanser. Reetha is extensively used to make natural hair care products as it makes hair shiny, healthy and lustrous. It can be used on a daily basis to provide nourishment to the hair scalp and promote hair regrowth. Reetha powder can be mixed with warm water to form a paste which can be used to massage the scalp to help manage dandruff and also remove lice from the scalp due to its insecticidal property. The powder of Amla and Reetha can be applied to the hair to help control greying of hair and also stimulate better hair growth. (13).



**FIG.11 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, all of which are excellent to hair and scalp health. They maintain the scalp healthy and reduce the likelihood of hair dandruff (1). With antimicrobial properties, hibiscus curbs the growth of dandruff-causing yeast on your scalp, unclogs dandruff flakes from your hair follicles, and prevents dandruff recurrence (14). In India, Hibiscus flowers and leaves are used for the abortion, antifertility, contraceptive, Diuretic, Menorrhagia, Bronchitis, Emmenagogue, Demulcent, Cough. (23)

## MATERIAL AND METHOD

Sr. No	Ingredient	Scientific Name
1	Amla	Phyllanthus emblica.
2	Bhringraj	Eclipta prostrata.
3	Neem	Azadirachta indica.
4	Ginger	Zingiber officinale.
5	Tulsi	Ocimum tenuiflorum.
6	Aloe vera	Aloe barbadensis miller.
7	Reetha	Sapindus mukorossi
8	Hibiscus	Hibiscus rosa-sinensis L.

Table No.1

### Materials:

All the natural ingredients present in the study are Amla, Reetha, Bhringraj, Tulsi, Neem, Ginger, Aloe-vera, Hibiscus are all in dried powder form.

### Method of preparation –

1. First prepare the powder of herbal ingredients, all ingredients in powder form and grinded it to form a fine powder.
2. Weighing all the required powder accurately, individually weighing the powder by using the digital balance.
3. All the fine ingredients mixed thoroughly by mixer and make the homogeneous powder.
4. This fine powder was passed through sieve no. 10 and get the sufficient quantity of the fine powder
5. The powder mixture was collected and stored in suitable container and used for doing evaluation parameter.

### Evaluation parameters

#### A. Organoleptic evaluation -

By utilizing sensory organs like eyes or nose, the examination of the formulation is performed under this evaluation, and it includes macroscopic characteristics of the drug or product, such as colour, odour, texture and appearance.

#### B. Physicochemical Evaluation -

##### a) pH –

pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter at constant.

**b) Loss on Drying –**

Weigh about 1.5 gm of the powdered drug into a weighed flat and thin porcelain dish. Dry in the oven at 100°C or 105°C, until two consecutive weighing do not differ by more than 0.5 mg. Cool in desiccators and weigh. The loss in weight is usually recorded as moisture.

**c) Ash Content –**

Total Ash Value – Place about 2-4 gm of the ground air-dried material, accurately weighed, in a previously ignited and tared crucible (usually of platinum or silica). Spread the material in an even layer and ignite it by gradually increasing the heat to 500-600°C until it is white, indicating the absence of carbon. Cool in a desiccator and weigh. If carbon-free ash cannot be obtained in this manner, cool the crucible and moisten the residue with about 2 ml of water or a saturated solution of ammonium nitrate. Dry on a water-bath, then on a hot-plate and ignite to constant weight. Allow the residue to cool in a suitable desiccator for 30 minutes and then weigh without delay. Calculate the content of total ash in mg per gm of air-dried material.

**C. Phytochemical Evaluation-**

Various tests were performed, to identify to identify the phytoconstituents present in the products and their effect is shown on the body. Every plant exhibits certain phytochemical properties, which show a number of beneficial effects.

**a) Detection of carbohydrate-****Molisch's Test-**

To 2-3 ml aqueous extract, add few drops of alpha-naphthol solution in alcohol, shake and add H<sub>2</sub>SO<sub>4</sub> from sides of the test tube violet ring is formed at the junction of two liquids.

**Fehling's Test -**

Mix 1ml fehling's A and 1 ml fehling's B solutions, boil for 1min. Add equal volume of test solution. Heat in boiling water bath for 5-10 min. First yellow, then brick red ppt is observed.

**b) Detection of alkaloids-****Hager's Test-**

2-3 ml filtrate with hager's reagent gives yellow ppt.

**Mayer's Test-**

2-3 ml filtrate with few drops mayer's reagent gives creamy ppt.

**c) Detection of Volatile Oil –**

2 to 4 gm of hair mask on treatment with alcoholic solution of sudan III develops red colour in the presence of volatile oils

**d) Detection of Protein-**

Biuret Test- To 3 ml T.S. add 4% NaOH and few drops of 1% CuSO<sub>4</sub> solution. Violet or pink colour appears.

**e) Foam Test –**

shake the drug extract or dry powder vigorously with water. Persistent stable foam observed.

**D. Rheological Evaluation –**

**a) Tapped Density** – Tapped density is an increased bulk density attained after mechanically tapping a container containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1 min and volume or mass readings are taken until little further volume or mass change was observed. It was expressed in grams per millilitre.

$$\text{Tapped Density} = \text{Mass} / \text{Tapped Volume}$$

**b) Bulk Density –**

Bulk Density is the ratio between the given mass of a powder and its bulk volume. Required amount of the powder is dried and filled in a 50 ml measuring cylinder up to 50 ml mark. Then the cylinder is dropped onto a hard wood surface from a height of 1 inch at 2 second intervals. The volume of the powder is measured. Then the powder is weighed. This is repeated to get average values.

$$\text{Bulk density} = \text{Mass} / \text{Bulk volume}$$

**c) Angle of Repose –**

It is defined as the maximum angle possible in between the surface of pile of powder to the horizontal flow. It required amount of dried powder is placed in a cylindrical tube open at both ends is placed on a horizontal surface. Then the funnel should be raised to form a heap. The height and radius of the



heap is noted and recorded. For the above method, the angle of repose ( $\theta$ ) can be calculated by using the formula.  $\theta = \tan^{-1} (h/r)$   
 where  $e$   $\theta$  – Angle of repose

$h$  – Height of the heap

$r$ – Radius of the base

#### D) Hausner's Ratio –

Hausner's Ratio = Tapped Density / Bulk Density

##### a) Carr's index –

Carr's Index =  $\frac{\text{Tapped Density} - \text{Bulk Density}}{\text{Tapped Density}} \times 100$

Tapped Density

## Conclusion

This study present a number of plant drugs with proven efficacy in hair care preparation. A herbal hair mask treat dandruff from the hair in very easy manner. The hair mask helps to nourish the skin of the scalp. This study carried out on the basis of traditional knowledge. Herbal based cosmetics are popular for their non-toxic nature. It remove the oil from the scalp and daily use of this mask leads to healthy and dandruff free hairs. This hair mask helps to nourish the skin and keep scalp healthy and dandruff free.

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