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FORMULATION OF AYURVEDIC SHAMPOO W.S.R. TO ITS HERBAL CHARACTERIZATION

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ABSTRACT

Shampoos are primarily products aimed at cleansing hair and scalp. Present study aims to formulate *Ayurvedic* Shampoo containing herbal extract and tiny chemicals. In the present scenario, it is essential that *Ayurvedic* shampoo must be better in performance and safer than the synthetic ones. Present formulation include 10% active ingredients like *Shikakai (*Acacia concinna*)*, *Reetha (*Sapindusmucorossii*)*, *Jatamansi (*Nardostachys jatamansi*)*, *Sariva (*Hemidesmusindicus*)*, *Mandukaparni (*Centellaasiatica*)*, *Bhringaraj (*Eclipta alba*)* and Cow urine. In the present study, the ingredients were selected keeping in view of various characteristics of the shampoo including its Appearance, Foaming ability, Detergency, Fragrance and after washing hair manageability. *Shikakai* and *Reetha* contain saponins and these have given soapy properties to the product. *Jatamansi* is good for hair growth, *Mandukaparni* whole Plant extract is used for hair maintain and growth. Modern studies have confirmed that the antibacterial activity of *Sariva* and *Bhringaraj* prevent balding and premature greying of hairs. Cow Urine inhibit the growth of Malassezia fungi (90-95%) which is responsible for causing dandruff. Evaluation of *Ayurvedic* Shampoo include organoleptic, performance tests were performed. The results showed brown colour clear shampoo and pH value 7 which was suitable to retain the normal pH mantle of scalp. Ayurvedic shampoo provided stable foam, good cleaning and wetting effect. The details of the study will be present during the seminar.

KEYWORDS: *Ayurvedic* Shampoo, Cow urine, Malassezia fungi, *Shikakai*, *Reetha*.

INTRODUCTION

Beautifying product have been used since ancient times, the beauty of hairs is an important part. In ancient time people used powder of *Reetha*, *Amala*, *Shikakai* and *Multani Mitti* etc. But it is not possible to apply all these things to the body in today's busy life. So now a day market is full of hair beautifying resources, where Shampoo is used mainly. But these products contain more amount of synthetic chemicals. So their long term use can cause harm to scalp and hairs even some ext3ent to CNS. Shampoos are primarily products aimed at cleansing the hair and scalp. In this present study, an *Ayurvedic* shampoo was formulated which contained herbal extracts 10% and base 90%. Present formulation include ingredients like *Shikakai*, *Reeta*, *Jatamansi*, *Sariva*, *Mandukaparni*, *Bhringaraj*, Cow urine. The ingredients were selected keeping in mind that various characteristics of the shampoo including Appearance, Foaming ability, Detergency, Fragrance and after washing hair manageability.

MATERIALS AND METHODS

For the formulation of *Ayurvedic* Shampoo raw drugs and chemicals are collected from NIA, Jaipur Pharmacy, Cow urine was collected from local dairy and Pharmaceutical study was conducted in the *Rasshastra* and *Bhaishajya Kalpana* practical laboratory.

Ingredients

Table no. 1: Showing Ingredients of *Ayurvedic* Shampoo (AS**).**

S.No.	Name	Botanical name	Family	Part used
1.	***Shikakai***	*Acacia concinna*	Mimosaceae	Pods
2.	***Reetha***	*Sapindusmucorossii*	Sapindaceae	Fruit Pericarp
3.	***Jatamansi***	*NardostachysJatamansi*	Valarianaceae	Rhizome
4.	***Mandukaparni***	*Centellaasiatica*	Apiaceae	Whole Plant
5.	***Sariva***	*Hemidesmusindicus*	Apocynaceae	Root
6.	***Bhringaraj***	*Eclipta alba*	Asteraceae	Whole Plant
7.	**Cow urine**			

Table no. 2: Showing Ratio of ingredients used in *Ayurvedic* Shampoo.

S.No.	Ingredients	Concentration %
1.	Decoction (Herbal extract)	8.58
2.	Cow urine	1.42
3.	Distilled water	40.9
4.	Glycerine	5
5.	Preservative	1
6.	Polyquaternium-7	2
7.	Coco Di Ethanolamide (CDEA)	2

8.	Sodium Lauryl Ether Sulfate (SLES)	32
9.	Sodium Laureth Sulfate(SLS) Needle	1
10.	Cetyl alcohol	0.5
11.	Cetostearyl alcohol	0.5
12.	Cocomono	2.5
13.	Cetric acid	0.1
14.	Glycerol Monostearate (GMS)	2
15.	Fragrance	0.5%

Instruments

Wide mouthed steel vessel, cloth, electrical weighing machine, Pounding machine, mixer grinder, 10 no. Sieve, LPG stove, spatula, spoon, glass beakers, measuring cylinder, mental heater.

Packing material

Labelled HDPE plastic bottles 100 ml capacity.

Steps involved in the formulation of shampoo

1. Pre extraction preparation of herbal material

It is an important stage before Pharmaceutical procedure to preserve bioactive constituents of herbal material. In the preparation of AS dried herbal material was used. For pre extraction preparation of herbal material following stages were followed.

- Separation of foreign material- each herbal material separately cleaned by hand picking and cloth dusting.
- Powdering of crude drugs- Cleaned plant material were pounded separately in the Pounding machine. Then they were powdered using mixer grinder and sieved through 10 no. Mesh size sieve. The powders thus obtained were weighed separately and stored in air tight plastic bags for further Pharmaceutical use.

2. Extraction

Extraction is the separation of medicinally active portion of plant using selective solvents through standard procedure.[1] In Ayurveda many types of extraction methods were described such as *Swaraskalpana* (Juice), *Kwathakalpana* (Decoction), *Himakalpana*, *Phantkalpana*, *Arkakalpana* etc. In the present work *Kwath* method was used to prepare extraction, this is because the process is suitable for obtaining maximum extraction of active ingredients.

Preparation of extract by Decoction method

Powders of herbals such as *Shikakai, Reetha, Jatamansi, Mandukaparni, Sariva, Bhringaraj* were taken in equal amount (each 1.42%) and weighted separately and soaked in Distilled water over night. Next day *Kwath* (Decoction) was prepared according to classical reference by adding 16 times water & reduced to 1/8th part and filtered through the double layered cloth. The whole process was carried on moderate heating.

3. Processing of Cow urine

The obtained cow urine was filtered through a cloth and removed sediments from it and kept in a hot air oven for 20 min. at 110°C to kill any bacteria if present in it and then kept in glass cleaned flask for further use.

4. Preparation of *Ayurvedic* Shampoo

Ayurvedic Shampoo is a oil in water type of emulsion. It contains two Phases – Water phase (Phase I) and Oil phase (Phase II).

- **Preparation of water phase (Phase I)**

Kwatha was taken in a steel vessel and maintained at a temperature of 65°C -85°C. Gomutra, distilled water, Sodium Laureth Sulfate(SLS) Needle, Glycerine, Sodium Lauryl Ether Sulfate (SLES), Polyquaternium-7, Citric acid and preservative as per the ratio were added to the vessel one by one and followed by gradual stirring.

- **Preparation of oil phase (Phase II)**

In a glass beaker cetylalcohol, Cetostearyl alcohol, Glycerol mono stearate, cocomono, Coco Di Ethanolamide (CDEA) were added one by one and stirred slowly at maintained temperature of 65°C -85°C.

- **Mixing of Phase I & II**

In a wide mouthed vessel oil phase was mixed in water phase with continuous slow stirring, using electrical stirrer until it becomes lukewarm and thick. After cooling of the AS fragrance was added in it.

Packing

Ayurvedic Shampoo filled in 100ml capacity HDPE plastic bottles.

Precautions

1. Temperature was maintained at 65°C -85°C throughout operation.
2. Stirred continuously and slowly to avoid foaming.

Analytical Evaluation of *Ayurvedic* Shampoo

1. Physical appearance

The formulations prepared was evaluated in terms of their Colour and Fragrance.(Table no.3).

2. Determination of pH

The pH of 10% Ayurvedic shampoo solution in distilled water was determined at room temperature 25°C.[2] (Table no.3).

3. Determine percent of solid content

A clean dry evaporating dish was weighed and added 4 grams of shampoo to the evaporating dish. The dish and shampoo was weighed. The exact weight of the shampoo was calculated only and put the evaporating dish with shampoo was placed on the hot plate until the liquid portion was evaporated. The weight of the shampoo only (solids) after drying was calculated.[3] (Table no.3).

4. Wetting time

The canvas was cut into 1-inch diameter discs having an average weight of 0.44g. The disc was floated on the surface of Ayurvedic Shampoo solution 1% w/v and the stopwatch started. The time required for the disc to begin to sink was measured accurately.[4] (Table no. 3).

5. Foaming ability and Foaming Stability

Cylinder shake method was used for determining foaming ability. 50ml of the 1% shampoo solution was put into a 250 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times. The total volumes of the foam contents after 1 minute shaking were recorded. The foam volume was calculated only. Immediately after shaking the volume of foam at 1 minute intervals for 4 minutes were recorded.[5] (Table no.4).

RESULT

Table No. 3: Showing Characterization of Herbal Shampoo.

S.No.	Test Name	Result
1.	Physical appearance	Brown colour
2.	pH	7
3.	Total solid content	15.42%
4.	Wetting time	4 sec

Table no. 4: Showing Foam stability of Ayurvedic Shampoo.

Time (Minute)	Foam Volume (ml)
1	150
2	148
3	147
4	145
5	144

DISCUSSION

Role of Ingredients

Shikakai

It is a traditionally used in to strengthen hair roots, hair growth and soaps in India for centuries.[6] *Shikakai* has a natural low pH and very mild and ideal to wash hairs.[7] It is a powerfull antidandruff. It is a good cleansing agent, retain natural oil of hairs keeps hair lustrous, healthy and protect scalp from infection.[8] Due to presence of saponins it acts as good cleasing agent.

Reetha

Is is also called *Phenil* and *Pitafen* due to its foaming activity. It is a good cleanser and traditionally used for hair washing with *amlaki* and *shikakai*. It removes any microorganism responsible for infection, nourishes hair and also helpful for hairs.[9] The fleshy portion of *Reetha* contains 11.5% Saponin and gives Soapy feel to the product.[10]

Jatamansi

According to *Ayurvedic* text it is *Keshya* and use in skin disorder.[11] Previous work reveals that *Jatamansi* showed Positive response in hair growth promotion activity.[12] *Jatamansi*oil is one of the most effective oil for supporting a calm mind and balanced nervous system and also used for skin health and hair growth.[13]

Mandukaparni

Whole Plant extract is used for hair maintain and growth. Previous studies shows that it is used in the treatment of hair loss, dandruff, baldness.[14] To kill germs its crushed leaves and root extract is applied to the affected part.[15] According to Ayurvedic text it is used for skin disorders.

Sariva

Modern studies have confirmed the antibacterial activity of root extract, which supports its use in hair infectious diseases.[16] Antidandruff Shampoo of Himalaya Drug Company contain one of ingredient *Sariva*, used to remove dandruff, nourishes and strengthens hair roots, ensures a healthy scalp. It is naturally enriched with calcium, iron, Phosphorus, Vitamin B1, Vitamin C, Riboflavin and Niacin which help to promote thicker hair growth and decreases premature greying of hairs.[17]

Bhringaraj

It is known herb for hair growth in Ayurveda. It is the best Known herb for prevent balding and premature greying.[18] It is used in the various formulation of hair oil, hair shampoo, and hair dyes. The antibacterial potential of aerial parts extracts of *Eclipta alba* was studied in solvents like acetone, ethanol, methanol, aqueous and hexane against selected gram positive and gram negative bacterial species.[19]

Cow Urine

The pharmacological importance of Cow urine is stupendous and it's medicinal applications for prevention and cure of diseases are mentioned in Ayurveda.[20] Cow Urine inhibit the growth of Malassezia fungi (90-95%) which is responsible for causing dandruff for a longer time (4-5 days).[21] Presence of amino acids and urinary peptides may enhance the bactericidal effect by increasing the cell surface hydrophobicity.[22] Cow urine contain higher amount of Phenols than cow urine distillate makes it more effective against microbes.[23] The main constituent of cow urine that shows disinfectant activity is carbolic acid, which is a mixture of phenol and cresol.[24]

Role of Chemicals

1. Glycerine – It is used as humectants.
2. Sodium Lauryl Ether Sulphate (SLES) – It is used as surfactants.
3. Polyquaternium-7 -It is used as foam stabilizer.

4. Coco Di Ethanolamide (CDEA) - It thickness the AS.
5. Sodium Lauryl Sulphate Needle (SLS Needle) – It is used as surfactants.
6. Cetyl Alcohol – It is used as thickening agent.
7. Cetocetyl Alcohol - It is used as thickening agent.
8. Glycerol mono stearate (GMS) – It is used for pearl effect.
9. Citric acid – It maintains the pH of AS.
10. Methyl paraben, Propyl paraben, EDTA – All are used as preservative to preserve AS.
11. Fragrance – Gives aroma to AS.

CONCLUSION

Ayurvedic Shampoo contains 10% active ingredients and 90% base. It is clear brown colour. Any type of artificial colour was not added in it. It has good foaming & detergency due to *Reetha* and *Shikakai*; maintain natural hair colour due to *Bhringaraj*. Also, these ingredients i.e. *Shikakai, Reetha, Jatamansi, Mandukaparni, Sariva, Bhringaraj* and Cow urine have bactericidal and fungicidal properties. Thus it also cures Dandruff and safe for humans. The plant material added were having advantage of hair growing, cleansing through their medicinal properties.

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