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A REVIEW ON HERBAL SHAMPOO

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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, its 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. The main objective of this present study is to prepare and evaluate an herbal shampoo and determine physiochemical function that emphasizes on safety, efficacy and quality of the product Herbal Shampoo is the natural haircare product which is use to remove grease, dirt, dandruff and promote hair growth, strengthens and darkness of the hair. It is also providing softness, smoothness, and shines for the hair. Various drugs are used for the preparation of cosmetics shampoo. Such drugs show various side effects such as hair loss, increased scaling, scratching, discomfort, nausea and headache. Therefore, an attempt is made to formulate herbal shampoo that is free from side effects. Shampooing is the most common form of hair treatment. Shampoos are primarily been products aimed at cleansing the hair and scalp. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers. A more radical approach in popularizing herbal shampoo would be to change the consumers' expectations from a shampoo, with emphasis on safety and efficacy. The present paper emphasizes on composition, types, methods of evaluation, also a brief review on herbal shampoo formulations.

KEYWORDS: Herbal Shampoo, Types, Formulation, Evaluation methods, Cosmetic, Ayurvedic Herbs.

INTRODUCTION

Shampoos are probably the most widely used cosmetic products for cleansing hairs and scalp in our daily life.[1] 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. Herbal shampoo is a type of cosmetic preparation that uses herbs from plants as an alternative to the synthetic shampoo available in the market. The herbal shampoo is important, as people nowadays prefer herbal products than chemical ones for, they proved to health. The awareness and need for cosmetics with herbs are on the rise, primarily because it is believed that these products are safe and free from side effects.[2] From ancient time beyond memory, mankind has been borrowing abundantly from nature to care for their health, skin and hair, as natural ingredients that have preventive, protective and corrective action. The warehouse of cosmetics, nature provides such versatile natural ingredients that enhance beauty of the skin and hair.

Hair is one of the external barometers of internal body conditions. Shampooing is the most common form of hair treatment. The primary function of shampoo is aimed at cleansing of the hair necessitated due to accumulated sebum, dust, scalp debris etc. Various shampoo formulations are associated with hair quality, hair care habit and specific problems such as treatment of oily hairs, dandruff and for androgenic alopecia. Shampoos are liquid, creamy or gel like preparations. The consistency of the preparation depends on the inclusion of traditional soaps saturated with glycerides and natural or synthetic fatty alcohols or the thickening agents (e.g. gum, resin and PEG). Indian women use herbals such as *shikkakai* and *reetha* that are natural cleansing agents without harmful effects. Nowadays natural sources remain attractive primarily when compared to the synthetic one, so herbal shampoos are popular with the consumer when compared to the synthetic one.[3]

Herbal shampoos have so many types are powder, liquid, lotion, cream, jelly, aerosol and specialized herbal shampoos (conditioning, antidandruff). Herbal shampoos contain all the natural ingredients with herb extract. It

helps hair to improve their quality of moisture, growth, thickening, strength of hair roots. The most important thing is that herbal shampoos have no any side effect. The herbal shampoos are better in performance &safer than the synthetic shampoos herbal shampoos are totally natural. They are large number of medicinal plants which are beneficially effect on hair and are commonly used in formulation of shampoos. These plant products may use in their powder form, crude form, purified extract or derivate form. Herbal shampoos are used to promote hair growth by naturally stimulating the hair follicles. Herbal shampoos are environmentally friendly as they contain bio-degradable materials rather than harsh chemicals. Herbal shampoos are safe because it contains all natural ingredients it is non-allergic product with make it suitable for all skin type including sensitive & allergy prone skin.[4]

STRUCTURE OF HAIR

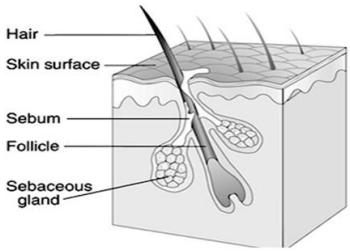

Fig. 1: Structure of Hair

At the base of the hair, the hair root widens to a spherical hair bulb. The hair papilla, which elements the hair root with blood, is discovered interior the backside of the hair bulb. New hair cells are continuously being in the hair bulb, shut to the papilla new cells are continuously forming in the hair bulb. These cells stick collectively and harden. The full strand of hair develops from this team of hardened hair cells. Because new hardened cells hold on attaching to the hair from below, it is progressively pushed up out of the skin. In this way, a single hair on your head grows at a fee of about 1 cm per month The shade of the hair is decided by means of the quantity of melanin in the hardened cells. This can fluctuate a lot from character to person, and its adjustments over the direction of a lifetime. The quantity of melanin typically decreases as human beings get older, and greater air receives trapped inner the hair – it then loses its colour and turns white. Depending on someone's authentic hair shade and the variety of white hairs that develop, the hair on their on their head then turns grey or white.[5]

HISTORY

Indian subcontinent: It definitely made a lasting impression. "To this day, we still get requests from women to bring back the original Herbal Essences scent!" said Zipperian. In the Indian subcontinent, a variety of herbs and their extracts have been used as shampoos since ancient times. A very effective early shampoo was made by boiling Sapindus with dried Indian gooseberry (amla) and a selection of other herbs, using the strained extract. Sapindus, also known as soapberries or soapnuts, a tropical tree widespread in India, is called ksuna.[6] In ancient Indian texts and its fruit pulp contains saponins which are a natural surfactant. The extract of soapberries creates a lather which Indian texts called phenaka.[7] It leaves the hair soft, shiny and manageable. Other products used for hair cleansing were shikakai (Acacia concinna), hibiscus flowers,.[8] ritha (Sapindus mukorossi) and arappu (Albizzia amara).[7] Guru Nanak, the founder and the first Guru of Sikhism, made references to soapberry tree and soap in the 16th century.[8] Cleansing with hair and body massage (champu) during one's daily bath was an indulgence of early colonial traders in India. When they returned to Europe, they introduced the newly learned habits, including the hair treatment they called shampoo.[8] The "Original Herbal Essences" shampoo from 1971 was a bold blend of green herbaceous notes with a big white floral middle and a balsamic musky background. Clairol introduced Herbal Essence in 1971. The original Herbal Essence (now called Herbal Essences) used a cartoon image of the nature girl in a pool on the front label. [Balsam-2008].[8]

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.

Composition of shampoo

1. Principal surfactant
2. Secondary surfactant
3. Antidandruff agents
4. Conditioning agents
5. Pearlescent agents
6. Sequestrants
7. Thickening agents
8. Colors, perfumes and preservatives.

Surfactants are the main components of shampoo. Mainly anionic surfactants are used. The raw materials used in the manufacture of shampoo are Principal surfactants: provide detergency and foam.

Secondary surfactants: improved detergency, foam and hair condition.

Conditioning agents: Lanolin, mineral oil, fenugreek, herbal extracts, Henna egg derivatives.[9]

S. No	Composition	Examples
1	Foam builder	Shikakai.
2	Viscosity modifiers	NH_4Cl, NaCl
3	Natural gums	Gum karaya, tragacanth, alginates
4	Cellulose derivatives	Hydroxy ethyl cellulose, methyl cellulose
5	Carboxy vinyl polymers	Carbopol 934
6	Sequestering agents	EDTA
7	Opacifying agents	Alkanolamides of higher fatty acids, propylene glycol, Mg, Ca and Zn salts of stearic acid, spermaceti, etc.
8	Solubilizing alcohols	ethanol, isopropanol Phospahates
9	Nonionic solubilizers	Polyethoxylated alcohols, esters
10	Perfumes	Herbal, fruity or floral fragnances.
11	Preservatives	Methyl and propyl paraben, formaldehyde
12	Anti dandruff agents	Shikakai, neem, Tulasi

USE OF INGREDIENTS

1) Soap Nut Extract

- Stops Hair fall.
- Prevents Dandruff.
- Fight against scalp Infection

Figure 2: Soap Nut Extract.

2) Amla Extract

- Strengthen the scalp and Hair.
- Reduce Hair Loss.
- Stimulate Hair Growth.
- Prevent or treat dandruff and dry scalp.
- Improve overall appearance of Hairs.
- Prevent or treat fungal and Bacterial hair and scalp infections.

Figure 3: Amla Extract.

3) Shikakai Extract

- Prevents Grays.
- Add more shine to the Hairs.
- Cleanses Hair.
- Crubs Hair Loss.
- Prevents Lice, Psoriasis, Eczema & Scabies.
- Prevents Splits ends

Figure 4: Shikakai Extract.

4) **Hibiscus**

- Stimulate Hair Growth &Lost hair volume & Lustre over the years.
- Treat Dandruff & Itchy scalp. Conditions Hairs.
- Prevents premature greying.

Figure 5: Hibiscus Extract

5) **Bhringraj Extract**

- Makes Hair Lustrous.
- Treats baldness and help in growth of hairs

6) Senna Extract

- Great Conditioner
- Strong Hairs

Figure 6: Senna Extract.

7) Aloe vera

- Strengthens.
- Calms an itchy scalp.
- Deeps Cleans Oily hairs.
- Promote hair growth.
- Smooth natural curls.
- Reduce frizziness.[10,11]

Figure 7: Aloe-Vera.

METERIALS AND METHODS

Preparation of extract: About 100 g of each powdered plant materials, namely Neem, Hibiscus flower, Aloe vera, Shikakae, Liquorice, Amla, Soap nut was homogenized. The powdered material was extracted with distilled water by boiling for 4h. The extract of each plant material was separated and evaporated.[11]

Table 2: Extraction of Herbal Drug.

Sn	Drugs name	Parts For	Quantity
1.	Neem powder	Leaves	09%
2.	Hibiscus flower-	Flower	12%
3.	powder Aloe vera-	Leaves	07%
4.	powder Shikakae powder	Pods	22%
5.	Liquorice powder	Root	05%
6.	Amla powder	Fruit	25%
7	Soap Nut	Nut	20%

FORMULATION OF HERBAL SHAMPOO

Formulation of the herbal shampoo was done as per the formula given in Table 2. To the gelatin solution (10%), added the herbal extract and mixed by shaking continuously at the time interval of 20 min. 1 ml of lemon juice was also added with constant stirring. To improve aroma in the formulation, sufficient quantity of essential oil (rose oil) was added and made up the volume to 100 ml with gelatin.[12]

Table 4: Formulation.

SR NO.	MATERIAL REQUIRED	QUANTITY	MEDICINAL USE
1	Neem	0.5g	Antibacterial agent
2	Soap nut extract	0.5g	Foaming agent
3	Amala extract	0.5g	Antidandruff agent
4	Shikakai extract	0.5g	Detergent
5	Hibiscus	0.5g	Conditioning agent
6	Bhringraj extract	0.5g	Hair growth
7	Aloe vera	0.1g	Moisturizing agent
8	Gelatin	q.s	Gelling agent
9	Lemon juice	q.s	Antimicrobial
10	Rose oil	q.s	fragrance

EVALUATION OF HERBAL SHAMPOO

The prepared formulation was evaluated for product performance which includes organoleptic characters, pH, physicochemical characterization, and for solid content. To guarantee the nature of the items, particular tests were performed for surface tension, foam volume, foam stability, and wetting time using standard protocol. Visual assessment-The prepared formulation was assessed for colour, clarity, Odor, and froth content.

1) **pH determination**-The pH of the prepared herbal shampoo in distilled water (10% v/v) was evaluated by means of pH analyzer at room temperature 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.[13]

Figure 8: ph Determination Test.

2) Visual assessment

The prepared formulation was assessed for colour, clarity, Odor, and froth content. pH determination-The pH of the prepared herbal shampoo in distilled water (10% v/v) was evaluated by means of pH analyzer at room temperature 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 result, the procedure was repeated again. The liquid portion of the shampoo was evaporated in a dish by placing on hot plate. The percentage and the weight of the solid contents present in the shampoo were calculated after drying completed.[14]

3) Surface tension measurement-

The prepared shampoo in distilled water (10% w/v) was evaluated for surface tension using stalagmometer in room temperature. Testing of wetting-Wetting time was calculated by noting the time required by the canvas paper to sink complete. A canvas paper weighing 0.44 g was cut into a disc of diameter measuring 1-inch. Over the shampoo (1% v/v) surface, the canvas paper disc was kept and the time taken for the paper to sink was measured using the stopwatch.[15]

4)Foam stability test

The stability of the foam was determined using cylinder shake method. About 50 ml of formulated shampoo (1%) solution was taken in a graduated cylinder of 250 ml capacity and shaken for 10 times vigorously. Foam stability was measured by recording the foam volume of shake test after 1 min and 4 min, respectively. The total foam volume was measured after 1 min of shaking.[16]

5) Skin sensitization test

The guinea pigs were divided into 7 groups (n=3). On the previous day of the experiment, the hairs on the backside area of guinea pigs were removed. Shampoos were applied onto nude skin of animals of groups. A 0.8% v/v aqueous solution of formalin was applied as a standard irritant on animal. The animals were applied with new patch/formalin solution up to 72 hours and

finally the application sites were graded according to a visual scoring scale, always by the same investigator. The erythema scale was as follows: 0, none; 1, slight; 2, well defined; 3, moderate; and 4, scar formation (severe).[17]

6) Eye irritation test

Animals (albino rats) were collected from animal house. About 1% shampoo solutions was dripped into the eyes of six albino rabbits with their eyes held open with clips at the lid. The progressive damage to the rabbit's eyes was recorded at specific intervals over an average period of 4 seconds. Reactions to the irritants can include swelling of the eyelid, inflammation of the iris, ulceration, hemorrhaging (bleeding) and blindness [17].

7) Surface characterization

Surface morphology of the hairs was examined by scanning electron microscopy (Leo 430, Leo Electron Microscopy Ltd., Cambridge, England). The hair samples were mounted directly on the SEM sample stub, using double side stitching tape and coated with gold film (thickness 200nm) under reduced pressure (0.001 mm of Hg). The photomicrographs of suitable magnification were obtained for surface characterization.

8) Stability studies

The thermal stability of formulations was studied by placing in glass tubes and they were placed in a humidity chamber at 45°C and 75% relative humidity. Their appearance and physical stability were inspected for a period of 3 months at interval of one month.

9) Wetting time

The canvas was cut into 1-inch diameter discs having an average weight of 0.44g. The disc was floated on the surface of shampoo solution 1%w/v and the stopwatch started. The time required for the disc to begin to sink was measured accurately and noted as wetting time.

10) Rheological evaluations

The viscosity of the shampoos was determined by using Brookfield Viscometer (Model DV-l Plus, LV, USA) set at different spindle speeds from 0.3 to 10 rpm3. The viscosity of the shampoos was measured by using spindle T95. The temperature and sample container's size was kept constants during the study.

11) Dirt dispersion

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

12) Cleaning action

5 grams of wool yarn were placed in grease, after that it was placed in 200 ml. of water containing 1 gram of shampoo in a flask. Temperature of water was maintained at 350C. The flask was Shaked for 4 minutes at the rate of 50 times a minute. The solution was removed and sample was taken out, dried and weighed. The amount of grease removed was calculated.[17]

CONCLUSION

The results obtained during experimentation clearly indicate a promising formulation of quality enhanced herbal shampoo with a unique aroma, colour and potential for cleaning and foaming ability. Shampoo plays an important role in the removal of surface grease and dirt from the hair shaft and scalp. The world is also moving towards herbal medicines for health care, health foods and for cosmetic purposes including hair preparations. India is rich heritage for cultivation and production of herbal medicines due to its diversified climatic conditions. The present paper emphasizes on composition, types, methods of evaluation, also a brief review on herbal shampoo formulations.

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