



“FORMULATION AND EVALUATION OF EGGS WHITE BASED HERBAL SHAMPOO”

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INTRODUCTION:-

A shampoo is a hair care product typically, in the form of viscous liquid that is used for cleaning hair to remove dirt, dandruff, pollutants and other contaminant particles that gradually build up in hair. The goal is to remove the unwanted build-up without stripping out so much as to make hair unmanageable.

Definition of Herbal Shampoo:-

Herbal shampoos are the cosmetic preparations that with the use of traditional ayurvedic herbs are meant for cleansing the hair and scalp just like the regular shampoo. They are used for removal of oils, dandruff, dirt, environmental pollutions etc. Is known as Herbal shampoo.

Definition of Shampoo:-

A shampoo is a preparation of a surfactant (i.e. surface active material) in a suitable form liquid, solid or powder which when used under the specified conditions will remove surface grease, dirt, and skin debris from the hair shaft and scalp without adversely affecting the user.¹

Functions :-

- Lubrication
- Conditioning
- Hair growth
- Maintenance of hair colour
- Medication.⁶

Advantages :-

1. Herbal shampoos are made out of pure and organic ingredients and there are no synthetic additives or surfactants and are free of any side effects.
2. These shampoos are not tested on animals, unlike synthetic shampoo brands.
3. Are Bio-degradable and earth-friendly.
4. Skin-friendly - never causes irritation to the eyes.
5. Cost friendly - not much expensive.⁶

Keywords: Cosmetic, Herbal shampoo

Ideal characters of herbal shampoo :-

- 1) Should effectively and completely remove the dust, excessive sebum.
- 2) Should effectively wash hair.
- 3) Should produce a good amount of foam
- 4) The shampoo should be easily removed by rinsing with water.
- 5) Should leave the hair non dry, soft, lustrous with good, manageability.
- 6) Should impart a pleasant fragrance to the hair.
- 7) Should not make the hand rough and chapped.
- 8) Should not have any side effects or cause irritation to skin or eye.²

Composition of Herbal shampoo :-

* Active agents

* Foaming agents

* Conditioning agents

* Anti-dandruff

* Thickening agents

* Colours,

* Perfumes and preservatives²

Types of Shampoo :-

* Shampoos are of the following types:

* Powder Shampoo

* Liquid Shampoo

* Lotion Shampoo²

Ingredients of the herbal shampoo:-

Table 1 :-

Sr.No	Ingredients	Family	Use
1	Aloe Vera	Asphodelaceae	Anti-dandruff
2	Rose oil	-	Perfume
3	Ritha	Sapindaceae	Detergent and Foaming agents
4	Amla	phyllanthaceae	Nourishment To hair
5	Guar gum	-	Thickening agent
6	Shikakai	Fabaceae	Foaming
7	Eggs white	-	Conditioner

❖ USE OF INGREDIENTS

1) Ritha :-



Fig No. 1

- i. Stops Hair Fall
- ii. Prevents Dandruff
- iii. It is used as cleanser
- iv. It is also used as removing lice from hair
- v. Rita helps to control hair fall by removing dandruff from the scalf .
- vi. It is used as to improve the health of hair ⁶

2) Amla :-



Fig No. 2

- i. Strengthen the Scalp and Hair.
- ii. Reduce premature pigment loss from hair, or greying.
- iii. Stimulate Hair Growth.
- iv. Reduce Hair Loss.
- v. Prevent or treat dandruff and dry scalp. Prevent or treat Fungal and Bacterial hair.⁶

3) Shikakai –



Fig No. 3

i. Cleanses Hair

ii. Add more Shine to the Hairs,.

iii. Prevents Grays.

iv. Crubs Hair Loss

v. Prevents Lice, Psoriasis & Scabies.

vi. Provides Nourishment to the hair and promote healthy and rapid hair growth.⁶

4) Eggs white :-



Fig No. 4

- i. It is used as conditioner.
- ii. Eggs white content bacteria enzyme that keep the scalp fresh and clean.
- iii. Enhance the growth of hair.
- iv. It provide the protein to hair.
- v. It makes the hair silky.

5. Rose oil



Fig No. 5

- 1) It is use as a perfumes.
- 2) Improves Growth.
- 3) Reduce dandruff.
- 4) Gives fragrance to the hair.

6 Aloe Vera :-



Fig. No. 6

- i. Calms an itchy scalp.
- ii. Deep cleans oily hairs.
- iii. Strengthens
- iv. Aloe vera contains proteolytic enzymes which repairs dead skin cells on scalp.
- v. Promote hair growth
- vi. Smooth natural curls
- viii. Detangle Hairs.⁶

Literature :-

1:- American journal of pharmatech research

Chavhan V.M . et - al (2019)

- Evaluation and formulation of herbal shampoo.
- research is required to improve its quality especially on the conditioning performance and to identify the constituents which are responsible for the performance ²

2:Asian Journal Of Pharmaceutical And Research

Vijayalaxmi .A et -al (2018)

The present study was carried out with the aim of preparing the herbal shampoo that reduces hair loss during combing, safer than the chemical conditioning agents as well as to strengthen the hair growth.³

3:-International Journal of Science and Research (IJSR)

Gaikwad P.D. et- al (2018)

Formulators must play an active role in educating the consumers about the potential harmful effects of synthetic detergent in shampoos. There is a strong need to change the consumer perceptions of a good shampoo and the onus lies with the formulators.⁴

4 International Journal of creative research thought IJCRT

Bhagwat S.S et – al (2020)

Use of conditioning agents (synthetic) reduces the protein or hair loss. To provide the effective conditioning effects, the present study involves the use of shikakai, amla, and other plant extracts instead of synthetic cationic conditioners.⁶

5) Journal of Quality Assurance and Pharma Analysis

Kriplani, P et -al (2016)

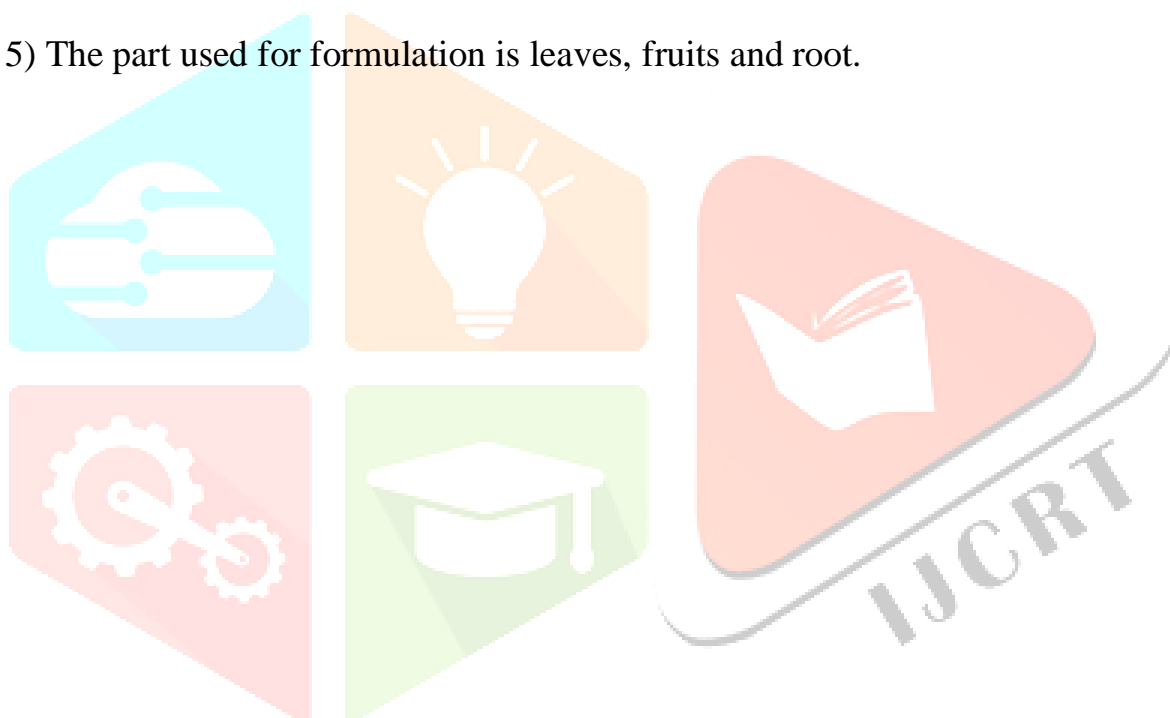
The aim of this study was to formulate a completely herbal shampoo which has no side effects. We formulated a herbal shampoo by using dried plant which are commonly used traditionally and lauded for their hair cleansing actions.⁷



Aim :- The Formulation and evaluation of egg white based herbal shampoo.

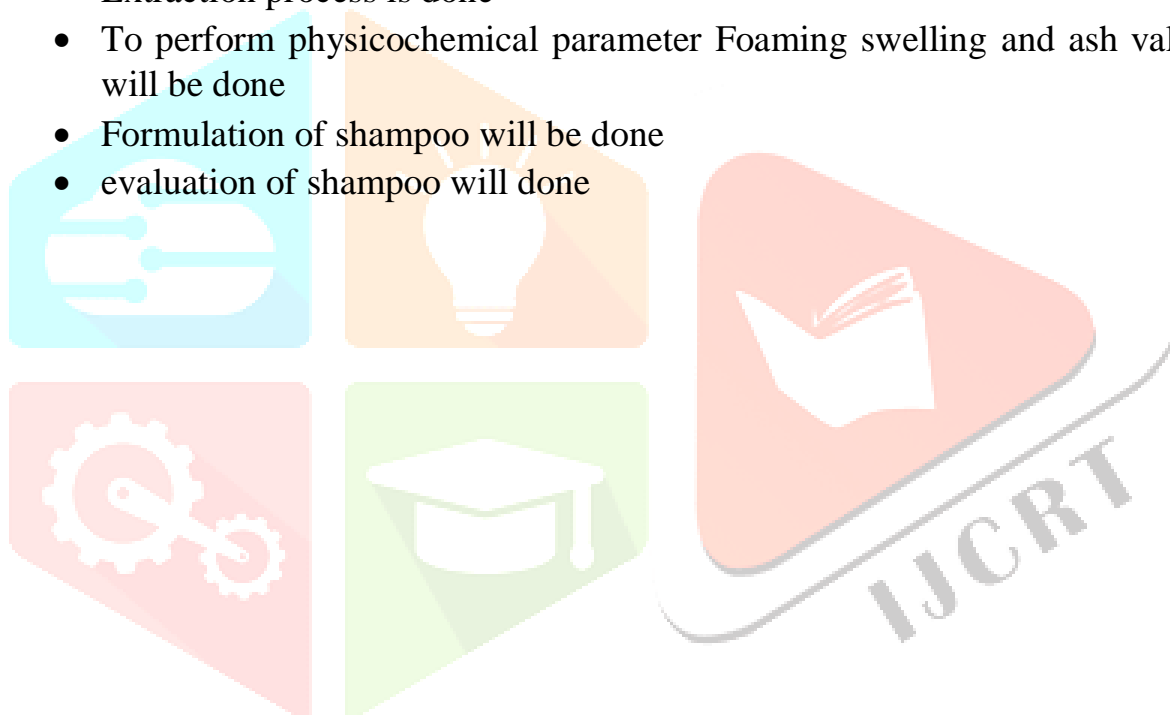
Objectives

- 1) To extraction of Ingredients
- 2)To perform physicochemical parameter
- 3) To formulate the herbal shampoo.
- 4) To evaluate the herbal shampoo.
- 5) The part used for formulation is leaves, fruits and root.



PLAN OF WORK :-

- Selection of the topic will be done
- Review literature and books
- Select the formula will be done
- Collection of all the ingredients will be done
- To study the Morphological character of ritha Shikakai and eggs white
- Extraction process is done
- To perform physicochemical parameter Foaming swelling and ash value will be done
- Formulation of shampoo will be done
- evaluation of shampoo will done



Morphology:-**1. Amla**

Colour	Greenish yellow colour
Odour	None
Taste	Bitter
Size	1.5 to 2.5 cm in diameter
Shape	Globose

Table No. 2**2. Aloe vera :-**

Colour	Dark brown greenish brown
Odour	Sour,characteristic
Taste	Bitter unpleasant
Size	20 to 100 cm
Shape	Triangular

Table No. 3

3. Ritha / Soapnut

Colour	Yellowish become black after riping
Odour	Pleasant
Taste	Bitter
Shape	Oval
Size	1.2 cm in diameter

Table No. 4

4. Shikakai

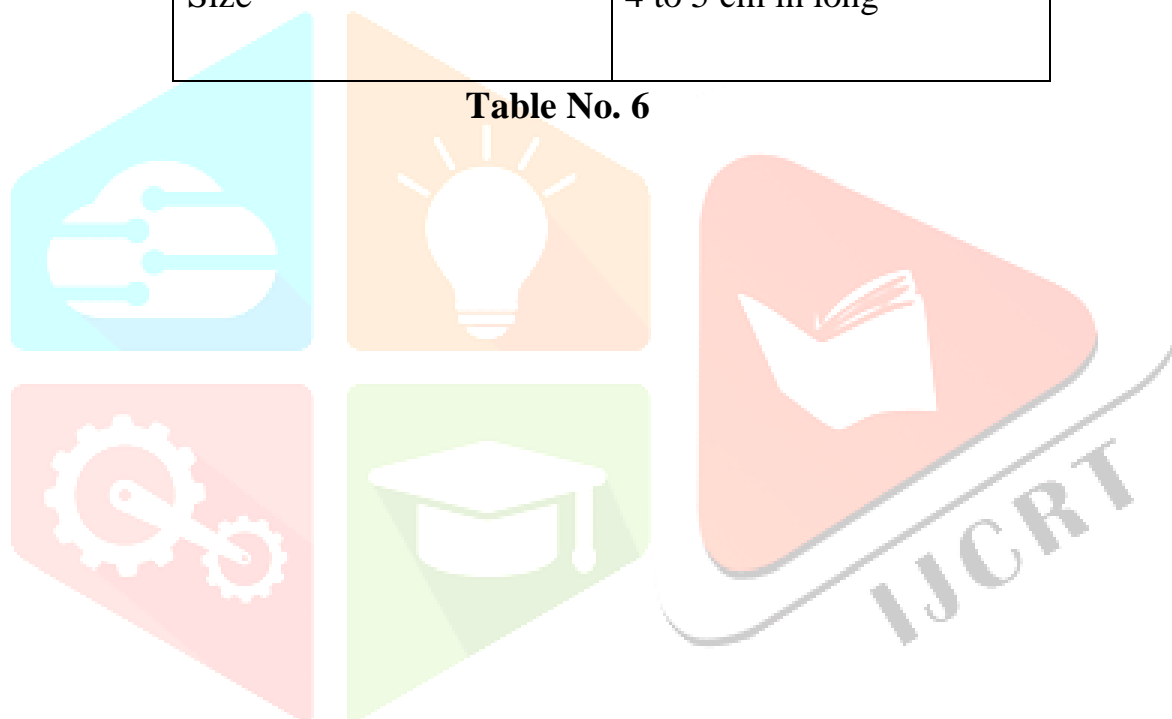
Colour	Dark brown
Odour	Odourless
Taste	Bitter
Shape	Broadly ovate
Size	8 to 12 cm in long

Table No. 5

5. Eggs white

Colour	White
Odour	Bitter
Taste	Buttery
Shape	Spherical
Size	4 to 5 cm in long

Table No. 6



EXPERIMENTAL WORK AND METHODOLOGY

Method of preparation :-

Extraction :-

1. Decoction:-



Fig. No. 7

Procedure :-

- Weight all the ingredients according to the formula.
- Decoction of ritha shakakai and amla , ,
- Amla, was prepared in one part of water ,Filter it, by using muslin cloth. Collect filtrate.
- Decoction of Shikakai, and Ritha was prepared in another part of water.
- Filter it by using muslin cloth. Collect filtrate. Mixed to each other of above filtrate with constant stirring. Mixed gaur gum as a thickening agent for maintenance of consistency of herbal shampoo as like semisolid nature. Preservatives and perfume was added lastly.⁴

- 1) **Amla** :- 7.5 gm of amla powder dissolved in 50 ml of water and boil ,then cool, and filter.⁹
- 2) **Shikakai** :- 7.5 gm of Shikakai powder dissolved in 50 ml water. then boil, cool, and filter.⁹
- 3) **Ritha** :- 7.5 gm of Ritha powder dissolved in 30 ml of water. And then boil, and then cool, and filter .⁹

➤ **Mixing:-**

They are prepared by simple mixing process in case of clear liquid shampoo.perfume is added last. Mix all the ingredient together and perfume finally.⁵

Physicochemical test :-

1. Ash value :-



Fig No. 8

- Ash value of shikakai and ritha :- Ash value is calculated to determine the inorganic contents which is characteristic for a herb. About 2 gm of powder drug was taken in silicon dish previously ignited and weighed. Temperature was increased by gradually increasing the heat not exceeding to red colour. After complete burning, ash is cooled and weighed.⁷

2) Swelling index :-

* Swelling index of ritha:-



Fig No. 9

Weight accurately about 1 gm of ritha and transfer into a 25 ml of stopper cylinder . Fill the measuring cylinder up to mark of 20 ml with water Agitated it gently and occasionally and allow to stand for 24 hrs .Measure the value of measuring cylinder. Occupied by swollen drug.¹

➤ **Formulation of egg white based herbal Shampoo :-**

Table No. 7

Name of ingredients	Quantity
Ritha	7.5 gm
Shikakai	7.5 gm
Eggs white	7.5 gm
Amla	7.5 gm
Rose oil	Q s
Guar gum	0.6
Aloe vera	Q s

▪ Evaluation of Herbal Shampoo :-

1. Visual inspection:- All samples were observed for their physical appearance/visual inspection. The prepared formulations were evaluated in terms of their clarity, foam producing ability.⁵

2. Foaming index :- weight accurately 1 gm of coarse powder drug and boil in 100 ml of water. For 30 min. Cooled and filter it. And add sufficient water to make a the volume up to 100 ml pour the decoction in successive portion of 1 ml 2ml 3ml etc. Up to 10 ml into 10 test tube and adjust the volume in each tube with water 10 ml . Stopper the tube and shake them then for 15 sec. Allow the stand for 15 min and measure the height of foam produced .¹

3. Determination of PH:-

Take PH Paper strip and place on a white tile. Pour a drop of the sample on the PH paper using a clean dropper. Observe the colour of the PH Paper. Now, compare colour obtained on the PH paper with different colour shade of the standard colour PH chart and note down the PH value.⁵



Fig No. 10

4. Percent of solid content:- A clean dry china dish was weighted and added with 4 gm of shampoo the dish was of with shampoo was weighed. The exact weight of shampoo was placed the china dish with shampoo was placed on the hot plate until liquid portion was evaporated the weight after drying was calculated.¹

5. Foaming ability and foam stability :-

Cylinder shake method was used for determining foaming ability. 50 ml of the 1% shampoo solution was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times were recorded. The total volumes of the foam contents after 1 minute shaking. The foam volume was calculated only. Immediately after shaking the volume of foam at 1 minute intervals for 4 minutes were recorded.⁵



Fig No. 11

6. Skin irritancy :-

Skin irritancy of shampoo can be checked by taking small amount of product on skin , after few minute to check whether local irritation or any inflammatory reaction are produce or not.⁵

Result :-

Evaluation of herbal shampoo :-

To evaluate the prepared formulations, quality control tests including organoleptic and physicochemical characterization such as pH, solid contents and viscosity were performed. As well to ensure the quality of the products, specific tests for shampoo formulations including: , foam volume and foam stability, detergency, eye irritation, skin sensitization tests and preliminary stability study were also carried out. The results were compared with frequently used marketed herbal shampoo considered as reference.⁴

Physical appearance/visual inspection :-

All samples were observed for their physical appearance/visual inspection. The prepared formulations were evaluated in terms of their clarity, foam producing ability and fluidity.²

Determination of pH :-

The pH of shampoo solution (10% w/v) in distilled water was determined at room Temperature .²

Foaming index :- if the weight of the foam in every tube is less than 1 cm the Foaming index is less than 100 if the height of the foam is 1cm is measured in any tube volume of the herbal decoction is uses to determine the index .if the height of the foam is more than 1cm in every tube the Foaming index is over 1000.¹

Formula of Foaming index :-1000

/ a

a = the volume of in ml of the decoction uses for the preparing the dilution in the tube where foaming to a height of 1 cm is observed¹

Foaming ability and foaming stability:-

From the consumer point of view, foam stability is one of the important needs of a shampoo. Important parameter that was considered in the shampoo evaluation was determination of foaming stability. The foam volume produced by the formulated shampoo is above 50 ml. The prepared shampoo generates uniform, small sized, compact, denser, and stable foam. The foam volume remains same throughout the period of about 5 min showing that the generated foam by the shampoo has good stability and the prepared shampoo exhibits higher foam property which may be due to the presence of both shikakai and soapnut.⁵

Percentage of solid content :- Solid content

Shampoo with high solid content will be very difficult to rinse and hard to work with the hair. The prepared shampoo contains 1.14 % of solid content. Thus, they considered easy to wash out when having less solid content during preparation of shampoos .³

Skin irritancy ;- Skin sensitization test This test is performed on skin of human volunteers and checks whether it irritation on skin or not.⁴

1) Morphological character of herbal shampoo

Table No. 8

Colour	Brown
Odour	Good
Transparency	Clear
Texture	Smooth

2) Physicochemical parameter :-

Table No. 9

Ash value	
1) Ritha	7.44
2) Shikakai	0.72
Foaming index	
1 Ritha	200
Swelling index	
	7 cm

3) Evaluation of Herbal shampoo :-

Table No. 10

Skin irritancy	No
Visual appearance	Good
PH	6.9
% of solid content	23.15 %
Foaming index	200 cm
Foaming ability and foaming stability	250 cm

Conclusion :-

When I collected all the data. On the pie chart, I noticed that the most popular shampoos were Suave and Pantene.. There were also many shampoos that were used by one person. On the Bar graph, Most people are more satisfied after they wash their hair. Two people did not really care about their hair, and one person was less pleased with their hair after they showered. Many had high opinions of their hairs afterwards. 17 of 41 people had voted that they were truly, and 100% appeased with their hair. A large scale were quite content with their hair, which was around a seven to nine. One exceptional person disapproved their hair after they shower. The cause to dissatisfaction can be the shampoo/conditioner they are using. Another reason is the frizzles, tangled hair, or anything else, which all connects to the shampoo. The shampoo is a very important thing which helps the healthiness and satisfaction to hair.

My hypothesis was very close to the answer I reported back. Though I would have never guessed there were so many "unpopular" shampoos between the ratio.

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