

## Formulation and Evaluation of Poly Herbal Anti-Dandruff cream Shampoo:

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### ABSTRACT

The aim of the present study is to formulate and evaluate polyherbal shampoo containing natural ingredients with an emphasis on safety and efficacy. It clears dirt and dandruff, promotes hair growth, strengthens and darkens the hair. The shampoo is prepared by taking the polyherbal extracts from Menthi seeds, Nagarmotha myrobalan, Neem Leaves, Shikakai, Curry Leaves, Amla fruit, Hibiscus flowers and leaves with different properties. Several physicochemical tests were performed for visual assessment, viscosity, pH, surface tension, conditioning performance and foam stability. The formulated polyherbal shampoo is light green in color with demonstrable good foam stability, good cleansing ability, low surface tension, optimum pH and conditioning activity. All these are the ideal characteristics of good quality polyherbal shampoo to be used in daily life.

**Keywords:** Polyherbal shampoo, Natural ingredients, Hair care, Evaluation of shampoo.

### I. INTRODUCTION:

Cream formulation was semisolid formulations intended for topical application. The cream formulations were prepared by using various herbal extracts, herbal oils, and various excipients. There are two main types of cream formulation, such as oil in water (O/W) type of emulsion and water in oil (W/O) type of emulsion. The present formulation was oil in water (O/W) type of emulsion. Cream shampoo are the grounding are used to clean the hair and scalp. Cream shampoo is enriched from of liquid shampoo, thicker and pearlescent proposed to express of the more intensive condition they are planned to provide. The content was wet but not completely dissolve. They would apply faster than solids and dissolved speedily.

Shampoo as a preparation of a surfactant i.e. surface active material in a suitable form liquid, solid, powder. But the usage of surface-active material becomes very harmful from long time for the people as well as our environment. Various synthetic compounds, chemicals, dye and their derivative has been proved to cause various skin diseases having numerous side effects. Natural Shampoos stimulate the growth of new hair by having a combination of organic and natural ingredients which stimulate the hair follicles while keeping the environment around the follicles clear and balanced. Longer lasting Hair, by minimizing toxin exposure to the hair, the hair stays healthy, long and damage free. Then there is formulate a new advanced herbal antidandruff shampoo. Before the formulating this shampoo they collect information about Hair, Dandruff, and Shampoo.

### HAIR:

In humans it is a special and cherished feature, especially in females, but its main functions are in protection of the skin from mechanical insults and to facilitate home therapy.

### Anatomy and Physiology of the Hair Structure of Hair:

A hair is composed of columns of dead, keratinized cells welded together. The shaft is a superficial portion of the hair, which projects from the surface of the skin. The shaft of straight hair is rounded in cross section, that of wavy hair is oval and that of woolly hair is elliptical or kidney shaped. The root is the portion of the hair deep into the surface that penetrates into the dermis and sometimes into the subcutaneous layer. The shaft and root both consist of three concentric layers-

**Medulla:**

It is the central part of the shaft and is generally noticeable in thick hair. It is composed of two or three rows of polyhedral cells containing pigment granules and air spaces.

**Cortex:**

It is located peripheral to the medulla and forms the major part of the shaft. It consists of elongated cells, containing pigment granules in dark hair while air in white hair.

**Cuticle:**

It is the outermost layer of the hair and consists of a single layer of thin, flat cells, which are heavily keratinized.

**Physiology of the hair**

A hair arises from the integrated activities of several keratinocyte layers in the hair follicle. The development of hair is a dynamic, cyclic process in which the duration of growth cycles is coordinated by many hormones and cytokines and depends not only on where the hair is growing but also on some other factors, such as the individual's age and stage of development, nutritional habits, or environmental alterations like day-length.[6] Important players of this cycle are mainly cytokines (hormones), which are able to instruct the follicle. In particular, the hair growth cycle can be divided into three distinct phases

- 1) Anagen or growth phase;
- 2) Catagen or transitional phase; and
- 3) Telogen or resting phase.

**DANDRUFF:**

Dandruff is a skin condition caused due to fungus MALASSEZIA fungi, which effects the scalp, makes it itchy and greasy. Natural oils are presented in our scalp and it called as a sebum and it is a fuel/food for the dandruff-causing microbe. Malassezia feeds off these oils, breaking it down into by products, including oleic acid; formation of oleic acid is a starting/kick point of dandruff play a key role in the expression and generation of

immunological reaction during dandruff formation. Malassezia is a monophyletic genus of fungi and found all warm-blooded mammals and humans and it contributed dandruff. The root cause of dandruff is the single-celled microbe Malassezia globosa, which exists on everyone's scalp.

**SHAMPOO:**

A shampoo is a preparation of a surfactant (i.e. surfaceactive material) in a suitable form – liquid, solid or powder – which when used under the specified conditions will remove surface grease, dirt, and skin debris from the hair shaft and scalp without adversely affecting the user.

**Herbal Shampoo:**

“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.

**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 and hair follicles etc.
2. It should produce a good amount of foam to satisfy the psychological requirements of the user.
3. It should be easily removed on rinsing with water.
4. It should leave the hair non-dry, softwith good manageability 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.
8. To deliver an optimum level of foam to satisfy the expectation of the user.
9. To perform as a vehicle for the deposition of beneficial materials onto the hair and scalp.
10. To be non-damaging to the tissues of the eye if inadvertently splashed.

**MATERIALS USED IN THE PREPARATION OF POLYHERBAL CREAM SHAMPOO:**

Table no 1: Biological name and uses of herbal ingredients.

SlNo	Ingredients	Biological name	Uses
1	Methi powder	Dried seeds of Trigonella foenum-graccum [Leguminosae]	Conditioning and nourishment of hair
2	Ashwagandha powder	Ashwagandha [Withania somnifera] Solanaceae family	Controlled hair fall Prevent premature greying, Promotes hair

			healthy
3	Neem leaves powder	Dried leaves of Azadirachta indica (Meliaceae)	Fight scalp infection, prevent the dryness and flaking of hairs, lice, dandruff and itchy.
4	Shikakai powder	Dried pods of Acacia concinna (Mimosaceae)	Foam base and anti-dandruff, to improve hair and skin. and it clears dandruff and the dirt accrued on the scalp
5	Brahmi leaves	Centella asiatica (Apiaceae)	Support to growth of Hairs
6	Betel leaves	Dried leaves of Piper betel (Piperaceae)	Treatment of itching, dandruff, and split ends.
7	Amla powder	Dried ripe fruits of Emblica officinalis (Euphorbiaceae)	Darkening of hairs and Hair growth promoter
8	Reetha fruit	Dried fruits of Sapindus mukorossi (Sapindaceae)	Reetha is a foaming agent.
9	Nagarmotha	Dried ripe fruits of Cyperus rotundus (Cyperaceae)	Scalp disorder
10	Myrobellan	Dried ripe fruits of Terminalia chebula(Combretaceae)	Hair dye and softens hair in any weather
11	Henna leaves	Dried leaves of Lawsonia inermis (Lythraceae)	Growth of hair, Conditioner
12	Gura gum	Cyamopsis tetragonoloba (Leguminosae)	Strengthens the hair and protects its from brackage and split ends
13	Cetyl alcohol	–	Moisturizing agent
14	Sodium lauryl sulphate	–	surfactant
15	Methyl parabin	–	preservative

Table no:2 Formula for Polyherbal antidandruff cream shampoo.

SrNo	Ingredients	Quantity
1	Methi powder	2g
2	Ashwagandha powder	2g
3	Neem leaves	3g
4	Shikakai powder	3g
5	Brahmi powder	1.5g
6	Betel leaves powder	2g
7	Amla powder	2g
8	Reetha powder	3g
9	Nagarmotha	1.5g
10	Myrobellan	2g
11	Henna leaves	2g

12	Gura gum	2.5g
13	Cetyl alcohol	2g
14	Sodium lauryl sulfate	3g
15	Methyl paraben	2g
16	glycerol	6ml

**METHOD OF PREPARATION:  
PROCEDURE:**

Shampoo was formulated by simple mixing process. Weigh all the ingredients. Then the plant extracts were mixed in different proportions to obtain cream shampoo. Heat cetyl alcohol in a half quantity of distilled water. In a beaker take sodium lauryl sulfate add it in aqueous phase into beaker with continuous stirring on heating mantle with the above ingredients also added with stirring. Cool the phase at room temperature with stirring. Then add perfumes and preservative and mix uniformly. Then transfer the cream shampoo to the container.

Preparation process:

- All the plant materials were collected from plants and Ayurveda store.
- All the were accurately weighed
- Then the ingredients are mixed by continuous stirring with boiling
- Then add the cetyl alcohol and sodium lauryl sulphate.

- Later the mixture was cooled.
- Then the thickening agent were added and solution were stirred.
- Later preservatives and perfuming agents are added to the mixture and gently stirred.
- Finally, the cream shampoo was prepared and stored in a container.

**1. Weighing:**

All required herbal ingredient for shampoo preparation were accurately weighed individually by using digital balance.

**2. Mixing:**

They are prepared by simple mixing process. The detergents is first added to the solution and then perfume is added last. Mix all the ingredients together and perfume finally added then mix

**3. Storage:** store in suitable container.



**EVALUATION OF POLYHERBAL  
ANTIDANDRUFF CREAM SHAMPOO:**

Prepared formulations of shampoos were subjected to following evaluation parameters.

Physical evaluation:

Formulated herbal cream shampoo was further evaluated by using the following physical parameters.

Color, Odor, Consistency, and state of the formulation.

- a) **Color:** The color of the cream was observed by visual examination.
- b) **Odor:** The odor of cream was found to be characteristics.
- c) **Consistency:** The formulation was examined by rubbing cream on hand manually. The cream

having smooth consistency. Cream did not leave greasy substances on skin surface after application.

d) **State:** The state of cream was examined visually. The cream having a semisolid state.

**PH:**

PH of prepared herbal cream was measured by using digital pH meter. The solution of cream was prepared by using 100 ml of distilled water and set aside for 2 h. PH was determined in three time for the solution and the average value was calculated.

**Washability:**

Formulation was applied on the skin and then ease extends of washing with water was checked.

**Non-irritancy test:**

Herbal cream formulation was evaluated for the non-irritancy test. Observation of the sites was done for 24 h 28

**Viscosity:**

Viscosity of cream was done by using Brooke field viscometer at the temp of 25 °C using spindle no. 63 at 5rpm

Table no:3 Result of polyherbal antidandruff cream shampoo

Sr.No	Parameters	Results
1	Color	Slightly white green
2	Odour	pleasant
3	Consistency	Smooth
4	State	Semisolid
5	Ph	6.5
6	Spreadability	5.4g.cm/sec
7	Washability	Easily washable
8	Non irritancy test	No irritation
9	viscosity	326cps

**II. RESULTS:**

The cream shampoo was the formulation and evaluation of polyherbal cream. The evaluation parameters were coming under results, like the physical evaluation of polyherbal cream shampoo, PH of the cream, Spreadability, Washability, non-irritancy test, viscosity of the polyherbal pain reliving cream was shown in table 3

**III. DISCUSSION:**

The present work was the formulation and evaluation of polyherbal cream shampoo. The present work was focus on the revealing the activity of herbal extracts or herbal oils. This cream formulation was o/w type of emulsion; hence this formulation was easily washed with plane water after application. The prepared formulation was good Spreadability. Viscosity and PH foam stability of the cream was good. Cream does not show any type of phase separation during storage. The cream was non-greasy in nature and easily removable after application. The formulation was Non-irritant and not harm to the skin.

**IV. CONCLUSION:**

Hence we concluded that formulation of polyherbal shampoo is effective in reducing dandruff without irritation, less adverse effects and better conditioning effect. Present to formulate the herbal shampoo preparation based on traditional knowledge and to develop few parameters for quality and purity of herbal shampoo.

The awareness and need for cosmetic with herbs in the rise, as it is strongly believed that these products are safe and free of side effects.

For the treatment of dandruff we have both synthetic and herbal shampoos. But when compared to the chemical base shampoos, the herbal shampoos are more effective in terms of safety and easy of manufacture and in the economic point of view they are cheap.

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