



Formulation Of Herbal Protein Shampoo

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Abstract: A liquid or cream preparation of soap or detergent to wash the hair is called as shampoo. Shampoos are the products which removes surface grease, dust from the hair shaft and scalp. Shampooing is the most common form of hair treatment. Shampoos are primarily being products aimed at cleansing the hair and scalp. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers. A more radical approach in popularizing herbal shampoo would be to change the consumer expectations from a shampoo, with emphasis on safety and efficacy. The main objective of this study was to eliminate harmful synthetic ingredient from herbal shampoo formulation and substitute them with a safe natural ingredient. Hair is an important part of the body appeal and its look is a health indicator. Accordingly, recent advances in hair science and hair care technologies have been reported in literature claiming Innovations and strategies for hair treatments and cosmetic products. The treatment of hair and scalp, primarily, involved the use of shampoo for an effective, but gentle cleansing; however, for years, the shampoo is considered not only as a cosmetic product having the purifying purpose, but it is also responsible for maintaining the health and the beauty of hair, imparting gloss and improving manageability. For meeting the needs of a multitasking formulation, following also the recent marketing-trend addressed to the "natural world", new challenges for cosmetic technology are aimed towards the research of natural ingredients, as well as new techniques for shampoo formulation. Regarding the recent development of solid shampoos, little information is available about their use, formulation and advantages. This review is largely focused on the

description of solid shampoos, mainly based on the use of clays, herbs or flours as washing bases alternative to the traditional ones, consisting of a combination of synthetic surfactants, together with other usual ingredients expected in a shampoo formulation.

KEYWORDS: Herbal shampoo, evaluation, formulation, radical approach, physicochemical approach

INTRODUCTION

A liquid or cream preparation of soap or detergent to wash the hair is called as shampoo. Shampoo is a hair care product, typically in the form of a viscous liquid that is used for cleansing hair. The goal of using shampoo is to remove the unwanted build-up in between the hair without stripping out so much sebum as to make hair unmanageable. Shampooing is the most common form of hair treatment. Shampoos are primarily being products aimed at cleansing the hair and scalp. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers. A more radical approach in popularizing herbal shampoo would be to change the consumer expectations from a shampoo, with emphasis on safety and efficacy. The word shampoo in English is derived from Hindustani champoo. Shampoos are typically composed of 10 to 30 ingredients.

DEFINITION -: A shampoo is a preparation of a surfactant (i.e. surface active 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.

IDEAL PROPERTIES OF A SHAMPOO :-

1. It should effectively and completely remove dust or soil, excessive sebum or other fatty substances and loose corneal cells from the hair.
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, soft, lustrous with 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.

AIM AND OBJECTIVES**Aim**

A project on pharmacognostic study of Herbal Protein Shampoo

Objective

1. To formulate Herbal Protein shampoo.
2. To Evaluate Herbal protein Shampoo
3. To reduce side effects of chemical formulation
4. To improve hair texture
5. To Darkening the hair colour.
6. For cleansing hair scalp.
7. For creating smoothing effects to hair.
8. To imparting shining to hairs.

Need

The skin of our head produce greasy a fluid called Sebum. It produce to protect the hair by coating a layer of itself all over the head. This give the hair a healthy shine but when sebum secrets in large amount it make hair look dirty. To prevent over dryness due to regular usage of chemical shampoos.

HISTORY AND ORIGIN

In the Indian subcontinent, A variety of herb their extract have been used as shampoo since ancient time. A very effective early Shampoo made by boiling Hibiscus powder, shikakai, Reetha Neem powder, flame seed, etc. An selection of other herb using strain extract other product use for hair cleansing were Hibiscus flower powder, shikakai(acacia concinna), Reetha powder (sapindus) known soapberries called ksuna. Cleansing with hair & body massage once during daily bath was an indulgence of early colonial traders in India. When they written to Europe they introduce newly learnt habits Including the hair treatment they called Shampoo.

There was such a character too in our very colourful history. Sake Dean Mahomed was born in 1759 in Patna to family from the barber caste. But the simple haircut was not enough for him, so he grew up

experimenting with herbal mixes and soaps. He also perfected an elaborate technique of giving the champi or head massage. Mahomed sailed to England with his wife and children, set up a spa in Brighton called Mahomed's Baths, and started offering massage cum herbal hair treatment. Hospitals sent him patients for treatment and Mahomed was 'shampoo surgeon' for two of Britain's Kings! He wrote a book called 'Shampooing or the benefits resulting from the use of Indian Medicated Vapour Bath'.

Indians, like the rest of the world, started using chemical compound shampoo in the 1900's. The first sachet shampoo was floated by Chik Shampoo, and immediately became a hot favourite due to its convenience and low price. Interestingly, after all these years, we are again exporting ayurvedic, herbal and natural shampoos and hair packs. While we have come very far from Mahomed's packs and boiled shampoo mixes, it seems the old naturally made shampoo is making a comeback again.

Plant Authentication**1.fenugreek seed –**

Synonyms - Trigonella foenum graecum

Kingdom - Plantae

Order. - fabales

Family. - fabaceae

Subfamily. - Faboideae

Genus. - Trigonella

Species. - Trigonella foenum graecum

Biological Source –Fenugreek consists of dried seeds of Trigonella foenum gracium belong to Fabaceae

Chemical Constituent-Methi contains not less than 0.1%. w/w trigonelline on dry basis. Alkaloids such as trimethylamine, neurin, trigonelliar, gentianine, carpaine and betaine are present.

Morphological characters –

Colour: Yellow

Odour: maple syrup

Taste: bitter

Use:- Fenugreek — or methi — seeds are frequently used as a natural home remedy for **thinning hair and other related conditions, such as dandruff or**

a dry, itchy scalp. Beauty publications and other popular media sources claim that they're the secret growing thick, shiny hair.

2. Shikakai –



Synonyms - bhuriphenā, Vimalā

Scientific name- *Acacia concinna*

Kingdom. - plantae

Order. - Fabales

Family. - Fabaceae

Subfamily. - Caesalpinioideae

Clade - Mimosoid clade

Genus - *Denegalia*

Species - *S. rugata*

Biological source- It consist fruit of plant *Acacia Concinna* Linna belong Leguminosae

Chemical constituent- saponin glycoside, lupeol, spina sterol, acacic acid, lactone

Morphological characters-

Colour- smooth brown

Odour- characteristic

Taste- bitter

Use- hair follicular stimulator, cleaning scalp

3. Hibiscus-



Synonyms. - cotton rose, *hibiscus mutabilis*

Kingdom. - plantae

Order. - malvales

Family. - malvaceae

Genus. - *Hibiscus*

Species. - *Hibiscus rosa-sinensis*

Biological source: it consist flowers of *hibiscus murabilis* belong to family malvaceae.

Chemical constituents: *Hibiscus rosa-sinensis* contained tannis anthraquinones, quinines, phenols, flavonoids alkaloids.

Morphological characters:

Colour: yellow, white, orange, red.

Odour: aromatic odour.

Taste: bitter.

Uses: stop hair falls, treat dandruff, make your hair healthy

4. Reetha-



Synonyms - soapnuts

Kingdom. - plantae

Family Name - Sapindaceae

Order. - Sapindales

Genus. - *Sapindus* (Soapberry)

Species. - *Sapindus Mukorossi* (Chinese soapberry)

Biological source: it consists fruit of plant of *sapindus mukorossi*, belong to family sapindaceae

Chemical constituent: major constituent present in reetha are saponins.

Morphological characteristics:

Colour: brown

Odour: characteristics

Taste: bitter

Uses: it is well known for its traditional medicinal uses and is commonly use as a hair cleanser.

FORMULATION:

MATERIALS AND METHODS

Preparation of Herbal Liquid Shampoo

All plant material like ritha fruits, fenugreek seeds, amla and shikakai were collected from Ayurveda store.

Sr. no.	Name	Part used	Quantity	Purpose/uses
1	Methidanna powder	seeds	2.00 gm	Cleansing agent
2	Shikakai	Beans	10.00 gm	Hair follicular stimulator
3	Hibiscus	Flower	5.00 gm	Conditioning agent
4	Reetha	Fruit	10.00 gm	Antidandruff, foaming agent.
5	Methyl paraben	-	Q. S.	Preservative.
6	Beetroot juice		5 ml	Hair growth promotor, colouring agent.
7	Distilled water	-	Q. S	Vehicle

Requirements- beaker, measuring cylinder, glassrod, filter paper, tripod stand, burner, funnel.

Procedure-

1) **Powder extract:** Take 2gm of methi dana powder, 10gm shikakai powder, 5gm hibiscus powder, & 10gm ritha powder mix it well by adding 50ml boiling water. And soak the mixture for 30min.

2) **Flax seed solution:**

-take a beaker add 50ml water by adding 5gm flax seeds then add 5ml beetroot juice boil solution for few minutes.

-then filtrate both the solution .Mixed well both the mixture by adding 10ml methyl paraben.

Evaluation of Prepared Protein Herbal Shampoo

Physical Evaluation

1.organoleptic characters:

Color: Brownish Red

odour pleasant Good

2. pH Determination.

Procedure

mix 1 gm Shampoo in 9 ml water

- measure Ph by using ph meter at 27 oC

observation

PH meter detect a PH of Shampoo is 6.5

3. Foaming Index

Procedure

Cylinder Shake method was used for determining foaming index.

5 ml of shampoo was taken into measuring Cylinder and Volume was make upto 25 ml and shaken Properly for ten times.

Then 5 test tubes were taken and add stock Solution was measured as given in. following observation table And each test tube was adjusted for volume upto 10 ml. by adding water.

Then foam in each test was measured in cm and foaming index was calculated.

Observation table:-

Sr.no	Number of test tubes containing ml of stock solution	Height of foam in cm
1	1 ml	0.9 cm
2	2 ml	1.7 cm
3	3 ml	2 cm
4	4 ml	2 cm
5	5 ml	2.7 cm

Calculation:-

foaming index = $1000/A$

Where, A = volume of decoction having exact 1 cm height

foaming index: $1000/2$

Foaming index = 500

Result : The foaming index of shampoo is 500.

4. Present solid content

Procedure

- A clean dry evaporating dish was weighed & added 4 gm of sma shampoo to evaporati.

-Then dish was allowed evaporate the shampoo on hot plate

-Weight evaporating dish after evaporation of shampoo was noted & calculated

Calculation

1. weigh of empty evaporating dish (A) = 76.14 gm.

2. weigh of evaporating dish after evaporation (B) = 76.47 gm

3. weigh of sample = B – A

= 76.47 – 76.14

Total solid content = 0.33 gm

% solid content = $(B-A)/4*100$

= $0.33/4*100$

% solid content = 8.25%

Result : % solid content of shampoo is 8.25%

5.Dirt dispersion test-



Procedure-

-Two drops of shampoo was added to 1 ml water containing test tube 4 one drop of ink was added in test tube

-shake test tube for 10 times.

-The amount of ink in foam estimated as None Light Moderate or Heavy indicates the dispersion of shampoo.

Fig

Result : Herbal shampoo was prepared & evaluated

Sr.no.	Parameter	Observation
1	Colour	Brownish red
2	Odour	Pleasant
3	Apperance	Turbid
4	Texture	Grilty
5	Foaming index	500
6	% solid content	8.25%
7	Dirt dispersion test	Light

Chemical evaluation-

Test for saponin glycoside (reetha, shikakai)

1. foam test- few ml of shampoo shake with water – froth formation.

2. hemolytic test- shampoo solution + drop of blood – RBC rupture, cause hemolysis

MATERIAL AND METHOD

SAMPLES: Bacterial sample: Bacillus subtilus

MATERIAL:

1) Collection of plant materials:

The plants Sapindus mukorossi (Ritha), methi dana powder, Hibiscus powder, shikakai powder were collected from the garden area of SVNHT's Campus, Rahuri Factory.

2) Preparation of herbal powder extracts:

The collected powders are taken from methi dana, ritha, shikakai and hibiscus. Take 4 leaves and extract 20ml gel from it and used for making herbal protein shampoo.

3) Preparation of herbal fruit extracts:

The collected plants Sapindus Mukorossi (Ritha), methi dana, shikakai fruit are taken and coarsely powdered and boil it and filtered. The filtrate was collected and used for making hand wash.

4) Preparation of herbal flower extract:

The collected plant hibiscus flower are taken and coarsely powdered. And boil it and filter it. The filtrate was collected and used for making shampoo.

METHODS:

1) Standardization of inoculums:

The inoculum prepared from the stock cultures, were maintained on nutrient agar at 4°C and sub-cultured onto nutrient broth using a sterile wire loop.

2) Antimicrobial studies of herbal protein shampoo:

The screen of anti microbial efficacy of the herbal oils was performed on various microorganisms (eg. Bacillus S.) by using dip well method. The sterile petri plates were taken for testing the antimicrobial activity of herbal oil against Bacillus Subtilus. The plates were filled with nutrient agar. After solidification the microorganisms from sub-culture were inoculated into the nutrient agar media. The plates were incubated at 37°C for 24 hours. After 24 hours of incubation, the plates were observed for the zone of inhibition. From the zone of inhibition the antimicrobial activity is estimated

3) Determination of minimum inhibitory concentrations (MIC) of herbal:

The MIC is defined as the lowest concentration that completely inhibits the growth of micro organisms for 24 hours of incubation. The agar plates are incubated at 37 °C for 24 hours by taking the concentration of lemon juice respectively. The lowest concentration of clear zone of inhibition is considered as the MIC.

4) Evaluation of antimicrobial activity:

The screening of anti-microbial efficacy of the formulated herbal hand shampoo was performed on various micro organisms by using agar plate method as per standard procedure. Two sterile petri plates were taken for testing the anti microbial activity against

microorganisms, Bacillus subtilis. The plates were filled with nutrient agar solution and allowed for solidification. After solidification the microorganisms from the subculture were inoculated into the nutrient agar media and three cavities were made in it. The first cavity is filled with standard antibiotic amoxicillin, second one with herbal protein shampoo with lime water. It was taken care that sample should be placed at the level of cavity. The plates are placed in incubator at 37°C to test the activity. After 24 hours the plates were observed for the formation of zone of inhibition. From the zone of inhibition the anti microbial activity of formulation is estimated.

Preparation of nutrient Agar Media

Ingredient	Quantity	Uses
Agar	15gm	Culture medium
Beef extract	3gm	Source of nitrogen
Peptone	5.0gm	Protein source
Sodium chloride	5.0gm	Salt
Water	Qs to 100ml	Vehicle

Procedure:-

- Weigh the accurate quantity of agar, peptone, beef extract and sodium chloride.
- Transfer beef extract and sodium chloride in a conical flask with 100ml water.
- Then stir and boil the agar media together agar powder is solved
- Cool the agar media for 5 min.
- Then pour the media into sterile petri-dishes.
- Allow to stand for few minutes to solidify.



LABEL

- Category: herbal protein shampoo.
- Storage: store in cool and dry place.
- Direction: for external use only.
- Label:

(Azadirachta indica). Current Science, 2002. Vol. 82, 1336-1345.

HERBAL SHAMPOO		
Ingredients		
Fenugreek seeds extract	2 gm	Mfg. Lic. No. 2022
Shikakaj extract	10 gm	Batch no. 1 – 5
Reetha extract	10 gm	Mfg by: SVNHTS
Hibiscus extract	5 gm	Mfg date: 07/05/2022
Methyl paraben	1 ml	Exp. Date: 07/05/2023
Rose oil	0.1 ml	
CATEGORY: HERBAL PROTEIN SHAMPOO		
STORAGE: Store in cool and dry place.		
Aditya Institute Of Pharmaceutical College Beed		

RESULT

According to zone of inhibition, hand wash prepared with the combination of Aloe vera and lemon juice was equally effective against gram-positive bacteria *Bacillus Subtillis*.

Antimicrobial activity:

The Anti-microbial efficacy of the formulations of herbal Hand Wash was tested on *Bacillus subtillis* by agar plate technique. The results of zone of inhibition showed that the hand wash prepared from Ritha extract of the combined plant materials shown significant antimicrobial activity.

CONCLUSION

A survey of global hair care market trends indicates that consumer use of herbal hair products has significantly increased over the past years. Because hair shampoo are known to damage the hair cuticle and leave brittle, dull and dry hair. The factors like UV radiations, use of harsh chemical products have direct and indirect impact on to the hair.

To overcome this entire problem the present study has the best undertaken to design a herbal shampoo which will not only give hair protection but also conditioning effect, shine and manageability. The present work focuses on the potential of herbal extracts from cosmetic purposes.

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