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## Research Article

# Formulation And Evaluation Of Herbal Shampoo

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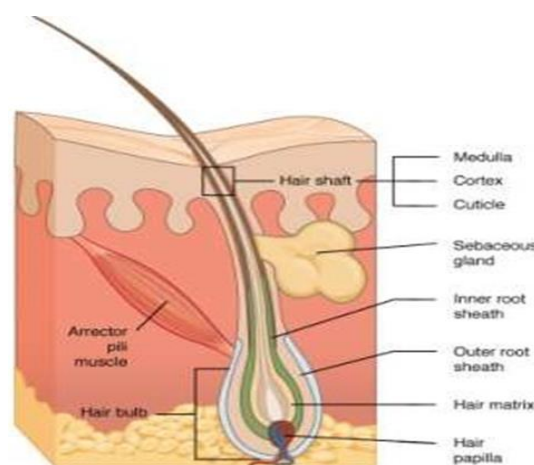
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## ABSTRACT

Herbal shampoo is used to cleansing of the hair also conditioning, smoothing, of the hair surface, good health of hair, hair free of dandruff, dirt grease and lice above all, it's safety benefits are expected. The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and time tested usefulness of many ingredients. Thus in present work, we found good properties for the herbal shampoo and further optimization study benefits of herbal shampoo on human use as cosmetic product. 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 pollution. Herbal Shampoo is a cosmetic preparation which uses herbs and it is meant for washing of hair and scalp just like a regular shampoo. The herbal shampoo was formulated using natural ingredients like Phyllanthus emblica (Amla), Azadirachta indica (Neem), Acacia concinna (Shikakai), Spindus mokorossi (Reetha), Aloe barbadensis (Aloevera).

## INTRODUCTION

Hairs are the integral part of human beauty. People are using herbs for cleaning, beautifying and managing hair since the ancient times. These reasons attracted community towards the herbal products, which are less expensive and have negligible side effects. It does not only have hair cleansing purpose but also imparts gloss to hair and used to maintain their manageability and oiliness free.



**Fig No.1 (Structure of Hair)**

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## Shampoo:

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

## Herbal shampoo:

Herbal shampoo is a cosmetic preparation which uses herbs and it is meant for washing of hair and scalp just like regular shampoo.

## Ideal Properties Of Herbal Shampoo:

1. It should effectively and completely remove dust or soil, excessive sebum or other fatty substances and loose corneal cells from the hair.
2. It should produce a good amount of foam to satisfy the psychological requirements of user.
3. It should be easily removed on rinsing with water.
4. It should leave the hair non-dry, soft, lustrous with good manage ability and minimum fly away.
5. It should impart a pleasant fragrance to the hair.
6. It should not cause any side-effects / irritation to skin or eye.
7. It should not make the hand rough and chapped.

## 1. AIM AND OBJECTIVE:

### Aim:

Formulation and evaluation of liquid herbal shampoo.

### Objective:

Herbal shampoo are made out of pure and organic ingredients and there are no synthetic additives or surfactants are free of any side effects.

- Are bio-degradable and earth friendly.
- It doesn't cause irritation to the eyes.
- It is cost friendly, not much expensive.
- Regular usage of herbal shampoo can do wonders for your hair.

- By using herbal shampoo, you can get the perfect oil balance.
- They are made out of natural essential antiseptic properties that prevent our hair and scalp from the harsh U.V rays of the sun thus preventing skin infections.

## 2. Drug Profile:

### Amla:



Fig No. 2 (Amla)

**Family:** Euphorbiaceae.

**Binomial name:** Phyllanthus emblica

**Botanical name:** Emblica officinalis Gaertn.

**Colour:** Green changing to light yellow

**Odour:** None

**Taste:** Sore and Astringent

**Shape:** The fruit are depressed **Size:** 1.5 to 2.5 in diameter

**Extra features:** Fruit are fleshy four lobed. They are very hard and smooth in appearance.

**Chemical constituents:** Tannin, Alkaloids, Phenolic compound, vitamin.

## 3. Excipient Profile:

### Aloe Vera:



Fig No. 3 (Aloe Vera)

It is commonly known as Ghrita Kumari, Korphad and Musabbar. It is dried juice of leaves of Aloe barbadensis miller belonging to family Liliaceae. The juice contains Aloe-emodin, barbaloin, isobarbaloin, B-barbaloin, resins, Aloetic acid, homonataloin, aloes one chrysophanic acid, chrysamminic acid, galactouronic acid, saponins. The juice is used as Purgative, Anti-inflammatory, Treatment of burns a itching and uses in skin cosmetics as a protective due to it's anti-wrinkle properties.

#### Neem:



**Fig No. 4 (Neem)**

It is commonly known as Margosa. It Consist of all aerial part of plant known as Azadirachta indica belonging to family Meliaceae. The plant contains Diterpenes (sugiol, nimboil) Triterpenes:- B-sitosterol, stigma sterol Limonoids:-Meliantriol, Nimbidinine, Nickelodeon, azadirachtin. The plant is used as Antimicrobial, Insect Repellent, Insecticide, and Antibacterial.

#### Reetha:



**Fig No. 5 (Reetha)**

It is commonly known as Washnut, soapnut, soapberry. It is dried fruit of plant Sapindus mokorossi belonging to family Sapindaceae. The fruit contains mainly saponins, (10%- 11.5%) Sugar (10%) & mucilage, Triterpenes, Six sapindoside (sapindoside A, B, C, D) & mukorossi saponins (E1 & Y1). The fruit is used for shining hair, curing hair issue, Natural cleanser, Detergent foaming property.

#### Shikakai:



**Fig No. 6 (Shikakai)**

It is commonly known as Shikakai, soap-pod. It is dried seed of plant Acacia rugate belonging to family Leguminosaceae. The seed extract contains lupeol, spinasterol, acacic acid, lactone & the natural sugar glucose, arabinose & rhamnose. It is also contains hexacosanol, spinasterrone, oxalic acid, tartaric acid, citric acid, succinic acid, ascorbic acid, nicotine. It is used an Ayurveda medicinal plant, traditionally used in shampoo and used in a detergent.

#### Orange peel:



**Fig No. 7 (Orange peel)**



It is commonly known as Orange peel. It consists of a fruit of *Citrus sinensis* belonging to Family Rutaceae. It contains Terpenes such as Carveol, Carvone, Menthol, Perillyl alcohol and Perillaldehyde. Orange peel is used for making perfume and soap.

## MATERIAL AND METHOD:

### Preparation Extract:

1. 50gm pieces of fresh leaves of Amla powder were boiled in 75ml of water and filtered.
2. 50gm powder of dried fruits of *Acacia concinna* (Shikakai) was boiled in 75ml of water and filtered.
3. 25 ml of juice of *Aloe barbadensis* (Aloe) was removed from leaves.
4. 25gm fresh pieces of leaves of *Azadirachta indica* (Neem) were boiled in 25ml of water and filtered.
5. 50 gm powder of dried fruits of *Spindus mokorossi* (Reetha) was boiled in 75 ml of water and filtered.

### Preparation of herbal shampoo:

1. Firstly a base was prepared by using 5gm sodium carboxy methyl cellulose in 40ml water
2. To 250ml beaker 50 ml of Reetha extract and 50ml of Shikakai extract was mixed and stirred well.
3. Then 50 ml of Amla Powder extract was added.
4. 10 ml of Neem extract and 25ml of Aloevera extract was added.
5. 5ml of propyl paraben was added as a preservative.
6. Above extract was stirred for 15 min.
7. 10 ml of orange peel extract was added as a perfuming agent and stirred for 5 min.
8. The shampoo was prepared and placed into a 250ml plastic container (bottle).

**Table No. 1 Name of Ingredients**

Sr. No.	Name of ingredients	Quantity
1	Amla Powder Extract	50 ml
2	Shikakai extract	50 ml
3	Reetha extract	50 ml
4	Neem extract	10 ml
5	Aloe vera juice	10 ml
6	Propyl paraben	5 ml
7	Sodium carboxy methyl cellulose	50 ml
8	Orange peel oil	10 ml
9	Water	15 ml
<b>Total</b>		<b>250 ml</b>

**Table No. 2 Role of Ingredients**

Sr. No.	Name of ingredients	Role of ingredients
1	Amla Powder	Darken Hair
2	Aloe vera	Conditioning agent
3	Neem	Antibacterial
4	Reetha	Foaming agent
5	Shikakai	Foaming agent
6	Orange peel	Perfuming agent
7	Propyl paraben	Preservative
8	Sodium Carboxy Methyl Cellulose	Thickening agent
9	Water	Vehicle



## RESULT:

### 1. Physical appearance:

The both formulations prepared were evaluated in terms of their colour, odour, and appearance.

### Dirt dispersion:



**Fig No. 8 (Dirt Dispersion)**

Two drops of shampoo was added in a large test tube contain 10ml of distilled water. 1ml of India ink was added; the test was stoppered and shaken as 10 times. The amount of ink in the foam was estimated as None, Light, Moderate or Heavy.

### Foaming ability and Foam stability:



**Fig No .9 (Foam test)**

Foaming ability was determined by using cylinder shake method. Briefly, 10 ml of the herbal shampoo solution was placed into a graduated cylinder. It was covered with one hand & shaken 10 times. The total volume of foam content after 1min of shaking was recorded. Foam stability was evaluated by recording the foam volume after 1 min & 4min of shake test.

## 2. Procedure for determination of Viscosity

- i. Thoroughly clean the Ostwald viscometer with warm chromic acid and if necessary use an organic solvent such as acetone.
- ii. Mount viscometer in vertical position on a suitable stand.
- iii. Fill water in dry viscometer up to mark G
- iv. Count time required, in second for water to flow from mark A to mark B.
- v. Repeat step 3 at least 3 times to obtained accurate reading.
- vi. Rinse viscometer with test liquid and then fill it up to mark A, find out the time required for liquid to flow to mark B.
- vii. Determination of densities of liquid as mentioned in density determination experiment.

### Formula

$$\text{Viscosity} = \frac{\text{Density of test liquid time required for test liquid}}{\text{Density of water time required to flow water.}}$$



**Fig No. 10 (Ostwald Viscometer)**

## 3. Procedure for determination of Density

- i. Clean thoroughly the specific gravity bottle with chromic acid or nitric acid.
- ii. Rinse the bottle at least two to three times with distilled water.
- iii. If required, rinse the bottle with an organic solvent like acetone and dry.

- iv. Take the weight of empty dry bottle with capillary tube stopper (w1).
- v. Fill the bottle with unknown liquid and place the stopper, wipe out excess liquid from outside the tube using tissue paper.
- vi. Weight bottle with unknown liquid on analytical balance (w2).
- vii. Calculate weight in grams of unknown liquid (w3) = (w2 – w1).

**Formula**

$$\text{Density of unknown liquid} = \frac{\text{Weight of unknown liquid (w)}}{\text{Volume of unknown liquid (v)}}$$

**Fig No.12 (Determination of Density)****4. Determination of solid content percentage**

The percentage of solid substance was determined by weighing about 4 g of shampoo in a dry, clean, and evaporating dish. To confirm the items,

particular tests were performed for surface tension, foam volume, foam stability, and wetting time using standard protocol.

**Fig No. 13 (Determination of solid content)****Table No. 3 Parameters**

Sr. No.	Parameters	F2
1	Physical appearance	
A	Colour	Brown
B	Odour	Aromatic
C	Appearance	Smooth
2	Dirt Dispersion	Heavy

3	Foam Ability	78ml
4	Determination of pH	7
5	Viscosity	3.5 cps
6	Density	1.045 gm/ml
7	Solid Content	8.75 %

### DISCUSSION:

The herbal shampoos are the preparations which are used for the washing and cleaning of hairs and to provide nourishment. The herbal shampoos are widely used due to their no or less side effects as compared to conventional shampoos, because it contains pure natural or herbal ingredients rather than synthetic chemicals. Herbal shampoo does not require animal testing and it is earth and skin friendly.

### CONCLUSION:

The herbal liquid shampoo was formulated by using the various herbal ingredients. From the overall results, we can conclude that the herbal shampoo formulation was more stable effective and safe for the basis of their evaluation parameters.

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