

Review on Hair Care Products and It's Evaluation

Balaji S. Mirkale¹, Yogesh R. Harangule², Nandkishor B. Bawage³, ShyamleelaB.Bawage⁴

¹B Pharmacy Final Year Student, Latur College Of Pharmacy, Hasegaon. Tq. Ausa Dist.Latur413512 Maharashtra, India

^{2,3} Dept. Of Pharmaceutical Chemistry, Latur College Of Pharmacy, Hasegaon. Tq. Ausa Dist.Latur413512 Maharashtra, India

⁴ Dept. Of pharmacology & Toxicology, Latur College Of Pharmacy, Hasegaon. Tq. Ausa Dist.Latur413512 Maharashtra, India

Abstract - Hair cosmetics are an important tool that helps increase patient adherence in the treatment of alopecia and headaches. This article reviews the make-up and operating mode of hair cosmetics: shampoos, conditioners, hair straightening products, hair dye and henna; with regard to prescription drugs and their safety. Skin hair information care products, their use, and their potential side effects can go beyond the comprehension of cosmetic resources and help dermatologists better manage hair as well scalp conditions depending on a variety of hair types and nationalities.

1.INTRODUCTION

1.Hair care products are used for maintaining cleanliness of the scalp and giving proper moisturization to hair. Hair cares the products also help control the structure and behaviour of the hair so that it is kept in a controlled environment as well in a desirable way.

2.Hair has simple structure made of root and shaft and is made of tough protein called keratin. This keratin decides the strength of hair.

3.Various hair care products are available in the market i.e., Shampoo, Hair Conditioner, Hair oils, etc. 4. Shampoo is a hair care product used for the removal of oils, impurities, skin particles, dandruff, natural impurities and other pollutants that form slowly in the hair.

5.Conditioners are applied to the hair after washing the hair and are designed to smooth the hair, improve shine and shine, and restore chemical damaged hair, mechanically damaged hair, and weathered hair.

6. Hair oil is applied to the hair as a cosmetic, conditioner, conditioner, conditioner or tonic. Mineral and vegetable oils used to make a variety of commercial and traditional hair oils.

2.OBJECTIVE(S) OF WORK DONE

1. To study the hair care products.
2. To study the preparation and evaluation of Shampoos.
3. To study the preparation and evaluation of Hair Conditioners.
4. To study the preparation and evaluation of Hair Oils

3.METHODOLOGY ADOPTED

Literature survey done through the Reference books, Review and Research articles.

Shampoo

Surfactants are the main components of shampoo. Mainly anionic surfactants are used.

The raw materials used in the manufacture of shampoo are:

1. Principal surfactants: Provide detergency and foam.
2. Secondary surfactants: Improve detergency, foam and hair conditioner.
3. Other additives.



Common Ingredients Used in Shampoo

- Surfactants: Sodium decency benzene Sulfonates, Lauric acid, stearic acid and their salts, Stearic ethanolamine, etc.
- Conditioning agents: lanolin, mineral oil, herbal extracts, egg derivatives
- Foam builders: lauryl monoethanolamide, sarcosinates
- Viscosity modifiers: PVP, phosphate esters, NH₄ Cl, NaCl etc
- Sequestering agents: EDTA
- Opacifying agents: prseropylene glycol, Mg, Ca and Zn salts of stearic acids, spermaceti
- Clarifying agents: Ethanol, Isopropanol
- Perfumes: Herbal, fruity or floral fragrances
- Preservatives: Methyl and propyl paraben, formaldehyde
- Anti-Dandruff agents: Selenium sulphide, zinc pyrithone, salicylic acid

4.GENERAL METHOD FOR PREPARATION OF SHAMPOO

- 1.The detergent is converted into a solution form or a detergent solution may how directly obtained from the manufacturer.
- 2.Take about half of the container solution in a separate container. To it, add the secondary surfactant i.e., alkanolamine. And dissolve it with stirring.
- 3.To the remaining half of the detergent solution add perfuming agent and dissolve it. And add it to the alkanolamine solution.
4. Colour and antiseptics will dissolve separately in a sufficient amount of water and Added to the main solution.
- 5.Final volume of the preparation is usually adjusted by the addition of clear sterile water.
- 6.However, When the preparation contains lauryl alcohol ether sulphate. It is necessary to adjust the viscosity of the shampoo.
- 7.Viscosity adjustment is done by using an Elec chloride solution. Usually, Sodium chloride solution is added continuously.

5.EXAMPLE OF SHAMPOO FORMULATION

CLEAR LIQUID SHAMPOO

Ingredients	Quantity
Triethanolamine lauryl sulphate	50 g
Lauricisopropanolamine	2 g
Perfume, Colour, Preservative	Q. S.
Water	48 g

6.EVALUATION OF SHAMPOO

- 1.Foam Stability: Cylinder shake method is used for determining foaming ability. It is determined by putting 50 ml of 1% shampoo in 250 ml graduated cylinder by covering it with hand and shake it for 10 min.
- 2.Skin Irritation Test: Draize test in Rabbits where a patch test technique is used on the intact skin of Albino rabbits.
- 3.Moisture Action: Using a Canvas disk, its diameter is one inch on the surface of the solution and the time required for immersion is measured accurately.
- 4.1Viscosity :100ml of shampoo is taken in a beaker and spindle is dipped in it for about 5 min and then reading is taken.
- 5.pH: Mix 1gram of shampoo with 9ml of water and determine the pH using a pH meter at 27 degrees Celsius.

Hair Conditioner

Conditioners are applied to the hair after shampooing and are designed to smooth the hair, improve gloss and luster, as well as recondition chemically damaged hair, mechanically damaged hair, and weathered hair.



7.COMMON INGREDIENTS USED IN HAIR CONDITIONER

Ingredients	Example
Conditioning agents	cetrimonium chloride,
Glossers	quaterniums
Antistatic agent	Dimethicone or Cyclopenta siloxane.
Lubricants	
Moisturizers	Polyquaternium-10 and Guar
Sunscreen	Hydroxypropyl trimonium Chloride
Surfactants	
pH regulators	Panthenol, Dimethicone, Prunus AmygdalusDulcis (Sweet Almond) Benzophenone-4, Ethylhexyl Methoxy cinnamate Behentrimonium Chloride and CetrimoniumChloride Citric acid

8.GENERAL METHOD FOR PREPARATION OF HAIR CONDITIONER

- 1.PAdd 90% of the water and the CTAB to the main manufacturing vessel. Heat to 70- 750o C.
- 2.Melt the acetyl alcohol in a jacketed side vessel. Heat to 70 – 750 C.
- 3.When both phases are 70 - 750 C, add the oil phase to the water phase by homogenization to form an emulsion.
- 4.When the emulsion has formed, commence cooling to 400C with paddle stirring only.
- 5.Dissolve the preservative in a portion of a reserved water. Add to the main vessel with continuous mixing.
- 6.Add colour to the main vessel. Continue to cool. Add perfume to the main vessel.
- 7.Mix until homogenous product is obtained.
- 8.Adjust pH with citric acid dissolved in water to pH 3.0 – 5.0 cool to 350o C

9.FORMULATION OF HAIR CONDITIONER

Ingredients	% w/w
Cetyl trimethyl ammonium bromide (CTAB)	3.00
Ceto stearyl alcohol	2.50
Perfume, colour, preservative	Q. S.
Citric acid	pH 3.0 –5.0
Water	Up to 100

10.EVALUATION OF HAIR CONDITIONER

1. Values of durability and adhesion.

2.Viscosity: Rheotec R3 Rotational viscometer are used.

3.Contact angle: Contact angle is measured on the Teflon surface by using Goniometer (G-10 Contact angle meter). Three successive drops are put on the Teflon plate. The angle between the base of the drop and the tangent at the edge of the drop is measured

4.Surface tension: Surface tension measurements are done using the Wilhelm/Du Nouy ring apparatus on Kruss K100 tensiometer.

11.Conclusion and Outcome:

- Hair is a flexible thin keratin thread with great strength and elasticity. It is found in almost all areas of human skin.
- Shampoos are surfactant- based preparations. Therefore, their cleaning principle is emulsification.
- Conditioners are applied to the hair after washing the hair and are designed to smooth the hair, improve shine and shine, as well as repair damaged hair, mechanically damaged hair, and weathered hair.
- Hair oil is one of the most well recognized hair treatments. Hair oil not only moisviscocit scalp but also reverses dry scalp and dry hair condition.
- The hair care products are prepared from various ingredients.

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