

**SHAMPOO – A GENERAL REVIEW****Lijo Nimish A<sup>\*1</sup>, Dr. Subash Chandran M.P.<sup>2</sup>, Dr. Kenneth N<sup>3</sup>, Aswitha J<sup>1</sup>, Jaya****Nijeesha<sup>1</sup>, Menu Johny<sup>1</sup>**<sup>1</sup>B Pharm student, Immanuel Arasar College of Pharmacy, Nattalam, Tamilnadu - 629165.<sup>2</sup>Professor and Head, Department of Pharmaceutics, Immanuel Arasar College of Pharmacy, Nattalam, Tamilnadu - 629165.<sup>3</sup>Principal, Immanuel Arasar College of Pharmacy, Nattalam, Tamilnadu - 629165.**Article Received: 11 December 2025****\*Corresponding Author: Lijo Nimish A****Article Revised: 31 December 2025**

B Pharm student, Immanuel Arasar College of Pharmacy, Nattalam, Tamilnadu - 629165.

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Shampoo is one of the cosmetic items that use surfactants as its principal ingredient. When used as directed, the shampoo will clean the hair of surface grease, filth, and skin debris without having an unfavorable effect on the user. A more radical approach in popularizing herbal shampoo would be to change the consumer expectations from a shampoo, with emphasis on safety and efficacy. Suitable for all hair types, our shampoo helps reduce frizz, adds shine, and protects against damage. Experience healthier, more vibrant hair with every wash.". This review focuses on the advantages, disadvantages, ideal properties, preparation method, evaluation techniques of shampoo formulation.

**KEYWORDS:** Shampoo, antidandruff, moisturizer, cleansing**INTRODUCTION:**

Hair is a biological complex structure, made up of keratin fiber. It regulates body temperature and protects the skin. It helps to feel body sensation. The head hair protects from sun, wind and cold. Hair is a protein filament that grows from the follicles in the human skin and many animals. It protects the skin from external irritants and enhances tactile sensitivity. Hair problems can be a wide range of conditions affecting the hair and scalp, including hair loss, infections and scalp disorder.<sup>1</sup>

Liquid formulations justified on the basis of ease of administration and rapid and efficient absorption of drugs. Liquid dosage forms meant either for internal, external or parenteral use and sub-classified into monophasic or biphasic liquid dosage forms.

The introduction of shampoo in India dates back to the British reign in the country. Shampoo in India is derived from the Hindi word champi meaning hair massage.<sup>2</sup> Being a recent development the growth of shampoo market, rather the important levels of shampoo in the India has been commendable. The shampoo market in India is estimated to be 2500-3000 crore, shampooing are the most common form of hair treatment. Shampoos have primarily been products aimed at cleansing the hair and scalp. Selected ingredients of shampoo that have been currently popular with consumer associated with their use of halogenated organic compounds. It includes a clean scalp is crucial for healthy hair growth.<sup>3</sup> Shampoo helps prevent issues like an itchy scalp, dandruff by keeping it free from excess oil and debris. Used to remove dirt cleanses hair and scalp, refreshes scalp and hair. It is used to strengthen hair.<sup>4</sup>



**Fig 1: Shampoo containers.**

## **ADVANTAGES OF SHAMPOO**

Promotes scalp health

Regular shampooing can help prevent scalp irritations and conditions.<sup>5</sup>

Freshens hair

Shampoo leaves hair smelling fresh and clean.

Remove Impurities

Shampoo can remove environmental pollutants and impurities from hair.

Support hair growth

Some shampoos contain ingredients that promote healthy hair growth.<sup>6</sup>

- Enhances color

Color-protecting shampoo can help maintain vibrant color-treated hair.

- Customizable

Shampoos come in various formulations to suit different hair types, textures and concerns.<sup>7</sup>

## **DISADVANTAGES OF SHAMPOO**

- pH imbalance

Shampoo with a high pH can disturb the natural pH of scalp and hair leading to dullness.<sup>8</sup>

- Environmental impact

Non-biodegradable ingredients and plastic package.

- Damage by over shampooing

Shampooing too frequently can damage hair, especially if using a hard shampoo.

- Product build up

Some shampoos can leave behind residue, weighing hair down and affecting its texture.<sup>9</sup>

- Chemical concerns

Some shampoos contain chemicals like sulfates, parabens or silicones which can be detrimental to hair and scalp health.

- Drying out color-treated hair

Some shampoos can strip color-treated hair of its color, leading to fading.

- Scalp dryness

Shampoos can dry out the scalp especially if it is already sensitive or prone to dryness.

- Stripping natural oils

Shampoo can strip hair of its natural oils, leading to dryness, brittleness and breakage.<sup>10</sup>

- Loss of shine and luster

Over-shampooing or using harsh shampoos can dull hair's natural shine.

- Scalp conditions

Certain shampoo can exacerbate conditions like eczema, psoriasis or dermatitis.



**Fig 2: Shampoo dispenser.**

### **IDEAL CHARACTERISTICS**

**Nourishing**

Providing essential care and protection for hair.<sup>11</sup>

**Cleansing**

Effectively removes dirt, oil, and impurities.

**Gentle**

Caring for hair without causing irritation or damage.

**Revitalizing**

Restoring hair's natural shine, softness, and vitality.

**Transformative**

Helping to achieve healthy, beautiful, and manageable hair.

**Protective:**

Shielding hair from environmental stresses and damage.<sup>12</sup>

**Customizable:**

Tailored to specific hair types, textures, and concerns.

**Sustainable:**

Using eco-friendly ingredients, packaging and practices.

**Long-lasting:**

Providing benefits that last throughout the day or between washes.<sup>13</sup>

**Visible Results:**

Noticeably improving hair's appearance and health.

### **APPLICATIONS**

**Anti-Frizz:**

Using anti-frizz shampoos can help smooth the hair cuticle.<sup>14</sup>

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**Cleansing Hair:**

Removing dirt, oil and product buildup.

**Scalp Care:**

Smoothing and calming the scalp.

**Hair/Scalp Treatment:**

Nourishing and moisturizing hair.<sup>15</sup>

**Pre-styling:**

Preparing hair for styling products.

**Therapeutic Purposes:**

Treating scalp conditions like dandruff or psoriasis.

**Repairing Damage:**

Shampoos can contain ingredients that help repair and restore damaged hair.

**Protecting from Environmental Stressors:**

Some shampoos contain antioxidants and other ingredients that help protect hair from environmental stressors like pollution and UV damage.

**Hydration:**

Shampoos can provide intense hydration for dry or damaged hair.

**Smoothing:**

Shampoos can help smooth the cuticle, reducing frizz and adding shine.<sup>16</sup>

### **TYPES OF SHAMPOOS:**

Shampoos are generally classified into the following types:<sup>17</sup>

\* Powder Shampoo

\* Liquid Shampoo

\* Lotion Shampoo

\* Cream Shampoo

\* Aerosol Shampoo

\* Jelly Shampoo

\* Specialized shampoo

▪ Conditioning Shampoo

▪ Anti-dandruff shampoo

▪ Two layer shampoo

▪ Baby Shampoo

## FORMULATION OF SHAMPOOS

### TIOXIDANTS

Antioxidants help to protect hair from damage caused by free radicals and environmental factors like sun, pollution, which can lead to dullness, breakage, and hair loss.<sup>18</sup>

Examples: Ascorbic acid (Vitamin C), Tocopherol (Vitamin E).

### SURFACTANTS

Surfactants work by lowering the surface tension of water, allowing it to mix with oils and dirt and then lifting and rinsing them away. This action is crucial for effective cleansing of hair and scalp.

Example: sodium lauryl sulfate.

### STABILIZER

They increase the viscosity of the shampoo formulation, which in turn helps to stabilize the foam bubbles.

Example: Amid propyl betaine, xanthan gum.

### EMOLlient

It works as protective, moisturizing layer on the hair and scalp. It helps to soften and smooth the hair.

Example: coconut oil, mineral oil.<sup>19</sup>

### CONDITIONING AGENT

To enhance shine by moisturizing coating and lubricating the hair shaft as well as reducing frizz and static.

Example: silicones, hydrolyzed proteins

### POLYMER

It acts as conditioning agent, improving hair texture. They achieve this by depositing onto the hair shaft and smoothing the surface.

Example: hydroxyethylcellulose.

### PRESERVATIVES

To prevent microbial contamination and spoilage. Extending the product shelf life and ensuring it remains safe and effective for use.<sup>20</sup>

Example: parabens, propylparaben, methyl paraben.

### MOISTURIZERS

Ingredients that help to hydrate and nourish hair.

### ACTIVE INGREDIENTS

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These are the targeted ingredients for specific hair concerns.<sup>21</sup>

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Example: anti-dandruff, color protection.

#### ANTI-FRIZZ AGENT

Anti- frizz agents are ingredients or products the help to control and reduce frizz in hair by smoothing the hair cuticle and preventing moisture from entering.

Example: silicone-based products, natural oils like argan and coconut oil, keratin and humectants like glycerin.

### GENERAL METHOD OF PREPARATION<sup>22</sup>

Weighing and mixing ingredients:

Surfactants, moisturizers and other components are weighed mixed and combined together.

Heating and blending:

Melting and mixing ingredients to create a uniform mixture.

Cooling and stabilization:

Allow the mix to cool and stabilize before adding preservatives and fragrances.

pH adjustment:

Adjust pH level to ensure it's suitable for hair and scalp.

Filling and package:

Fill the containers with the final shampoo product and pack in containers.

### EVALUATION OF SHAMPOO:

#### PHYSICAL APPEARANCE:<sup>23</sup>

The formulation was evaluated in terms of their clarity, color, odor and texture.

#### DETERMINATION OF PH:

pH of the preparation is done by using 10% shampoo solution. Dip one strip of pH paper in the solution and compare the color of strip to key. pH meter can also be used after calibration.

Most shampoos are neutral or slightly acidic.

#### CLEANSING ABILITY:

Assessing how well the shampoo removes dirt oil and product buildup shampoo cleansing ability relies on surfactants which are molecules with both oil-attracting and water-attracting parts. These surfactant works by binding to sebum on the hair and scalp then emulsifying the oily dirt allowing it to be easily rinsed away with water. This process effectively removes dirt, grease and other impurities from the hair and scalp.

#### MOISTURIZING AND NOURISHING PROPERTIES:

Evaluate how well the shampoo hydrates and protect hair, leaving it soft and manageable.

**SAFETY AND TOXICITY:**

Verify whether the shampoo is free from harsh chemicals and toxic ingredient that can harm hair, scalp, or overall health.

**RINSING:**

Skilled beauticians are employed to make comparison on the performance of several shampoo.

**CONDITIONING ACTION:**

Conditioning action is a difficult property to assess. This is because it is basically dependent on subjective appraisal.

**EVALUATION OF EYE IRRITANCY:<sup>24</sup>**

The test calls for dropping 0.1ml of liquid shampoo in the conjunctiva sac of one eye of the rabbit, the other eye serving as control. In the case of the first three animals, the treated eye remains unwashed. Since washing the eye may or may not alleviate symptoms and injury. The six remaining animals are divided into equal group. In the first group of these group eyes instilled with the substances are washed with 20ml lukewarm water two second after treatment and in the second group after instillation. Readings are then made at 24, 48 and 72hrs and again four and seven days after treatment. If the lesion haven not cleared up in seven days the test material in considered as severe irritant.

**VISCOSITY:**

Viscosity of the liquid shampoo is determined using a Brookfield viscometer. 100ml of the shampoo is taken in the beaker and the spindle is dipped in it for about 5 min and then the readings are noted.<sup>25</sup>

**MARKETED FORMULATIONS**

<b>Sl. No.</b>	<b>Pharma shampoo</b>	<b>medicated</b>	<b>Manufacturer</b>	<b>Application</b>
1	Ketocip		Cipla	antidandruff
2	Dandrofine		Healing Pharma	antidandruff
3	Mediber		Marico Ltd	antilice
4	Salisia.kt		Ajanta Pharma Ltd	antidandruff
5	Sehmed		Seha Pharma	anti hairloss
6	Ketozinc		Scazon Healthcare	antidandruff
7	Ktvin-z		Harvin	antidandruff
8	Ketocene- z		Oscube	antidandruff
9	Ivera		Ajanta Pharma Ltd	antilice
10	Selsun blue		Abbott Laboratories	antidandruff

## CONCLUSION

Shampoos are used for cleaning and manageability of hair. Lotion shampoo, cream shampoo, gel shampoo, powder shampoo are available. Shampoo is very essential for good health and strength of hair. The various applications for hair include beautification, treatment and maintenance. Shampoos are evaluated for pH, appearance, toxicity, eye irritancy and viscosity.

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