



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

FORMULATION OF HERBAL SHAMPOO AND ITS EVALUATION

AUTHORS: - SAILI.P. RAJPUT, RUPESH.B. KHALSE, SADHANA.P. RAJPUT

ABSTRACT: -

The large no of Cosmetics Formulation Have Been Evolved and Developed Using Natural Herbs. The Indians Are Using Natural Herbs from Ages Because Of Rich Cultural Heritage of India.

The Natural Herbs are the Package of Various Phytoconstituents like Tannins, Alkaloids, Phenols, Glucosides, Flavonoids etc. Which Provide Nourishment to the Hairs and Skin. A Shampoo is used for Cleaning the Dirt and Oil Present on the hairs and the scalp. A Shampoo also Helps to Remove the Lice and other Hair Infections.

But Now -A -Days the Role of Shampoo is not only Providing the Cleaning Action but also to Provide other Benefits like Hair Growth, Hair Nourishment, Shiny and Glossy Hairs, Dandruff Free Hairs and many more.

The Main objective of this study is to formulate the herbal shampoo consisting various herbs like Amla, Hibiscus, Shikakai, and Reetha. and also, to perform the Evaluation test for determining the efficiency as compare to synthetic Shampoo.

The study has Proven that Herbal Shampoo are having More Safety Margin as Compare to Synthetic Shampoo Because the Synthetic Shampoo Contains Various Chemicals which may Cause the Harm to Normal Hair Growth.

[1]

1. INTRODUCTION:-

Cosmetic Science is a Wide Field of Today's Era. The Word Cosmetic is a Greek Word '*Kosmetica*' which means 'to adorn'.

The Things Used for the Beautification is also called as **Cosmetics Products**. Cosmetics is an Ancient Concept and Now-a-days the Evolution is seen Widely. Cosmetics is an Emerging Topic for the Topics of New Research and Advancement.

Cosmetics has a Wide Range of Products Such as Shampoo, Powders, Gels, Creams , Perfumes , Lipsticks , Dyes , Mascara , Lotions , Soaps, Nail paints , Facial Makeup Products and many more .

The Science of Cosmetology is Believed to Have Originated in the Countries like India and other countries in Ancient Times.

The Cosmetic Science is Topic of Great Importance Because Now-a-days Due to Advance Technology like Excess Use of Mobiles, Hazardous and Dangerous Radiations like UV, IR, Radio waves and many more. There is seen the Evolution in the Human Begins.

For Example, if we take a Case of **HAIR GRAYING** so this was not seen in the Teenagers or Young Students Belonging to the Old Ages of Ancients Times But Now-a-days it is Commonly Seen in School and College Going Students. So, to Solve This Problem and Maintain the Beauty Status One Use the Cosmetic Products Though it is Synthetic or Herbal.

Cosmetics is also in Demand Because in Today's World of Competition Each and Every Person Has to keep their Personality Up to Date in Related to Beauty.

Now-a-days the Term '**HERBAL**' is a Topic of Spotlight in the Field of Cosmetic Science. Herbal Means the Use of Plants and Plant Derived Products Which has the Medical Significance and Products are Prepared using Natural Methods and Many More.

[2]

The Customer and Cosmetics Users are Getting Attracted Towards the Herbal Products and the only Reason is Because They get More Benefits with Minimum Side Effects as it is Very Safe as Compare to Synthetic Cosmetics Products.

Due to Harmful or Toxicity Resulting Chemicals in Formulation. As Compare to the Synthetic Cosmetics the Herbal Products are More Cost Effective and Affordable.

The Ayurvedic Field is Involved in Herbal Product Preparations. They use Various Herbs which are Natural and Easily Available.

It is Commonly Seen that Now-a-days not only the Women's but the Men's also Equally use the Cosmetic Products. It is Observed That **70%** of Indian Population Prefer the Use Natural Herbal Cosmetic for Beauty and health care.

It is Seen that in ancient days, the Herbal Products Was like the Direct Use of the Plant Extract Directly for Application on the Hairs and Skin. But Due to Advancement, Today in this Modern World Herbal also look like the Synthetic Means with Respect to Texture, Formulation Type, Fragrance, and also is Easy to Use.

- **DRUG AND COSMETIC ACT 1940:** - This is the act which regulates the import manufacture and distribution of drugs and cosmetics in India. This act Defines "COSMETICS" as any product that is Meant of Beautifying or Cleansing. Cosmetics Refers To **Schedule S**.
- **PROHIBITED COSMETICS AND INGREDIENTS IN COSMETIC INDUSTRY:-** The ingredients which are unsafe for the human use are restricted to be used in Cosmetic industry . FDA and regulations has prohibited the use of Bithionol, Chlorofluorocarbon propellants, Chloroform, Hexachlorophene, Mercury compounds, Methylene chloride, Vinyl chloride in aerosols, Additive colors are only permitted only when FDA has approved.
- **CONDITIONS FOR OBATAINING LICENSE FOR MANUFACTURE AND SALE OF COSMETICS:** - All regulation related cosmetics are issued by Central Drugs Control Organization (**CDSO**). For manufacture, import and sale of cosmetics the License will be issued on **FORM 22**.

[3]

- **GUIDELINES FOR STABILITY STUDIES IN COSMETICS:** - The stability studies are done to analyze the ability of cosmetic product to maintain the physical, chemical, and microbiological properties and also maintain shelf life when store at specific condition. Stability testing in cosmetic industry is-

- 1.Obtaining a guidance on formulation of product and packaging material
- 2.Optimizing the formulation and manufacturing process.
- 3.Estimating the shelf life of the product.
- 4.Ensuring customer safety.
- 5.Determining conditions of transportation, storage, display and use.

- **UNDERSTANDING THE BASIC CONCEPTS:** -

- **DIFFERENT TYPES OF EQUIPMENTS IN COSMETIC INDUSTRY:** - The major types of equipment's used in cosmetic industry are Grinders, mixers, emulsifying equipment, cooling and molding equipment's.

- 1.Milling instruments like Colloid mill, Ball mill etc.
- 2.Mixing instruments like High shear mixers, Homogenizers, etc.

3. Filling instruments like filling machines, etc.

4. Rotatory type mixers like Tubular, Double Cone type, Cube shape, V type, Ribbon type and many more.

❖ **THE HAIR CARE PRODUCTS:** -

Hair is the vital organ of body which is derived from ectoderm of the skin. Hair is protective organ human body and it is accessory structure. The hair present on the head part are related with the beauty. **DERMATOLOGY** is a wide stream which deals with the study of skin and its structure. The hair on head are present for the protection of scalp from any injury external injury and sun rays. It also helps to decrease heat loss from scalp whereas the eyebrows and eyelashes protects the eyes from the external foreign particles. There are Toule receptors which are associated with hair follicle which are activated when hair is moved slightly. So therefore, the hairs function in sensing light touch.

[4]

2. ANATOMY OF HAIRS:-

The hairs is composed of column of dead keratinized epidermal cells which are bonded by proteins. The hair shaft is superficial portion of hair, which projects above surface of skin. The root is portion of hair deep to shaft which penetrates into the dermis and shaft. The shaft and root of hair consist of 3 layers of cells-

1. MEDULLA

2. CORTEX

3. CUTICLE

Inner medulla is composed of 2-3 rows of cells which contains pigments in dark hair and if pigment is less than it is gray hair. Middle cortex forms the major part of shaft and has elongated cells. Cuticle of hairs, the outermost layer has single layer of thin, flat cells which Has high keratin.

At surrounding the root hair is hair follicle which is made up of external root sheath and internal root sheath. The external and internal root Shaft are collectively called as Epithelial root sheath. The dense dermis surrounding the hair follicle is called as Dermal root sheath. The hair matrix cells arise from stratum basal ad it is responsible for the growth of existing hair and they produce new hairs when old hairs shed off.

HAIR GROWTH: - All hair follicle goes through growth cycle which contains growth stage, regression stage and a resting stage.

1. **GROWTH STAGE:** - Here the cells of matrix divides. as new cells from hair matrix are added to base of hair root.

2. **REGGERSSION STAGE:** - When hair cells stop dividing the hair follicle shrinks and hair growth stops growing

3.**RESTING STAGE:** - A new growth cycle begins the old hairs root falls out of hair follicle and new hair begins to grow.

* The normal hair loss in adult scalp is 70-100 hairs per day. The rate of growth cycle, chemotherapy, age, gender, etc. The can be affected by illness, radiation therapy rapid loss also leads to the increase in hair loss Alopecia which is state where there is hair loss.

[5]

HAIR COLOUR: - The color of hair is due to amount and type of MELANIN in its keratinized cells. **Melanin** is synthesized by the melanocytes which are scattered in matrix.

The **dark** color hair contains mostly **EUMELIAN** (brown to black)

The **red** color hair contains **PHEOMELANIN**.

The hair becomes gray because decrease production of Melanin production.

❖ **STUCTURE OF SKIN AND IT'S ANATOMY**

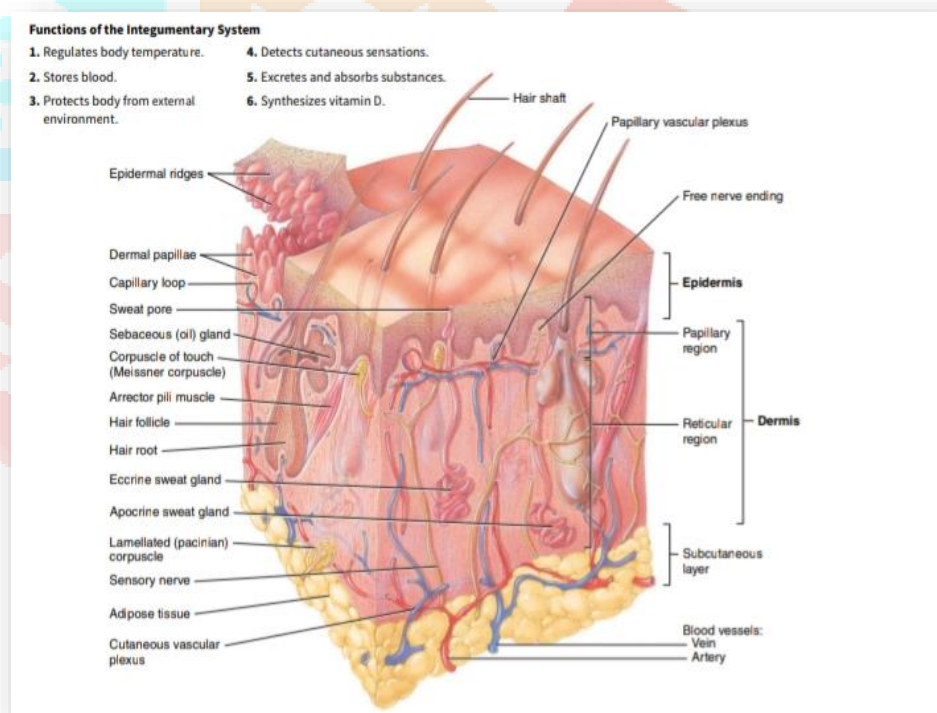


Figure 1:-Structure of Skin

❖ **VARIOUS TYPES OF HAIRS ARE AS FOLLOWS: -**

1. STRAIGHT HAIRS
2. WAVY HAIRS
3. CURLY HAIRS
4. COILY HAIR

[6]



Figure 2:-Types of Hair

PREPARATION AND EVALUATION OF HERBAL SHAMPOO

3. HERBAL SHAMPOO INTRODUCTION

Shampoo are the cosmetics preparations which are prepared for the cleansing of dirt and debris from the hair scalp. The shampoo generates its action by creating the foam. The additional functions of the shampoo are as follows like Hair growth and enhancement, hair conditioning, for dandruff removal and many more.

Shampoo is the most widely used hair cosmetic products. In the northern states and countries, the shampoos are meant for the massage of head and scalp.

Shampoo this concept was introduced by Britain and its was derived as 'CHAMPOO'. Before the evolution of the shampoo people were using the soaps for their personal care.

In 1930 the first synthetic detergent was introduced but it was reported having many side effects and disadvantages.

[7]

But over the years, many new changes and advancements took the place in shampoo formulation.

➤ WHY THERE IS A NEED OF SHAMPOO?

We need shampoo because the skin present on head part produce a greasy texture fluid called SEBUM. It is produced to protect the hairs and also provide the coating to the scalp.

It gives the glossy shine to the hair but when it is secreted in large or excess amount it makes the hair looks dirty. So there is need of shampoo to make the hair dirt free and healthy.

4. HISTORY RELATED SHAMPOO:-

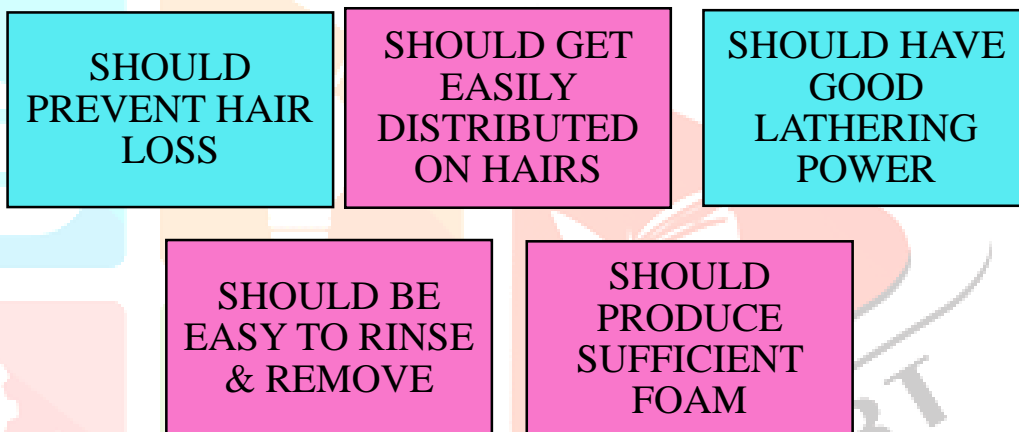
In Indian subcontinents, a wide variety of herbs were extracted to prepare the shampoo. In early days the effective shampoos were prepared by the use of Gooseberry i.e. Amla and the Sapindus which is called as soapnut.

It contains the fruit pulp which contain the secondary metabolite Saponin which act as a Natural surfactant.

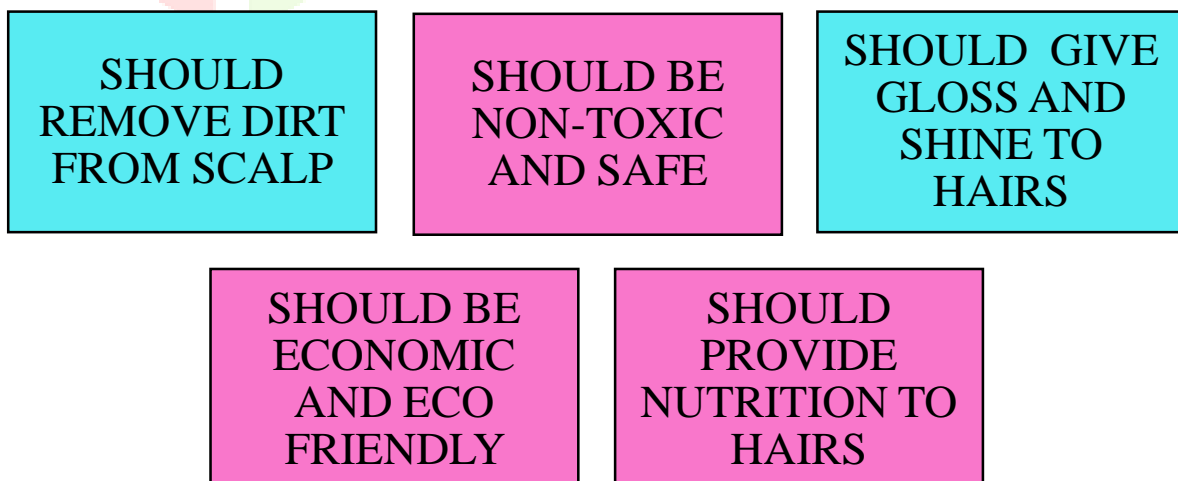
The Soapberries make the hairs soft, shiny and silky. During the early days in Europe the hair stylist was using soap and boiling it with water and also added herbs and various fragrance. In India, the CHIK India launched the "CHIK INDIA" in 1983. It was the first sachet shampoo introduced in India.

Across India in many households Grandmother still follows various practice like Drying the parts of medicinal plants like stems, roots, dried leaves etc. and then make the paste to apply on the hairs.

[8]



5. IDEAL PROPERTIES OF SHAMPOO



6. CLASSIFICATION OF THE SHAMPOO

A] BASED ON THE APPEARENCE: -

1. POWDERED SHAMPOO
2. LIQUID SHAMPOO
3. GEL SHAMPOOS
4. CREAMY SHAMPOO

[9]

B] BASED ON USE OR THEIR FUNCTION: -

1. CONDITIONING SHAMPOO
2. ANTIDANDRUFF SHAMPOO
3. THERAPEUTIC SHAMPOO
4. BABY SHAMPOO
5. CLARIFYING SHAMPOO

C] BASED ON THERE ORIGIN: -

1. HERBAL

2. SYNTHETIC

7. ADVANTAGES OF SHAMPOO: -

1. Promote hair growth
2. Remove dandruff
3. Cleanse the dirt from scalp
4. Makes hair soft, silky, and glossy

DISADVANTAGES OF SHAMPOO: -

1. Excess use of shampoo leads to hair damage
2. Some shampoos are costly
3. Hard shampoo can block the pores on scalp

[10]

8. CLEANSING ACTION OF SHAMPOO: -

During the preparation of shampoo, the Surfactant are added then this surfactant molecule present in the shampoo has a Hydrophilic head and lipophilic tail in their structure. When we apply the shampoo on the scalp or hair using water then it tends to produce the foam.

Here the hydrophilic end of surfactant molecule is in contact with water and lipophilic tail is in contact with the oil, dirt and grease present on scalp area.

Then this molecule can form the micelle when they are used in high concentration. So, the dirt is removed and cleansed when it is rinsed off using water.

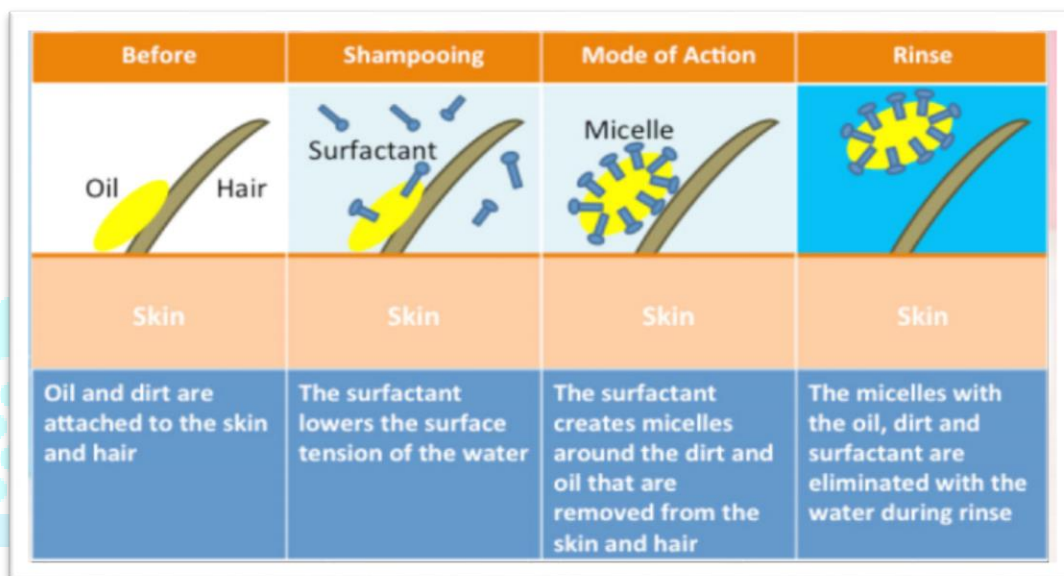


Figure 3:- Mode of Action of Shampoo

9. VARIOUS SHAMPOO MANUFACTURING INDUSTRIES IN INDIA: -

The shampoo manufacturers in India were evolved since 1960's. This became the part of lifestyle in new and developing India.

Till 2005 there were only the highly named and famous industries like **Hindustan Unilever** and **Procter and Gamble**.

The shampoo industries are divided in basic 2 sectors or platform like,

- 1.Synthetic shampoo industries
- 2.Herbal shampoo industries

[11]

The Hindustan Unilever is a dominating industry in shampoo's developing market in India. The brand names of this industries are – Clinic Plus, Sun silk, Dove, TRES Emme and many more.

The **P & G** is also dominating the market with the brands names like Pantene, Head & Shoulders – which is highly successful brand in anti-dandruff shampoo.

The other major manufacturing industries are **Daber, Cavin kare and Garnier**.

Dev Care is also one of the top list Shampoo manufacturers in India and this industry believe in offering compelling and innovative products to customers across the globe. It also manufacture the herbal products.

Elegant Cosmed Pvt. Ltd. Was established in year 2006. This company is exporting wide range of pharmaceutical products.

New moon Cosmetics Private limited was being established in year 2013.

For the herbal shampoo industries the top names are Himalaya Drug and Company and Patanjali.

Himalaya drug company was founded and formed in the year 1930, Total 91 years ago By Mohamed Manal. It has its headquarters in Bengaluru, Karnataka

It is a global industry for manufacturing of herbal products Like herbal cosmetics, ayurvedic medicines, Personal care products, Child care products and Nutrition products. Himalaya has its presence in 106 countries worldwide.

Patanjali The Indian Multinational Company Situated in Haridwar India. It was Founded by Ramdev and Balkrishna in 2006.

It is a ayurvedic industry which formulate its products using natural products. They are serving Worldwide. This manufacturing industry has wide range of products Start From food articles Till Personal care products and also manufacture the wide range of medicines and also all the good and necessary which any person requires on daily basis.

[12]

Various Brands of Shampoos: -



Figure 4:-Various Brands of Shampoo

STATISTICS OF MOST PREFERRED SHAMPOO BRANDS: -

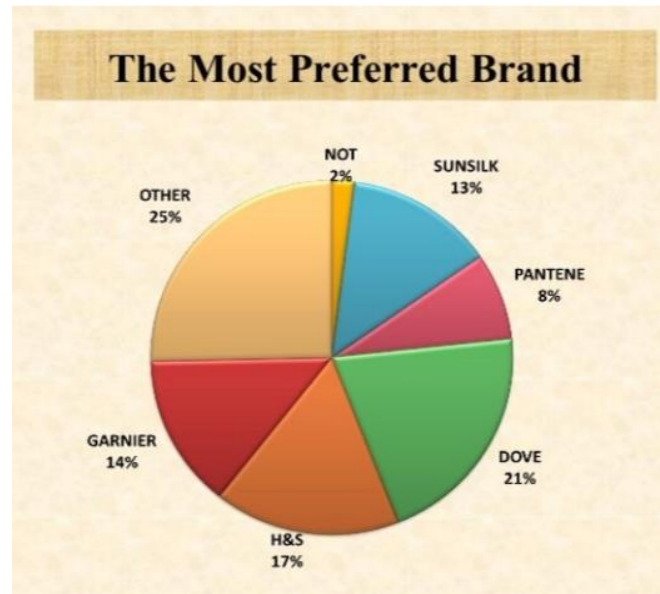


Figure 5:-Preferred Brands of Shampoo

[13]

MARKET SCENARIO OF SHAMPOO IN INDIA

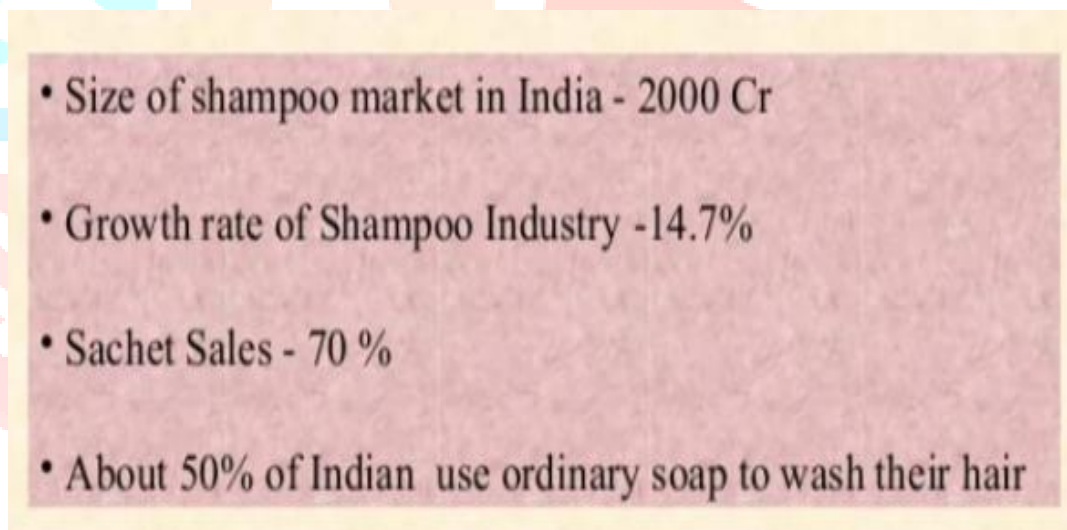


Figure 6:-Market Scenario Of Shampoo

10. EXCIPIENTS USED IN MANUFACTURING OF SYNTHETIC SHAMPOO: -

There is the wide range of excipients used in shampoo formulation and they are as follows –

1. **SURFACTANTS:** - Surfactants are added in shampoo because they are capable in producing the required quantity of foam.

There are 2 types of Surfactants i.e., ANIONIC AND CATIONIC surfactant. But in formulation of shampoo the ANIONIC surfactant are preferred widely.

❖ **ANIONIC SURFACTANT: -**

They have good foaming ability. In its structure the Hydrophilic part has negative charge and which helps to produce the foam and clean the dirt.

[14]

CLASS	EXAMPLE	COMMENT
Alkyl benzene sulfonates	Sodium dodecyl benzene sulfonate	Tend to yield an "airy" or low density foam and often are drying to the hair
Primary alkyl sulfates	Lauric acid, stearic acid and their salts	Good lathering effect in hard water, free from rancidity, easy to wash.
Secondary alcohol sulfates	Sodium sec-lauryl sulfate	Low cost, dispersing and emulsifying action, dissappointing as detergents and shampoo components
Alkyl benzene polyoxyethylene sulfonates	Triton X200	Stable in acid or alkaline solution, excellent emulsifier, detergent and wetting agent; extremely stable at pH of skin
Sulfated monoglycerides	Lauric monoglyceride ammonium sulfate	Stable in hard water
Alkyl ether sulfates	Derivatives of lauryl alcohol ether with PEG	Good cleansers, act as solvents for non polar additives
Sarcosines	Lauroyl and cocoyl sarcosines	Excellent foaming and conditioning action
Sulfosuccinates	Aerosol OT	Less irritating to skin and eye (baby shampoo)
Maypon	Protalbinic and lysalbinic acid derivatives (maypon 4C)	Hydrolysis product of proteins with fatty acid chlorides in presence of alkali

Figure 7:-Examples of Anionic surfactant

❖ **CATIONIC SURFACTANT: -**

They are Toxic in nature and hence are not used to avoid the toxicity. But they are used in low concentration in the formulation of Hair Conditioner.

NON-IONIC SURFACTANTS		
CLASS	EXAMPLE	COMMENTS
Fatty acid alkanolamides (should not be used > 15%)	Lauric monoethanolamide	Improves solubility of SLS
	Stearic ethanolamide	Pearlescent thickener
	Oleic ethanolamides	Hair conditioning agents
Polyalkoxylated derivatives	Ethoxylated fatty alcohols	Stable in wide range of pH; stabilizing emulsifying and opacifying properties
	Block polymers (pluronic)	Good rinsability, can be used in high %
	Sorbitol esters (TWEENS)	Solubilizers and emulsifiers, used in baby shampoos
Amine oxides	Coconut and dodecyl dimethyl amine oxides	Foam booster and anti-static agents
AMPHOTERIC SURFACTANTS		
N-alkyl aminoacids	β - aminoacid derivatives	Foaming agents
	Asparagine derivatives	Compatible with both anionic and cationic surfactants
Betains	Amido betains	High foaming properties, mild.
Alkyl imidazoline	MIRANOL™	Baby shampoos

Figure 8:- Other Surfactants Example

2. **CONDITIONING AGENTS:** - This are added in shampoo to add the conditioning property to the action of shampoo.

Examples – Lanolin, Mineral oils etc.

3. **VISCOSITY BINDERS:** - This are added to make the shampoo viscous.

Examples: - Electrolytes like NaCl, Natural gums, Cellulose derivatives, PVP Etc.

[15]

4. **OPACIFYING AGENTS:** - **Examples** – Fatty acids, Propylene glycol, Mg Ca and Zn salts

5. **PERFUMES:** - This are added to the shampoos for imparting the pleasant aroma and odour.

6. **PRESERVATIVE AGENTS:** - This are added to the shampoo for increasing their stability and shelf life of product. **Examples** – Formaldehyde and methyl paraben.

7. **ANTI-DANDRUFF AGENTS:** - These are added in small concentration in shampoo. this when comes in contact with scalp it helps to remove the Dirt and dandruff from the scalp .

11. A WONDER HERBS ANY HAIRS NEEDS: -



The HERBS are the magical plants which are present in any herbal shampoo. They are magical because they do not have an extreme level of side effects on the hairs.

In herbal shampoo preparations, the herbs used itself act as excipients and they are derived from the herbal and medicinal origin. There are many such herbal plants which has a versatile action on hairs and for hair care.

[16]

1. AMLA [Phyllanthus Emblica] :-

Amla is also stated as the Indian gooseberry. Amla contains Vitamin-C which increases the amount of antioxidants in our body. These antioxidants are Flavonoids and polyphenols. Amla Extract or amla oil helps to promote hair growth, and it reduce the damage and also prevent graying of the hairs. Amla powder has the anti-inflammatory effect.

It is added to the herbal hair dyes like henna to enhance the color of dye. It helps to boost the volume of the hairs and also reduce the Hair Lice. Amla is also rich in tannins, iron, calcium, phosphorus.



Figure 9:- Amla plant

1. HIBISCUS [*Hibiscus Rosa-sinensis*]: -

Hibiscus is a Flowering plant belonging to the Malvaceae family. Hibiscus is the most renowned herb for promoting hair growth. It helps to prevent Hair loss by using flower and leaf extract when used in shampoo formulation.

It has gained a special activity to stimulate hair growth even from the dormant hair follicles in bald patches.

Hibiscus flower has a ability to reduce the Premature graying of hairs.

It also treats the dandruff and Conditions the hairs. Hibiscus Oil is beneficial for promoting the Nourishment of hairs.

[17]

HIBISCUS WITH OTHER PLANT AND MATERIAL WITH THERE ROLE:

MAIN PLANT HIBISCUS	OTHER SUPPORTING MEDICINAL ELEMENT	THERE COMBINATION ROLE
1.HIBISCUS	COCONUT MILK	Reduce Split ends
2.HIBISCUS	ONION	Helps in Hair regrowth
3.HIBISCUS	NEEM	Promote Hair Growth

4.HIBISCUS	AMLA	Promote Hair Growth
5.HIBISCUS	CURRY LEAVES	Prevent Premature Graying
6. HIBISCUS	YOGHURT	Make Hair Stronger
7. HIBISCUS	ALOE VERA	Make Hair Shiny

[18]

**Figure 10:-Hibiscus Plant****2.REETHA [Sapindus Mukorossi]:-**

Reetha commonly is called as Indian Soapberry, washnut, and soapnut .Reetha belongs to the Family Sapindacea. It is the deciduous tree that grows in the lower Foothills and Midhills of Himalaya.

It is used as the hair cleanser. It makes hair healthy, shiny, lustrous. The reetha powder can be mixed with the warm water to form a paste which can be used to massage the scalp because it has an Insecticidal Property. The reetha powder along with amla powder is used to control the Graying of Hairs.

The Reetha is not recommended to Use in Case of Pregnancy, Due to its Hot Potency [USHNA VIRYA]. Reetha helps to reduce the Head Lice. Reetha is an Age-old remedy that makes hair

extremely soft, gorgeous and beautiful. Reetha prevents the hair Dandruff. Reetha is antibacterial and antifungal in nature, so its helps to treat the scalp infections and head lice. Reetha when combined with egg they help to control the hair fall.

[19]



Figure 11:-Reetha Plant

3. SHIKAKAI [Acacia Concinna]:-

It provides shine to the hairs and also prevents the graying of hairs. It is an herb especially used for controlling hair fall and dandruff. It has cleansing and antifungal properties.



Figure 12:-Benefits of Shikakai

[20]

12. FORMULATION AND EVALUATION OF HERBAL SHAMPOO

1.INGREDIENTS: -

SR. no.	Name of Ingredients	Role Of Agents	Quantity Required
1.	Reetha Extract	As Foaming Agent	10gm
2.	Amla Extract	To Provide Nourishment to hair	10gm
3.	Shikakai Extract	As Anti-Dandruff Agent	10gm
4.	Hibiscus Extract	As Hair Growth Promoter	10gm
5.	Gelatin Solution	As Base	2%
6.	Methyl Paraben	As Preservative	1gm
7.	Citric Acid	To Adjust Ph Level	As per requirement
8.	Rose Oil	To impart Fragrance	2-3 drops



Figure 13:-Ingredients Used in Herbal Shampoo

2.PROCEDURE: -

- 1.Initially prepare the reetha extract by adding 30ml of 70% of ethyl alcohol and Keep aside for the Cold Maceration.
- 2.Then prepare the Extract of Hibiscus , Amla And Shikakai by adding each powder in separate Beaker and then add 50ml of sterile water in each and boil that extract .
- 3.Then add 1gm of gelatin powder to 50ml of Boiling Water For preparing the Gelatin Solution.
- 4.Then Take Mortar Pestle and then add all 4 extracts of herbs in that and triturate them.

[21]



Figure 14:-Trituration of Herbal Extracts

5. Then Strain that mixture using sieve and then take that residue in Measuring Cylinder and Make Up the Volume Using Gelatin Solution
6. Then add Few Drops of Rose Oil Using Dropper to impart the Pleasant Fragrance to the Shampoo.
7. Then Check the PH Level of formulation and then adjust the ph. adding Citric acid.
8. Then Perform the Various Evaluation Tests of prepared Formulation.

13. EVALUATION OF PREPARED FORMULATION: -

1. FOAMING INDEX DETERMINATION: -

Initially here place 5 test tubes in the test tube stand. Then add the stock solution i.e., the prepared shampoo in each test tube by increase in volume means 1ml in first test tube, 2ml in second test tube and so on. Then Make up the volume of each Test tube up to 10 ml using distil water. Then Shake Each test tube to produce enough amount of foam. Then Measure the produced foam using Ruling Scale and then Calculate the foaming index.

[22]

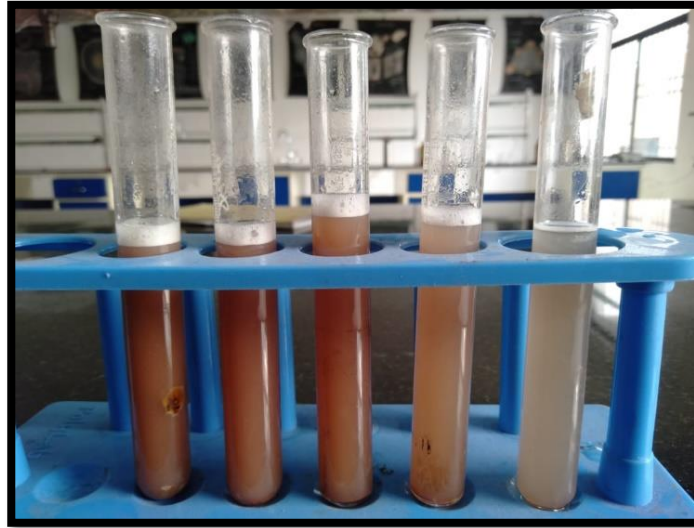


Figure 15:-Test tube Showing foaming index

<i>Sr. No.</i>	<i>Quantity of Stock Solution</i>	<i>Height of Foam</i>
1.	1ml	0.6 cm
2.	2ml	1.5 cm
3.	3ml	1.8 cm
4.	4ml	2.0 cm
5.	5ml	2.3cm

2. DIRT DISPERSION TEST: -

This evaluation test is performed to Check the Cleansing or Dirt Removing Action of the prepared Shampoo. Here initially shampoo is taken in test tub and then water is added and then add the drops of ink in test tube. Then shake test tube and check the intensity of the foam. The light foam produced is the indication good cleansing action of shampoo.

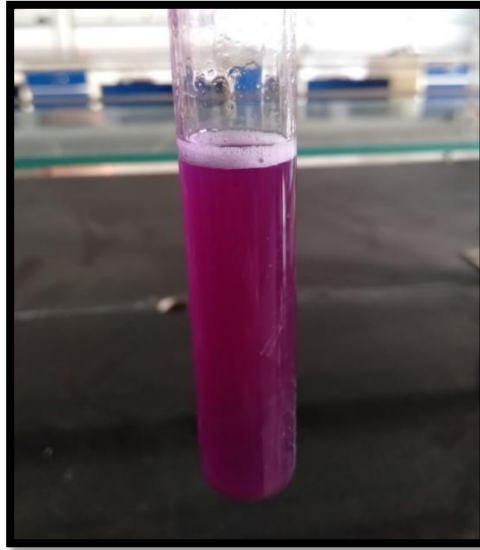


Figure 16:-Dirt dispersion Test result

3. SOLID CONTENT DETERMINATION: -

In this test initially the Evaporating Dish or a Porcelain dish is taken and weighed and recorded the initial weight. Then 4 gm of Shampoo is added in that and the plate is kept in hot air oven. After drying then again weigh the dish and record the final weight.



Figure 17:-Solid Content Determination Results (A & B)

Calculations: -

The initial weight of the Porcelain dish (A)= 76.10 gm

The Final weight after evaporation (B) =76.45

Weight of sample = B-A = 76.45-76.10

$$= 0.35 \text{ gm}$$

% Solid Content= (B-A) /4. 100 = 0.35/4.100

$$=0.0875.100=8.75\%$$

[24]

14. RESULTS



Figure 18:-Formulated Herbal Shampoo and Label of Herbal Shampoo

COLOUR OF FORMULATION	BROWNISH
ODOUR OF FORMULATION	ROSE LIKE PLEASANT
APPEREANCE	TURBID
FOAMING INDEX	500
DIRT DISPERENCY	LIGHT
% SOLID CONTENT	8.75%

➤ SIGNIFICANCE OF FORMULATED HERBAL SHAMPOO: -

The formulated herbal shampoo helps to make the hair dandruff free, promotes hair growth and cleanse the dirt present on scalp and hairs. The formulated shampoo is herbal in nature so it can be concluded that it imparts less side effect and is safe to use.

15. STABILITY PARAMETERS: -

- 1.To check the natural degradation rate of key ingredients.
- 2.To Check the ability to resist microbial contamination or attack.
- 3.The Products Reactivity to packaging materials.
- 4.To analyze the Impurities which were introduced during manufacturing process.
- 5.To Check the product response to heat, Humidity and light.

[25]

16. OTHER VARIOUS HAIR CARE PRODUCTS: -

1.Hair Conditioners: - This helps to change the texture and appearance of hairs and helps to recover the hair damage. It makes hairs shiny, silky, glossy, make hair easy to comb. Conditioners are used to reduce the friction, detangle of hairs, and minimize the frizz

2.Hair Oils: - Hair Oils are used to nourish the hairs. They are used to increase growth of the hairs, strength of the hairs. This hair oils are prepared by extracting the oils of herbs from natural methods. They are used to promote the hair growth by massaging the oil on scalp which penetrates in the scalp deeply and give nutrition to hairs.

3. Hair Dyes and Colorants: - They are used to color the hairs with different color shades from black, brown to red and many more. They are used to deal with graying of hairs. The most famous brands of Hair dyes are L'Oréal Paris, Garnier, Wellwa and etc.

17. VARIOUS PROBLEMS ASSOCIATED WITH HAIRS: -

There are various problems related with hair health and they are discussed as following: -

1.HAIR LOSS: - Here there is the hair loss or fall from the scalp. This hair loss can occur due to various factors like stress, health issues, intake of various medicines or by using excess or harmful cosmetic products.

2.SPLIT ENDS: - In these conditions the hair ending has two ends and it is due to lack of conditioning of hairs or heat exposure of hairs.

3.FRIZZY AND OILY HAIRS: - The hairs become frizzy and dry due to less moisture content in the hairs. And oily hairs are due to the excessive production of oil from the hair scalp

4.GRAY HAIRS: - This occurs due to the improper nourishment of the hairs or it occurs due to the various environmental factors.

5.DANDRUFF: - This occurs due to fungal or bacterial infection in the hairs. This occurs due to improper cleaning of the dirt from the scalp.

18. CONCLUSION: -

There is the great development in **COSMETICS SCIENCE**. All over worldwide the consumers are using the herbal cosmetics instead of chemical containing synthetic shampoos. Because it is proven that the herbal products are not imparting the side effects hairs and skin.

The development of naturally emerging **HERBAL** cosmetics will be the wide and major area of growth in the cosmetics industries in the upcoming years.

The use of herbal cosmetics has been increased to many folds in personal care system and there is a great demand for this herbal cosmetic.

The use of bioactive ingredients in cosmetics which influence the biological functions of hairs and skin and provides nutrients necessary for the healthy skin or hair.

[26]

In future there is the tremendous scope to launch and develop various and numerous herbal cosmetics using appropriate bioactive ingredients with other suitable additives, excipients, and the preservatives.

[27]

19. REFERENCES: -

- www.google.com
- www.wikipedia.com
- www.slideshare.com
- www.sciencedirect.com
- www.researchgate.com
- www.pubmed.com
- [Principals of anatomy and physiology by GERARD J TORTORA / BRYAN DERRICKSON 15TH EDITION](#)
- [Cosmeceuticals : The Medicine of beauty by Katherine I martin, MS4&Dee Anna Glaser , MD](#)
- [The Chemistry of cosmetics by Rebecca Swabey and Melan Veltman, 2010](#)
- www.mdpi.com/journal/cosmetics
- [Cosmetics and their associated adverse effects : A review By Khan AD*1 Alam MN1](#)
- [Review on hair problems and its solution By Ameya Lanjewar](#)
- <https://www.researchgate.net/publication/325023106> [Textbook of cosmetics science 2018]
- [Handbook of Cosmetic science and technology 3rd Edition by Andre O Barel](#)
- www.jetir.org [REVIEW ARTICLE ON: HERBAL SHAMPOO]
- [Shampoo based on synthetic ingredients v/s Shampoo based on Herbal ingredients: A REVIEW](#)
- [Current Review on Herbs for derma care By Rashmi Saxena pal](#)
- http://www.chemical-publishing.com/product_p/9780820604046.htm
- <http://www.fda.gov/cosmetics/cosmetics-laws-regulation/prohibited-restricted-ingredients-cosmetics>

[28]