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FORMULATION AND EVALUATION OF HERBAL HAIR CONDITIONER

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Abstract— Most of the currently used products for repairing and conditioning hair rely on the deposition of complex formulations, based on mixtures involving macromolecules and surfactants, onto the surface of hair fibers. This leads to the partial covering of the damaged areas appearing in the outermost region of capillary fibers, which enables the decrease of the friction between fibers, improving their manageability and hydration. The optimization of shampoo and conditioner formulations necessitates a careful examination of the di_erent physicochemical parameters related to the conditioning mechanism, e.g., the thickness of the deposits, its water content, topography or frictional properties. This review discusses di_erent physicochemical aspects which impact the understanding of the most fundamental bases of the conditioning process.

KEYWORDS:
hair conditioning; deposition; physico-chemical tools; shampoos; reparation; surfaces; surfactants; polymerslike

INTRODUCTION

ϖ Herbal products have grown in popularity over the past decade. Currently used by 20-30% of thepopulation.

ϖ Herbal products are made from naturalsources such as flowers, stems, bark, seeds, leaves and medicinalplants.

ϖ Hair conditioners are hair careproductsthat condition the hair after shampooing. ϖ Restores hair to its naturalstate, leaving it soft, shiny and manageable.

ϖ This productis suitable for all hair types. It restores moisture and smoothes the hair follicle cuticle. ϖ Hair conditioners with powerful antioxidants canreduce UV damage to your hair, including hair colorchanges and protein damage. Plant-based conditioners contain chemicals and sulfates.

ϖ Today's conditioner formulations go beyond pure hair cleansing. ϖ In addition to cleansing power, conditioners have many properties such as Conditioning and hair shine.

ϖ It is expected not to irritate the skin or mucous membrane. ϖ Various ingredients are required to make a good herbal conditioner.

ϖ Each ofthese ingredients plays a specific role in theconditioner formula.

ϖ Hair products are highly valued these days.

Hair Anatomy

Hair is an integrated systemwith specific chemical and physical behavior.

¬ It is a complex structure composed of multiplemorphological components that work as a unit. ¬ All hair has a shaft and a root. The shaft is the visible part of the hair that attach to the skin

. ¬ Hair roots are located within the skin and reach the deeper layers of the skin.

¬ It is surrounded by hair follicles (coverings ofskin and connective tissue) that are also connected tosebaceous glands.

¬ Each hair follicle is connected to a small muscle (pillor muscle) that can straighten the hair

. ¬ Many nerves also end in hair follicles. ¬ These nerves sense hair movement and are sensitive to even the slightest breeze.

¬ At the hairline, the hair root spreads into a round

bulb. ¬ There is a dermal papilla inside the hair bulb, which supplies blood to the hair root

. ¬ New hair cells are constantly forming in the hair bulb near the papilla.

The hair shaft of mammals is divided intothree main regions:

¬ Cuticle

¬ cortex

¬ medulla.

Objective:

a. To Designed to add shine to your hair.
b. To Keep it soft and flowing.
c. To Increase hair growth.
d. To Makes hair more manageable and easier to comb.
e. To Leaves hair soft and moisturized.
f. To Restore damaged hair.
g. To straightening curly hair.Freshness

Advantages of herbal conditioner:

a. Gives hair shine and softness.
b. Reduce split ends.
c. Improve manageability.
d. Prevent hair breakage.
e. Protects hair from chemical and mechanical damage

Disadvantages of other conditioner available in market:

a. **Harmful to hair and generally toxic**
b. **. b. Causes eye irritation.**
c. **c. Other conditioners mainly contain Sodium Lauryl Sulfate and Ammonium Lauryl Sulfate.**
d. **d. They dry out the hair shaft and cause split ends and frizz.Benefits of aloe-vera for face**

Aloe Vera Gel

It contains many active ingredients and minerals that help strengthen your hair. It protects against ultraviolet [UV] radiation that comes from the sun. Aloe Vera contains many active ingredients and minerals that help strengthen hair. It containsfatty acids and amino acids and is rich in vitamins A, B12, Cand E. These play a role in healthy hair follicles. Aloe Vera cleanses the hair shaft very effectively. Aloe Vera contains proteolytic enzymes that repair dead skin cells on the scalp.

Rose Water

Rosewater softens hair in many ways. Rosewater is a mild astringent and can help reduce oiliness and dandruff.Rosewater acts as an astringent on the scalp, tightening the skin and preventing excess sebumproduction. By reducing oil production, rose water prevents the formation of dandruff on the scalp.

Procedure

- We take 4.2gm of fenugreek seeds and 4.2gm of mint leaves in a china dish and add 100mlof water toit.
- Boil it until 1/4th of the liquid remains in it.
- This process is fully from plant extract.In the next step, aloe vera gel (3gm), citric acid(3gm) & glycerin (6ml) taken in another beaker and stir continuously to required solution get dissolved.
- This process is called aqueous phase.
- In another beaker almond oil (3ml) & coconut oil (3ml) mixed and stirred.
- Aqueous phase will be added drop by drop to plant extract and stirred continuously and to this solutionoil phase will be added drop by drop and continuously stirred.
- In this preparation, pinch of the propyl paraben is added as a preservative to the abovesolution.
- The final solution will be measured in a measuring cylinder which results 40ml.
- To this solution 10ml rose water added to make up for 50ml.

Evaluation Parameter

Formulation of herbal hair conditioner were made and evaluated by the following organoleptic properties and physicochemical parameter

pH test:

Soak the pH strips in the herbal conditioner solution and wait for the color to change. Determine thepHby comparingthe color of the pH strip to the color chart.

Formulation 1	4.5
Formulation 2	4.0
Formulation 3	4.2
Formulation 4	4.61

Dirt dispersion test:

Two drops of conditioner were added to a large test tube containing 10 ml of distilled water, one dropof Indian ink was added, the test tube was capped and shaken 10 times. The amount of ink present in the foam was rated as none, light, medium, or heavy. Cleansing action: 5g of wool yarn was put into the grease and then into 200ml of water with 1g of conditioner in the flask. The water temperature is kept at 350°C. The flask was shaken at 50 times per minute for 4 minutes. The solutionwas removed, the sampleremoved, dried and weighed. The amount of fat removed was weighed.

Stability testing:

Store the herbal hair conditioner at 37°C for 6 weeks and observe changes in color and viscosity.

Moisturizing time determination: Appropriately sized 1 g, 20 cm3 size were placed on the surface of 60mlof variousdiluted conditioners and the complete sinking time of ball in the conditioner was measured.

Viscosity:

A Brookfield rotating spindle viscometer was used for viscosity testing. To measure viscosity, the measuring body

(spindle) is immersed in oil and rotated at a given speed.

Wetting time:

The wettability of surfactants depends on their concentration in the formulation and is commonly testedtoassess

surfactant effectiveness. Wet time was determined by measuring the time it took for the disc to sinkintothe conditioner.

Conclusion

- From the above studies, it can be concluded that hair conditioner exhibits excellent conditioningproperties.
- Conditioners are applied to hair after washing and are intended to smooth hair, improve shine andshine, and repair damaged, mechanically damaged, and weathered hair.
- Herbal Hair Conditioner are free of chemical ingredients and are therefore safe to use on allscalptypes. Hair conditioner contains ingredients that strengthen, smoothen and protect andpromote shiny, healthy hair.
- pH value of hair rinse, dirt dispersion test, determination of wetting time, Cleaning efficacy andstability have been tested and has been found tobe safe and effective to use.

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