

PREPARATION AND EVALUATION OF HERBAL POWDER SHAMPOO

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Abstract

Hair care products is additionally define because the preparation which are meant for cleansing, modifying the feel, changing of the colour, giving life to the stressed hair, providing nourishment to the tresses and giving the well appearance to the hair. Specialty shampoos are marketed to people with dandruff, color-treated hair, gluten or wheat allergies, an concentration in using an organic product, and newborns and young kids baby shampoo may well a smaller amount irritating. There also are shampoos intended for animals which will contain insecticides or other medications to treat skin conditions or parasite infestations like fleas.

Keyword:Anti-Dandruff, Anti-microbial, Mukuroziosides, Lawsone.

1.INTRODUCTION

Hair or pili are growths of the epidermis which are present over almost the complete body. they're however absent only from the perimeters and Palmar surfaces of the hands, sides and plantar surfaces of the feet, the lips and also the region round the urogenital orifices. A hair consists of columns of dead and keratinized cells joined together. The shaft is that the superficial portion of the hair, which projects from the surfaces of the skin. The shaft of straight hair is round in cross /section, that of wavy hair is oval which of wooly hair is elliptical or kidney shaped.

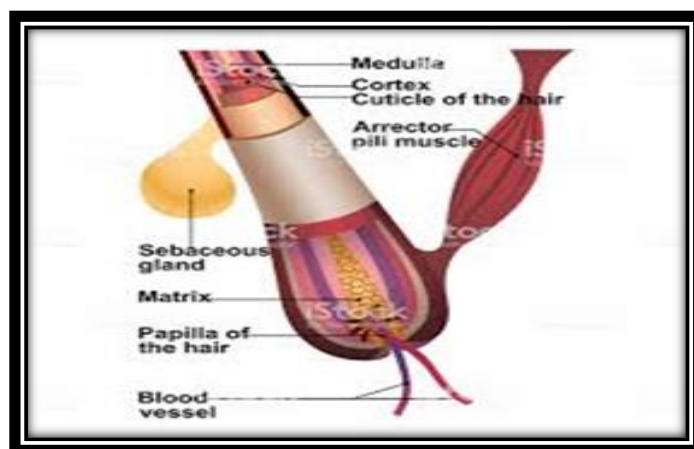


Fig.01- Structure of Hair.

The root is that the portion of the hair deep into the surface that penetrated into the dermis and sometimes into the subcutaneous layer.

The shaft and root both encompass three concentric layers.

- **Medulla:** it's the central a part of the shaft and is mostly noticeable in thick hairs. it's composed of two or three rows of polyhedral cells containing pigment granules and air spaces.
- **Cortex:** it's located peripheral to the medulla and forms the key a part of the shaft. It entails of elongated cells, encompassing pigment granules in dark hair though air in white hair
- **Cuticle:** it's the outermost layer of the hair and consists of one layer of thin, flat cells which are heavily keratinized.

1.1. Structure of hair

In this context it's the character of the hair shaft which is of primary interest. Its structure is also described as follows. The greater part of the shaft is made of elongated keratinized cells linked together to create the cortex of the hair fibre. The cortex is enclosed by a cuticle derived from one strand of cells within the bulb of the foundation, which becomes a surface structure of the hair fibre five to 10 cell layer thick

1.2. Type of Hair

Humans have three different types of hair:

- ✓ Lanugo, the fine hair that covers nearly the entire body of fetuses.
- ✓ Vellus hair, the short, fine, "peach fuzz" body hair that grows in most places on the human body in both sexes.
- ✓ Terminal hair

The fully develop hair which is generally longer, coarser, thicker, and darker than vellus hair Covers the entire human body regardless of sex or race except in the following locations:

The lips the nipples, the Palms of hands the, the soles of feet, certain external genital areas, the navel and scars tissue. The density of hairs in the follicals per square centimeter varies from one person to another.

The diameter of human hair Ranges from 17 to 181um. There are usually four Major types of hair texture: fine, medium, coarse and wiry. Within the four texture ranges hair can also be thin, medium or thick density and it can be straight, curly, wavy or kinky.

1.3. Growth of hair

A typical growth rate for human scalp hair is 0.3-0.5 millimeters (mm) per day. A healthy scalp (the top of the head extending from one inch above the ear) support something of the order of 1000000 hair follicals. Workers have considered it as high 2000000 hair follicles.

The bulk of the hair is made up of the cortex, the cell which are toughly high in Indians. The straight hair of the Chinese and Japanese has virtually no orthocortex, while the crimped hair of Negroes has an easily recognized band of orthocortex.

Hair care products is additionally define because the preparation which are meant for cleansing, modifying the feel, changing of the colour, giving life to the stressed hair, providing nourishment to the tresses and giving the well appearance to the hair. Specialty shampoos are marketed to people with dandruff, color-treated hair, gluten or wheat allergies, an concentration in using an organic product, and newborns and young kids baby shampoo may well a smaller amount irritating. There also are shampoos intended for animals which will contain insecticides or other medications to treat skin conditions or parasite infestations like fleas.

Shampoo is made of surfactant, most often sodium lauryl sulfate, with a co-surfactant, most often cocamidopropyl betaine in water to produce a thick, viscous liquid. Other important components include salt (sodium chloride), which is make use of to control the viscosity, a preservative and fragrance. Further constituents are generally involved in shampoo preparations to maximise the subsequent abilities: pleasurable lather , modest cleaning , minor skin and eye irritation , thick or creamy feeling ,pleasant perfume , low toxicity , good biodegradability , slight acidity (pH but 7) , no damage to hair , repair of harm already done to hair

2. AIM

Preparation and evaluation of Herbal Powder Shampoo

3. OBJECTIVE

As we know that now a days synthetic shampoos are very harmful for the hairs which can cause the damage, hair fall, dandruff in the hairs. Hence our motive to formulate the herbal powder shampoo is that the natural ingredients like Henna, Reetha, Shikakai, Hibiscus etc. are used for the best result on hair treatment.

- Prevent hair fall
- Anti-dandruff property
- Promote hair growth
- Anti-microbial agent

4. MATERIAL AND METHODOLOGY:-

i. **Henna:-**

- **Synonym-** Egyptian Privet Lawsonia Alba.
- **Biological Source-** It is a fresh or dried leaves of *Lawsonia Inermis* belonging to **family Lythraceae**.

It is biennial dicotyledonous herbaceous shrub. A native of North Africa and South-West Asia, the plant is now widely cultivated throughout the tropics as an ornamental and dye plant.

- **Organoleptic Properties-** Color-Greenish brown Odour-Characteristics Taste-Bitter
- **Chemical Constituents-** The main constituent of henna is Lawsone(0.5-1.0%).
- **Other constituents are-** Gallic Acid, White Resin, Sugars, Tannins, Xanthene, Pinens,- Glycoside-Hemoside(A, B and C)

Uses-

- Henna improves hair growth-The natural properties of henna promote hair growth. The powder can be used to create an essential oil that nourishes and encourages growth.
- Henna reduces hair fall- By incorporating henna powder in hair dye or shampoo reduces hair fall.
- Henna conditions your hair-Henna is a deep conditioner that leaves your hair feeling absolutely gorgeous.
- Henna prevents dandruff-Using henna regularly on your hair cures dandruff and prevents it from coming back.
- Henna repairs splits ends-Dry and damaged hair is prone to split ends, which worsen the situation.
- Henna breaks this viscous cycle and gives you deeply conditioned and nourished hair.



Fig.02-Henna

ii. **Reetha:-**

- **Synonym-** Reetha, Soapnut, Washnut, Aritha.
- **Biological Source-**It is dried fruits of species of *Sapindus Mukorossi* belong to **family Sapindaceae**.
- **Organoleptic Properties-** Color-Dark brown to Black Odour-Characteristics Taste-Bitter
- **Chemical Constituents-**The main constituent of reetha is Saponins. Other constituent are, Sopindic acid, Oleanolic acid, SapindosideA&B, Mukuroziosides, Trifoliosid.

Uses-

- Reetha is employed because the main ingredient in soaps and shampoos for laundry hair, because it is taken into account good for the health of hair.
- Reetha is additionally used for removing lice from the scalp, because it has gentle insecticide properties.
- It is employed as cleanser, surfactant .In addition, it's used for the treatment of eczema, psoriasis, and for removing freckles.
- The plant is thought for its antimicrobial properties



Fig.03-Reetha

iii. **Hibiscus:-**

- **Synonym**-Hibiscus rosa-sinensis, Hibiscus cooperi auct.
- **Biological Source:** Hibiscus is a genus of flowering plant in the **mallow** belonging to family **Malvaceae**.
- **Organoleptic Properties**- Color-white to pink, red, orange or yellow. Odour-Aromatic.
- **Chemical Constituents**-The constituents of hibiscus are, Citric acid, Mallic acid, Tartaric acid, Galactose

Uses-

- Due to presence of antioxidant. it gives healthier hair.
- It conditions hair mildly and keeps them bouncier.
- It can even be used as pH indicator.



Fig.04-Hibiscus

iv. **Shikakai:-**

- **Synonym**- Satala, Virala, Tatphala.
- **Biological Source**-Dried fruits of **Acacia Concinna** belonging to family **Fabiaceae**.
- **Organoleptic Properties**- Color-Dark brown. Odour-Characteristics.
- **Chemical Constituents**-The chemical constituents of shikakai are, Spinosterol, Acacia acid, Lactone, Glucose, Arabinose,

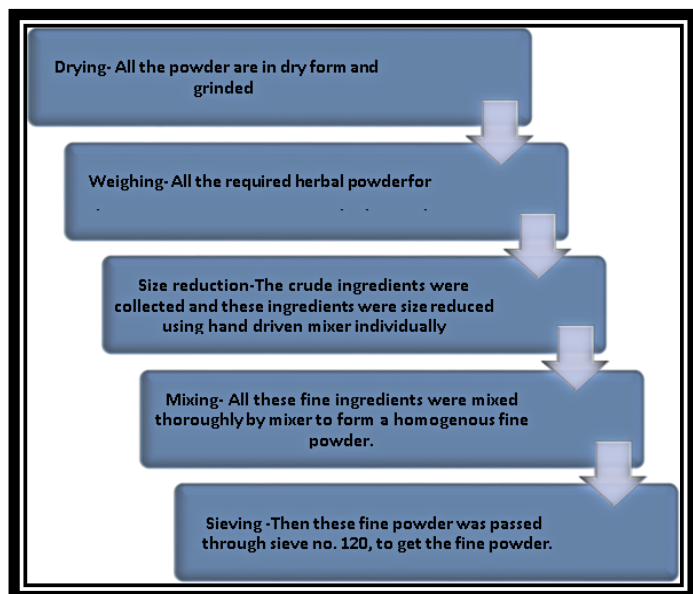
Uses-

- Shikakai gives healthy, beautiful and bouncy hair causes you to look beautiful.
- It is rich in antiophthalmic factor,D, E and K and other antioxidants which very essential for healthy and quick growth of hair naturally.
- Shikakai is employed in many shampoos and hair medicines for its hair strengthening and conditioning properties .



Fig.05-Shikakai

5. EXPERIMENTAL WORK-



6. FORMULATION:-

The herbal shampoo powder was formulated using following natural ingredient:

Sr. No	Ingredients	Qty. for 100%	Uses
1	Henna	5	Anti- dandruff agent
2	Shikakai	30	Detergent
3	Neem	2.5	Antimicrobial agent
4	Potassium Carbonate	7.5	Alkali
5	Borax	15	Saponifier
6	Reetha	10	Detergent
7	Shikakai	10	Detergent
8	Amla	5	Promote hair growth
9	Peppermint	5	Cooling agent
10	Lemon grass	10	Antibacterial agent
11	Perfume	0.2	Fragrance

Common name	Latin Name	Uses
Henna	<i>Lawsonia inermis</i>	Anti-Dandruff agent
Neem	<i>Azadirachta indica</i>	Antimicrobial agent
Tulsi	<i>Ocimum sanctum</i>	Antimicrobial agent
Amla	<i>Embelica officinalis</i>	Promote hair growth
Shikakai	<i>Acaccia concinna</i>	Detergent
Lemon grass	<i>Cymbopogon citratus</i>	Antibacterial
Peppermint	<i>Mentha piperita</i>	Cooling agent

7. EVALUATION PARAMETER:

1. Physical Appearance / Visual Inspection
2. Determination of pH
3. Wash ability
4. Solubility
5. Eye / skin irritation test
6. Foaming capability
7. Dirt dispersion
8. Wetting time
9. Stability study
10. Nature of hair after wash

8. Physical Appearance:-

Colour and Appearance:-The colour & appearance of the formulation was observed visually.

Odour:-The odour of the formulation is pleasant/characteristics.

Consistency:-It is found to be semi-solid with visually observation.

i. pH :-

When it comes to the Ph of your skin it's reliant on the skin acid mantle. This acid mantle protect skin against external influence like bacteria, allergens& pollution, while maintaining moisture for your skin to stay balance your acid mantle will naturally stay slightly acidic with a Ph of around 4.5-5.9.

First you have got to:

- Dip the ph electrode into formulation stir it with magnetic bar (~305) with the identical stirring rate as for calibration for best result.
- The Ph is completed when the pH reading is stable.
- Record the pH value (temperatures if needed).

ii. Washability:-

Little quantity of scrub was applied over the skin & was washed with water it absolutely was easily washable.

iii. Solubility :

Solubility indicates the utmost amount of a substance that may be dissolved in an exceedingly solvent at a given temperature. Such an answer is termed saturated. Divide the mass of the compound by the mass of the solvent and so multiply by 100 g to calculate the solubility in g/100g .

iv. Skin irritation test :-

You can try alittle amount on the within if your elbow, cover it. If rinse it off and apply again. Repeat this process for 7 days. If no reactions are seen, you ought to be pleased with this product . As mentioned previously , it is often best to consult a general practitioner about patch testing earlier employing a new product.

v. Foamability :-

Small amount of scrub was shaken with water in an exceedingly graduated measuring cylint& the froth was measured

vi. Dirt Dispersion :-

A one percentage (1%) solution of every shampoo (1 g of sample in 100 mL of water) was taken and one drop of ink was added; the tube was stoppered and shaken ten times. the quantity of ink within the foam was estimated as none, light, moderate, or heavy.

vii. Wetting time :-

The wetting ability of a surfactant is depending on its concentration and is often accustomed test its efficacy. The canvas disc method is quick, efficient and reliable test to judge the wetting ability of a shampoo.

viii. Stability Study :-

The thermal stability of the shampoos was studied by placing them in glass tubes in a very humidity chamber at 45 °C with 75% ratio also as in an exceedingly refrigerator at 4 °C, and comparing them to the identical shampoos kept at a space temperature of 25 °C.

9. RESULT

Sr. No	Physicochemical evaluation	Result
1	pH	5.46
2	Wash ability	Easily washable
3	Solubility	Soluble
4	Skin/eye irritation	No harmful effect on skin & eye
5	Foaming capacity	2.3 CM in height
6	Dirt dispersion	Moderate
7	Wetting time	149±0.04
8	Stability	Stable
9	Nature of hair after washes	Soft manageable

10. CONCLUSION:

Formulation of herbal shampoo powder was found to be in compliance with all the properties of powders and exhibited satisfactory results. The evaluation studies showed good cleaning action, better foaming capacity, and quick wetting time than other formulation batches. From the given study, it can be concluded that all the formulations of herbal shampoo powders prepared were good and had all the properties.

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