



FORMULATION AND EVALUATION OF HERBAL SHAMPOO

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1. INTRODUCTION

Shampoo is a polyherbal formulation that consist of extracts of Moringa oleifera (drumstick), Rosasinesis (Hibiscus) and Aloe vera gel shikakai, Ritha . These herbs have been selected on the basis of a traditional system and scientific justification with modern uses. Many synthetic shampoos are present in the current market both medicated and non medicated; however, herbal shampoo popularized due to natural origin which is safer, increases consumer demand and free from side effects. Moringaoleifera, belongs to family Moringaceae. It is indigenous to south asia, mainly in Himalayas foothills, India. Moringaoleifera is a nature's gift to mankind as it is the most nutrient-rich and multipurpose plant discovered. DOSAGE OF Moringa oleifera Leaf: 10–20ml. juice; Root bark: 2–5 g powder; Stem bark: 2–5g powder; Seed: 5– 10 powder Leaf, Flower, Fruit, Seed, Bark, root—1–8 g powder; 50–100 ml decoction. The practice of Moringa consumption, with full credence has been in tradition among many tribes of Asia. As the authenticity of Moringa benefits have been confirmed through several years, therefore, many pharmaceutical and herbal healthcare industries sell various Moringa products like Moringa-capsules, Moringa-tea, Moringa-oil, Moringa-soap, Moringa-shampoo, Moringaantiwrinkle cream etc. Moringa is actually a versatile tree and a nature's medicine cabinet. The high behenic acid content is the reason why the oil is known commercially as

—Benl or —Behen oil. Japakuśum (Hibiscus rosasinensis. L flower) flower is indicated as Keshya (hair growth promoter).

Authentication of Herbal plants

Herb authentication is a quality assurance process that ensures the correct plant species and plant parts are used as raw materials for herbal medicines. The proper authentication of herbal raw materials is critically important to the safety and efficacy of herbal medicines.

The major methods employed in the authentication of herbal materials are macroscopic and microscopic examination, and chromatography. In addition, some pharmacopoeial monographs include chemical

identification tests.

Macroscopic examination involves the comparison of morphological characters that are visible with the naked eye or under low magnification with descriptions of the plant or botanical drug in floras or monographs. Characters such as size, shape and color of leaves (or leaf fragments), flowers or fruits are commonly used in macroscopic identification.

Microscopic examination focuses on anatomical structures in the plant material that are visible only with the help of a microscope.

Shampoo is a hair care product, typically in the form of a viscous liquid, that is used for cleaning hair. Less commonly, shampoo is available in solid bar format. Shampoo is used by applying it to wet hair, massaging the product into the scalp, and then rinsing it out. Some users may follow a shampooing with the use of hair conditioner.

Shampoo is typically used to remove the unwanted build-up of sebum in the hair without stripping out so much as to make hair unmanageable. Shampoo is generally made by combining a surfactant, most often sodium lauryl sulfate or sodium laureth sulfate, with a co-surfactant, most often cocamidopropyl betaine in water. The sulfate ingredient acts as a surfactant, trapping oils and other contaminants, similarly to soap.

Specialty shampoos are marketed to people with dandruff, color-treated hair, gluten or wheat allergies, an interest in using an organic product, infants and young children ("baby shampoo" is less irritating). There are also shampoos intended for animals that may contain insecticides or other medications to treat skin conditions or parasite infestations such as fleas.

PLANT DESCRIPTION

Moringa leaves, seeds, bark, roots, sap, and flowers are commonly used in traditional medicine. The leaves and seed pods are used as food. Safety studies involving leaf extracts indicate moringa is very safe. No harmful effects were reported in association with human studies.

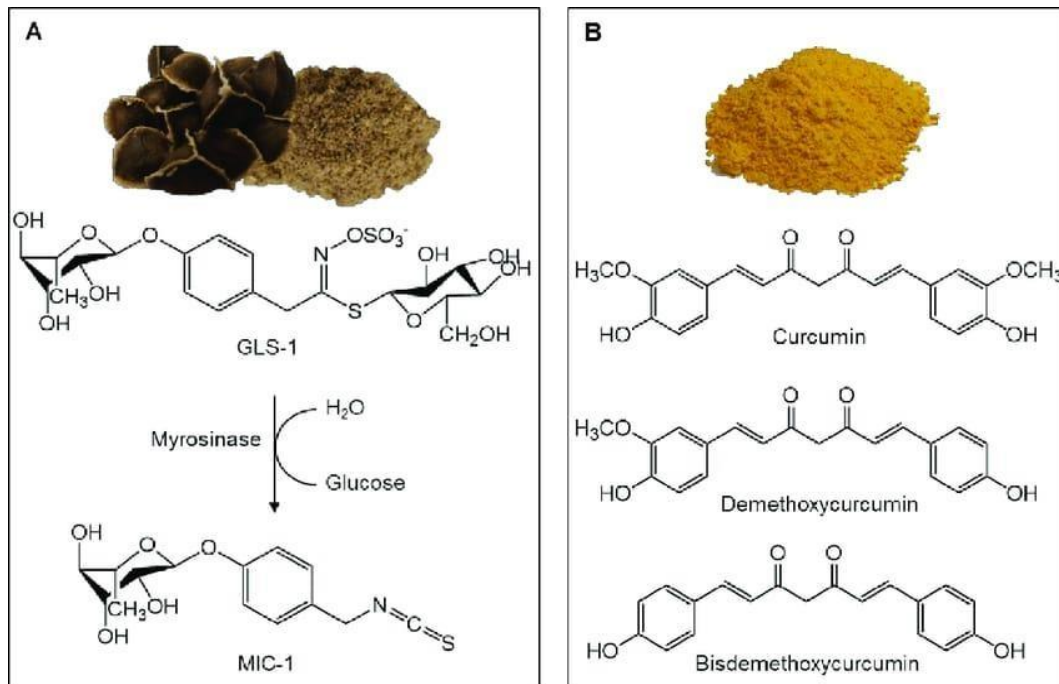
Sometimes referred to as a bean, this long, rigid pod grows on a tree. Its hard, green outer covering is rigid enough to earn its common name of drumstick. They are a popular ingredient in vegetable curries. These long, slender pods are tricky for those not brought up to eat them.

Scientific name	:	Moringaoleifera
Family	:	Moringaceae
Order	:	Brassicales
Kingdom	:	Plantae
Taste	:-	It tastes like matcha that has been spiked with notes of spirulina-

like blue-green algae. When added to water, the light powder dissolves easily, providing a distinctly "green" flavor that is bitter and slightly sweet. Dried Moringa leaf powder can also be sprinkled into smoothies,

yogurts, and juices.

Moringa Oil Hair Benefits :-Hydrates, prevents and treats dry skin conditions. Acts as an anti-pollution shield.



Chemical Constituent and Chemistry of Constituent

Moringa oleifera seed oil revealed that the main fatty acid, sterol, phenol and tocopherol were oleic acid, β -sitosterol, ferrulic acid and α -Tocopherol. The given results also revealed that the investigated Moringa seed oil contained a number of bioactive-compounds.

DRUG AND EXCIPIENT

S. No.	Common Name	Pictures	Botanical Name	Parts used	Category
1	Drumstick		Moringa Oleifera	Seed	Core ingredient
2	Alovera		Aloe Barbadensis	Pulp	Smoothing agent
3	Hibiscus		Rosa Sinesis	Flowers	Conditioning agent
4	Shikakai		Acacia concinna	Fruits	Antifungal, Nourish follicles, Curb dandruff
5	Ritha		Sapindus mukorossi	Fruits	soapberry, soapnut, washnut, aritha.

6	Sodium Lauryl Sulphate		Sodium dodecylsulfate	Powder	Fat Emulsifier, Wetting agent, Detergent in Cosmetics.
7	Methyl Cellulose		Hypromellose	Powder	Thickening Agent, Stabilizing Agent.
8	Rose Water		Rosa damascena	Liquid	Flavoured water, Perfume agent.



2. MATERIAL AND METHOD

Table :- Formulation of Herbal Shampoo:-

Sr. No.	Ingredients	Quantity
1	Drumstick	10 gm
2	Alovera	5 ml
3	Hibiscus	4 ml
4	Shikakai	8 gm
5	Ritha	8 gm
6	Sodium Lauryl Sulphate	6 gm
7	Methyl Cellulose	1 gm
8	Rose Water	10 ml

Decoction method (Procedure):-

weighed all the ingredients according to the formal.

Decoction of Drumstick, Aloevera, Hibiscus was prepared in one part of water. filter it by using muslin cloth, collect filtrate Decoction of shikakai and Ritha was prepared in another part of water. filter it, by using muslin cloth, collect filtrate. mixed to each other of above filtrate with conta constant stirring. mited to sodium lauryl sulphate in foaming. mixed to methyl cellulose as a thickening agent tom maintenance of consistency herbal shampoo of as polike semisolid reature. preservatives arts and & Rose water this perfume was add Lastly.

3. EVALUATION OF HERBAL SHAMPOO

Appearance :-A shampoo like any other cosmetic preparation should have good appealing physical appearance. The formulated and marketed shampoos were evaluated for physical characteristics such as colour, odour and transparency (Table 3). Our prepared shampoo was transparent, light green and had good odour. No significant difference was observed in terms of odour, transparency and foaming characteristics between commercial and formulated shampoo except for colour.

Colour :- Black Brown, Dandruff Cleansing Shampoo - 50 ml

PH :- The pH of formulated shampoo was 6, falling within the ideal pH range for shampoo which is between 4.33 and 4.73. The formulated shampoo is acid balanced which is near to the skin PH. The pH of shampoo is important for improving and enhancing the qualities of hair, minimizing irritation to the eyes and stabilizing the ecological balance of the scalp. Mild acidity prevents swelling and promotes tightening of the scales, there by inducing shine.



Fig 9. PH

Viscosity :- The viscosity of shampoo plays an important role in determining its shelf life stability, the ease of flow on removal from packing and spreading on application to hair and product consistency in the package. The viscosity of formulated shampoo was found to be 50 millipoise which was good enough for its applicability.

Foaming Stability :-The stability of the foam was determined using cylinder shake method. About 50 ml of formulated shampoo (1%) solution was taken in a graduated cylinder of 250 ml capacity and shaken for 10 times vigorously. Foam stability was measured by recording the foam volume of shake test after 1 min and 4 min, respectively. The total foam volume was measured after 1 min of shaking. From the consumer point of view, foam stability is one of the important needs of a shampoo. Important parameter that was considered in the shampoo evaluation was determination of foaming stability. The foam volume produced by the formulated shampoo is above 50 ml. The prepared shampoo generates uniform, small sized, compact, denser, and stable foam. The foam volume remains same throughout the period of about 5 min showing that the generated foam by the shampoo has good stability.



Fig 10. Foaming Stability

Surface Tension :- Measurements were carried out with a 10% shampoo dilution in distilled water at room temperature. Thoroughly clean the stalagmometer using chromic acid and purified water. Because surface tension is highly affected with grease or other lubricants. The data calculated by following equation given below:

$$R_3 = (w_3 - w_1) n_1 \times R_1 / (W_2 - W_1) n_2 \times R_2$$

Where, W1 is weight of empty beaker.

W2 is weight of beaker with distilled water. W3 is Weight of beaker with shampoo solution. n1 is no. of drops of distilled water.

n2 is no. of drops of shampoo solution.

R1 is surface tension of distilled water at room temperature. R2 is surface tension of shampoo solution.

Wetting time:- Wetting time was calculated by noting the time required by the canvas paper to sink completely. A canvas paper weighing 0.44 g was cut into a disc of diameter measuring 1-inch. Over the shampoo (1% v/v) surface, the canvas paper disc was kept and the time taken for the paper to sink was measured using the stopwatch.

Cleaning action :- About 1 g of grease is spread on non-adsorbent cotton and kept in conical flask containing 1% shampoo solution. The conical flask is shaken for 1 hr in mechanical shaker. Cotton is collected, dried and weighed. The amount of grease removed is determined by using the equation given below: $DP = 100 (1 - T/C)$

Where, C - Weight of grease in control sample. T - Weight of grease in test sample.

DP-Percentage of detergency power.

Dirt dispersion :- Shampoo that causes the ink to concentrate in the foam is considered poor quality; the dirt should stay in water. Dirt that stays in the foam will be difficult to rinse away. It will redeposit on the hair. The estimated amount of ink in foam was light and so results indicate that prepared formulation is satisfactory.

solid contents (%) :- A Clean dry china dish was weighed and 4 grams of shampoo was added to it. The weight of dish and shampoo was noted. The exact weight of shampoo was calculated. Place the china dish with herbal shampoo on hot plate until the liquid portion was evaporated. The weight of shampoo (solids) after drying was calculated.

Result :- The created cleanser was clear and good appealing. It demonstrated good froth stability, detergency, good cleansing, small bubble size, low surface strain, and execution of good conditioning.



Table :- Evaluation Test

Parameters	F1	F2
Appearance	Clear	Clear
Colour	Black Brown	Black Brown
PH	4.33	4.73
Viscosity	15.251 CP	18.72 CP
Foam Volume (ml)	166	164
Surface Tension	31.12	33.65
Wetting Time	43 Sec	58 Sec
Cleaning Action	Good	Good
Dirt Dispersion Test	Moderate	Heavy
Solid Contents	10.3	15.5

4. CONCLUSION

The main purpose behind this investigation was to develop a stable and functionally effective shampoo. The present study was carried out with the aim of preparing the herbal shampoo that provides smooth and straight effect to hairs, safer than the chemical conditioning agents.

Herbal shampoo was formulated with the aqueous extract of medicinal plants that are commonly used for cleansing and smoothening hair traditionally.

To provide the effective conditioning effects, the present study involves the use of mooring, aloevera, hibiscus, Shikakai and Rithaextracts instead of synthetic cationic conditioners. The factors like UV radiations, use of harsh chemical products have direct and indirect impact on the hair.

The present work focuses on the potential of herbal extracts from cosmetic purposes. Hence we conclude that the formulation of mooring herbal shampoo is effective in providing smoothening and shiny effect and better conditioning effect.

5.

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