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A REVIEW ON HERBAL SHAMPOO AND IT'S EVALUATION

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Abstract: Shampoo are the cosmetics preparation meant for Cleansing the hair by removal of the dirt grease from the hair shaft and scalp. There are wide range of synthetic detergents available in the request with different functions. But these synthetic shampoo shows dangerous effect on the hair and crown like emptiness of hair and keratin loss. Due to these reasons herbal detergents has evolved as an volition to synthetic soap because of the safe and traditionally used constituents. Herbal shampoo is a ornamental drug which uses herbal and meant for Cleansing the hair and scalp just like regular soap. multitudinous of the sauces are reported to have beneficial affect on hair and are used in herbal shampoo.

Keywords **– Synthetic Shampoo, Herbal Shampoo, Cosmetics, Traditional Ingredients, Surfactants.**

I. INTRODUCTION

Hair is an integral part of Human beauty. In humans ' hair serves lot of purposes like protection against external factors, sebum, apocrine sweat and pheromonas product and thermoregulations(1). Hair care products are primarily meant for sanctifying the hair. It also modifies the hair texture, provides aliment to the hair and gives healthy look to the hair(2). Shampoo is the most common hair care dress. It's available either in thick liquid or greasepaint form, applied for drawing hair and crown from dirt, remainders of preliminarily applied hair styling products and environmental adulterants(3). In the early days soaps were meant only for sanctifying hair and crown, but the soaps available moment do much further than that. Along with sanctification it leaves the hair easy to comb, lustrous and controllable while being accessible to use(4). It's desirable that whatever may the complaint or condition be(dermatitis, seborrhea, alopecia, psoriasis), the hair beaches are kept aesthetically presentable, conserving its wimpiness, compatibility and shine while treating the crown(5). Prepared from natural constituents and are meant for sanctifying hair and crown just like regular soap. These soaps are free from side goods since no surfactants are involved, has good stability and are less dangerous compared to synthetic soap(6). Synthetic soap contains surfactants. Long term use of these surfactants can lead to serious goods like crown vexation, loss of hair, drying of hair, greying of hair, split ends and eye vexation. Due to these reasons the public is getting attracted towards herbal cosmetics due to its insignificant side goods and affordable nature(7). The mindfulness and need for cosmetics with sauces are on the rise, primarily because it's believed that these products are safe and free from side goods.(8) Over The skin on our head produce a slithery fluid called sebum. It's produced to cover the hair by sheeting itself each over the head. This give the hair a healthy shine but when secretes in large quantum it makes the hair look dirty.(9)

HS is defined as a medication ofa surfactant(face active material) insuitable form liquid solid or power which when used under the conditions specified will remove face grease, dirt an skin debris from the hair shaft and crown without affecting negatively the hair, crown or health of the stoner. HS has so numerous types are powder, liquid, embrocation, cream, jelly, aerosol, specialized HS (Conditioning, Anti-dandruff, Baby, Two Layers). But the future of HS ingoing to be herbal Shampoo It contains all the natural constituents with condiment extract. It helps hairs to extemporize their standard of humidity, shine, growth, thickening, strength of hair roots(10).

II. COMPOSITION OF SHAMPOO

- Principal surfactant
- Secondary surfactant
- Antidandruff agents
- Conditioning agents
- Pearlescent agents
- Sequestrants
- Thickening agents
- Colours, perfumes and preservatives.

❖ **Surfactants are the main components of shampoo.**

1. Primary Surfactants: -

Mainly anionic surfactants are used. The raw materials used in the manufacture of shampoo are principal surfactants: provide detergency and foam.

2. Secondary Surfactants :-

- Carboxy vinyl polymers: Carbopol 934
- Others: PVP, phosphate esters.
- Squestering Agents: EDTA
- Opacifying Agents: Alkanolamides of hi improved detergency, foam and hair condition.
- Conditioning Agents: Lanolin, mineral oil, fenugreek, herbal extracts, Henna egg derivatives.
- Foam builders: shikakai.
- Viscosity modifiers
- Electrolytes: NH4Cl, NaCl
- Natural gums: Gum karaya, tragacanth, alginates
- Cellulose derivatives: Hydroxy ethyl cellulose, methyl cellulose.
- Opacifying agents: Alkanolamides of higher fatty acids, propylene glycol, Mg, Ca and Zn salts of stearic acid, spermaceti, etc.
- Clarifying agents.
- Solubilising alcohols: ethanol, isopropanol Phospahates
- Non ionic solubilizers: Polyethoxyated alcohols, esters.
- Perfumes: Herbal, fruity or floral fragnances.
- Preservatives: Methyl and propyl paraben, formaldehyde
- Anti dandruff agents: Shikakai, neem, thulasi.

III. Types of Shampoo

1. Jelly shampoo
2. Powder Liquid shampoo
3. Solid cream shampoo
4. Lotion shampoo
5. Aerosol foam shampoo

IV. Specialized Shampoo

1) Conditioning shampoo 2) Antidandruff shampoo 3) Baby shampoo 4) Two layer shampoo (11).

V. Ideal Properties of Herbal Shampoo

- It should effectively and completely remove dust or soil, excessive sebum or other fatty substances and loose corneal cells from the hair.
- It should produce a good amount of foam to satisfy the psychological requirements of user.
- It should be easily removed on rinsing with water.
- It should leave the hair non -dry, soft, lustrous with good manageability and minimum fly away.
- It should impart a pleasant fragrance to the hair.
- It should not cause any side-effects / irritation to skin or eye and should not make the hand rough and chapped (12,13).

VI. Growth Cycle of Hair

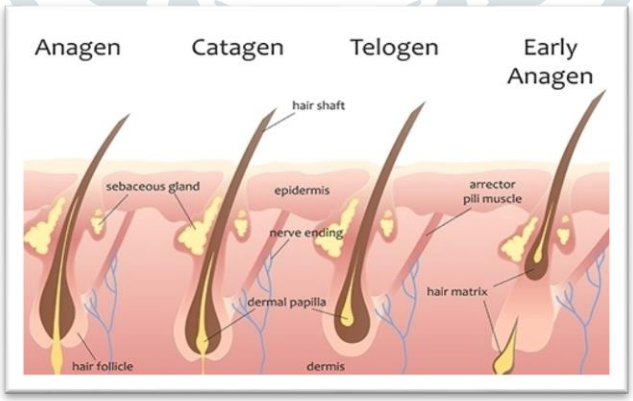

Fig 1: *Growth Cycle of Hair*

Hair growth cycle consists of four phases:

- **Anagen (Growth Phase):** It is the growing phase. This phase lasts for several years.
- **Catagen (Transitional Phase):** during this phase the hair follicle shrinks and hair growth slows.
- **Telogen (Resting Phase):** It is the resting phase where hair growth stops and new hair begins the growth phase, pushing the old hair out.
- **Exogen Phase:** last phase of hair growth cycle where hair strand completely detaches from thescalp and sheds off.(14)

VII. Anatomy of Hair

The hair is made up of 95% keratin a fibrous, helicoidal protein (shaped like a helix) that forms part of the skin and all its attachments (body hair, nails etc.).

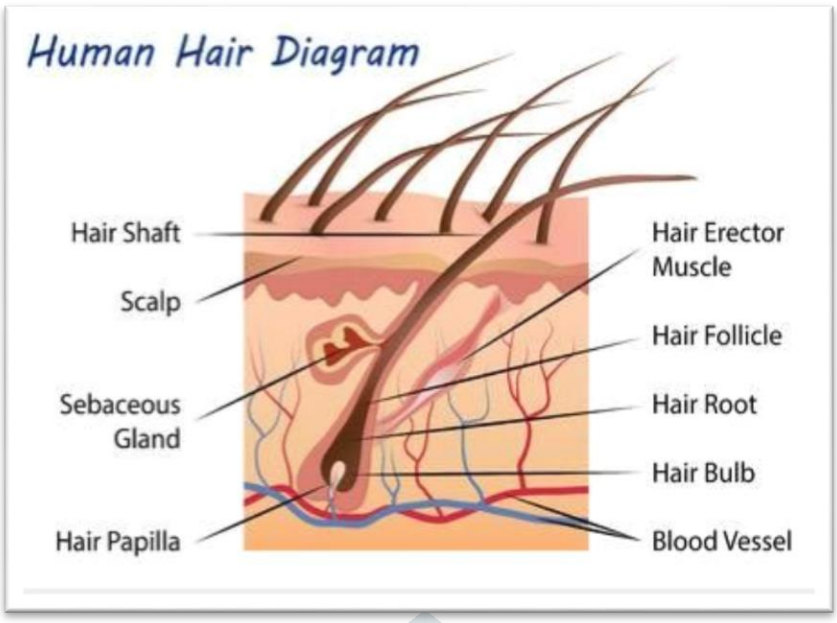

Fig 2: *Hair Structure*

- **The hair structure consists of 3 different parts:**

1. **Medulla:** It is the innermost layer of the hair shaft, made up of an amorphous, soft, oily substances.
2. **Cuticle:** Thin protective outer layer that contains nutrients beneficial for hair growth. It is highly keratinized with cells shaped like scales that are layered one over the other, measuring about 60 micrometers long and about 6 micrometers wide.
3. **Cortex**: It is the main constituent of the hair, containing long keratin chains which gives elasticity, suppleness and resistance to the hair. The cells of the cortex are joined together by an intercellular cement rich in lipids and proteins (15).

VIII. HAIR PROBLEMS

➢ **Hair Loss**

The main reason behind the hair loss is Stress, drug, changes in hormone and numerous hair styling products can contribute to hair loss.

➢ **Oily Hair/Greasy Hair:**

unctuous hair is caused by inordinate product of natural oil painting(sebum) by the crown. Sebum is produced by sebaceous glands which occasionally " work overtime '' leading to inordinate quantum of oil painting.

➢ **Dandruff**

Dandruff is anon-inflammatory inoffensive skin condition that affects crown and might affect in hair loss. It's scaled and adheres to the root of the hair.

➢ **Dry Hair**

Sot hair occurs due to insufficiency of proteins in the diet. Menopause, anemia, hormonal imbalance, birth control lozenge can also lead to dry hair.

➢ **Spilt Ends**

Splits ends do when the hair ends dry and other reasons are exposure to extreme rainfall conditions. Hair care ways similar as uncurling and entwining and chemical hair products may beget spilt ends(16).

IX. HERBS COMMONLY USED IN HERBAL SHAMPOO [17,25]

1. Henna

➢ **Botanical Name :** Lawsonia Inermis.
➢ **Common Name :** Henna
➢ **Function/Use :** Promotes growth of hair, conditioner.

2. Neem

- **Botanical Name :** Azadirachta indica.
- **Common Name :** Neem
- **Function/Use :** Antimicrobial agent, Prevents the dryness of hairs and flaking of hair.

3. Tulsi

- **Botanical Name :** Ocimum sanctum
- **Common Name :** Tulsi
- **Function/Use :** Antimicrobial and anti-lice property.

4. **Amla**
- **Botanical name :** Embelica officinalis
- **Common Name :** Indian gooseberry
- **Function/Use :** Amla promotes hair growth, prevents premature greying and controls dandruff.

5. **Shikekai**
- **Botanical Name :** Acacia concinna
- **Common Name :** Soap pod/Shikakai
- **Function/Use :** Retains natural oil of hair, keeps hair lustrous & healthy.

6. **Aloe**
- **Botanical Name :** Aloe barbadensis
- **Common Name :** Aloe vera
- **Function/Use :** Conditioning & moisturizing effect.

7. **Lemon**
- **Botanical Name :** Citrus lemon
- **Common Name :** Lemon
- **Function/Use :** Maintains the pH & imparts fragrance to preparation

8. **Hibiscus**
- **Botanical Name :** Hibiscus rosa sinensis
- **Common Name :** China rose
- **Function/Use :** Prevents hair loss and hair growth promoter.

9. **Reetha**
- **Botanical Name :** Sapindus mukorossi
- **Common Name :** Soap nut/ Reetha
- **Function/Use :** Detergent and antidandruff.

10. **Fenugreek**
- **Botanical Name :** Trigonella foenum graceum
- **Common Name :** Fenugreek
- **Function/Use :** Cleansing and softening.

11. **Grass**
- **Botanical Name :** Chrysopogon ziznaniodes
- **Common Name :** Vetiver grass
- **Function/Use :** Antifungal, Antimicrobial.

12. **Ginger**
- **Botanical Name :** Zingiber officinalis
- **Common Name :** Ginger
- **Function/Use :** Promotes hair growth.

13. **Bhringraj**
- **Botanical Name :** Eclipta prostrata
- **Common Name :** Bhringraj
- **Function/Use :** Hair tonic

14. **Ashwagandha**
- **Botanical Name :** Withania somnifera
- **Common Name :** Ashwagandha
- **Function/Use :** Controls hair fall,promotes hair growth, improves circulation of the scalp.

15. **Green Tea**
- **Botanical Name :** Camellia sinensis
- **Common Name :** Green tea leaves
- **Function/Use :** Hair growth and enrichment.

16. Brahmi

- **Botanical Name :** Bacopa monneri
- **Common Name :** Brahmi
- **Function/Use :** Supports the hair growth.

X. Function of Herbal Shampoo [17,25]

1. Lubrication
2. Conditioning
3. Hair Growth
4. Maintenance of Hair Colour
5. Medication

- **Benefits of Hearbal Shampoo -**
  1. More Shine
  2. Less Hair Loss
  3. Long Lasting Colour
  4. Stronger and More Fortified Hairs
  5. All Natural, No Chemicals
  6. Wont Irritate Skin or Scalp
  7. Keep Healthy Natural Oils

- **Advantages Of Shampoo -**
  - Cleansing properties
  - Improving hair hygiene.
  - Treating scalp conditions
  - Treatment for dry scalp
  - Treatment for hair loss
  - Treatment for greasing or oily hair.
  - Relieves itch and irritation
  - Repairs damaged hair.
  - Shampoo keeps hair silky or smooth.
  - Keeps your hair beautiful and blossomed.Pure and Organic Ingredient Free from Side Effects No Surfactants. eg:- SLS No Synthetic Additives No Animal Testing Earth And Skin Friendly (19,20).

- **Disadvantages of Herbal Shampoo –**
  1) Difficult to hide odour and taste sometimes.
  2) Herbal drugs having slower effect than allopathic drug hence require long term therapy.
  3) Manufacturing process is time consuming and complicated [21].

XI. Evaluation of Herbal Soap

The set expression was estimated for product performance which includes organoleptic characters, pH, physicochemical characterization, and for solid content. To guarantee the nature of the particulars, particular. Physical appearance/ visual examination. The phrasings prepared were estimated in terms of their clarity, froth producing capability and fluidity.

- **Determination of pH**

The pH of 10 soap result in distilled water was determined at room temperature 25 °C 3.
Determine percent of solids content. A clean dry sinking dish was counted and added 4 grams of soap to the sinking dish. The dish and soap was counted. The exact weight of the soap was calculated only and put the sinking dish with soap was placed on the hot plate until the liquid portion was faded. The weight of the soap only(solids) after drying was calculated.

- **Wetting Time:**

The oil was cut into 1- inch periphery discs having an average weight of0.44 g. The slice was floated on the face of soap result 1w/v and the sandglass started. The time needed for the slice to begin to sink was measured directly and noted as wetting down time.

- **Rheological Evaluations:**

The density of the soaps was determined by using Brookfield Viscometer(Model DV- l Plus, LV, USA) set at different spindle pets from0.3 to 10 rpm3. The density of the soaps was measured by using spindle T95. The temperature and sample vessel's size was kept constants during the study.

- **Dirt Dispersion:**

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

- **Cleaning Action:**

5 grams of hair yarn were placed in grease, after that it was placed in 200 ml. of water containing 1 gram of soap in a beaker. Temperature of water was maintained at 350C. The beaker was shaked for 4 twinkles at the rate of 50 times a nanosecond. The result was removed and sample was taken out, dried and counted. The quantum of grease removed was calculated.

- **Surface Tension Measurement:**

Measures were carried out with a 10 soap dilution in distilled water at room temperature. Completely clean the stalagmometer using habitual acid and purified water. Because face pressure is largely affected with grease or other lubricants.

- **Detergency Capability:**

The Thompson system was used to estimate the detergency capability of the samples. Compactly, a crumple of hair were washed with a 5 sodium lauryl sulfate(SLS) result, also dried and divided into 3g weight groups. The samples were suspended in a n-hexane result containing 10 artificial sebum and the admixture was shaken for 15 twinkles at room temperature. also samples were removed, the detergent was faded at room temperature and their sebum content determined. In the coming step, each sample was divided into two equal corridor, one washed with0.1 ml of the 10 test soap and the other considered as the negative control. After drying, the abided sebum on samples was uprooted with 20 ml n- hexane andre-weighed. Eventually, the chance of detergency power was calculated.

- **Foaming Ability and Foam stability:**

Cylinder shake system was used for determining raging capability. 50 ml of the 1 soap result was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times. The total volumes of the froth contents after 1 nanosecond shaking were recorded. The froth volume was calculated only. incontinently after shaking the volume of froth at 1 nanosecond intervals for 4 twinkles were recorded.

- **Skin Sensitization Test:**

The guinea gormandizers were divided into 7 groups(n = 3). On the former day of the trial, the hairs on the backside area of guinea gormandizers were removed. Soaps were applied onto raw skin of creatures of groups. A0.8 v/ v waterless result of formalin was applied as a standard inconvenience on beast. The creatures were applied with new patch/ formalin result up to 72 hours and eventually the operation spots 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 conformation(severe).

- **Eye Vexation Test:**

creatures(albino rats) were collected from beast house. About 1 soap results was dropped 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. responses to the annoyances can include lump of the eyelid, inflammation of the iris, ulceration, hemorrhaging(bleeding) and blindness.

- **Surface Characterization:**

face morphology of the hairs was examined by surveying electron microscopy(Leo 430, Leo Electron MicroscopyLtd., Cambridge, England). The hair samples were mounted directly on the SEM sample end, using double side suturing tape recording and carpeted with gold film(consistence 200nm) under reduced pressure(0.001 mm of Hg). The photomicrographs of suitable exaggeration were attained for face characterization.

- **Stability Studies:**

The thermal stability of phrasings was studied by placing in glass tubes and they were placed in a moisture chamber at 45 °C and 75 relative moisture. Their appearance and physical stability were audited for a period of 3 months at interval of one month(22-30).

XII. CONCLUSION

The present study was point out with the object of preparing the herbal soap that reduces hair loss promote growth and strength of hair. Herbal soap was formulated with the waterless excerpt of medicinal shops that are generally used for sanctifying hair traditionally. Use of conditioning agents(synthetic) reduces the protein or hair loss. To give the effective exertion goods, the present study involves the use of shikakai, amla, and other factory excerpts rather of synthetic.

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