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Research Article

# FORMULATION AND EVALUATION OF ONION HAIR NOURISHING SHAMPOO

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### ABSTRACT

Shampoo is the most basic cosmetic used for hair, containing antimicrobial agent and other ingredient commonly used. The main function of shampoo is to clean the hair properly and reduce the dandruff. In present work we have formulated onion and eucalyptus oil herbal shampoo for the dry hair. The most common problem in people is related to the dry. Hence research was carried out on dry hair remedy. The formulation was evaluated for various parameters. The formulation of F2 batch shows best result of evaluation parameters as compare to the F1 and F3. The Formulation F2 showed good efficacy. The optimized batch formulation of F2 showed good microbial activity. The advantage of the this herbal shampoo is better nutrient and nourishment to hair follicles and to promote the hair growth and to overcome on dryness problem. The onion used in this formulation as it promotes hair growth and the eucalyptus oil used for the antimicrobial activity for the preparation.

**Keyword:** onion, eucalyptus oil, herbal shampoo, nourishing property

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### INTRODUCTION

Herbal shampoo is a cosmetic preparation which uses herbs from plants and it is meant for washing of hair and scalp just like a regular shampoo. It is an alternative to the synthetic shampoo available in market. Herbalists today, believe in helping people build their good health with the help of natural sources<sup>1,2</sup>

The onion (*Allium cepa* L, from Latin *cepa* "onion"), also known as the bulb onion or common onion, is a vegetable that is the most widely cultivated species of the genus *Allium*. Its close relatives include the garlic, shallot, leek, chive] and Chinese onion *Allium cepa* family Liliaceae has been reported to possess antimicrobial, antibacterial, better nourishment, nutrients and also used as hair scalper hair loss<sup>3,4</sup>.

In formulated shampoo eucalyptus oil is used as it shows antifungal activity. The eucalyptus oil is collected from the market. In the formulation various ingredients are used coconut oil (moistening agent),

castor oil (thinning agent), potassium hydroxide (disinfectant), glycerol (surfactant), borax (cleansing agent), acacia (emulsifying agent), allium cepa extract (scalp reduce agent), eucalyptus oil (antifungal agent), sodium bicarbonate (cleansers), lemon juice (antidandruff agent), methyl paraben (preservative), perfume (fragrance), distilled water (aqueous medium). In this formulation we checked the antimicrobial assay by the sabouraud agar or sabouraud dextrose agar or SDA. The acidic pH 5.6 of sabouraud agar inhibits bacterial growth.

### MATERIALS AND METHOD

Onion was procured of good quality from local market. All the other ingredients used were of analytical grade.

The *Allium cepa* is extracted by the following method.

First 100gms of freshly bulbs of allium cepa were cutted in small pieces. These pieces take into the mixer apparatus crush the content of allium cepa then collect

the allium cepa. This extract is passed through the muslin cloth to take the pure extract in filtrate. This extract is used for the formulation <sup>5, 6, 7</sup>. The eucalyptus oil is

collected from the marketed eucalyptus oil is used for formulation. Three different formulations F1, F2, F3 were prepared. ``

**Table No 1: Composition of shampoo formulation: (20) ml``**

Sr.No	Ingredients	Importance	F1	F2	F3
1.	Coconut oil	Moistening agent	3.6ml	3.6ml	3.6ml
2.	Castor oil	Thinning agent	0.8ml	0.8ml	0.8ml
3.	Potassium hydroxide	Disinfectant	1.06gm	1.06gm	1.06gm
4.	Glycerol	Surfactant	0.8ml	0.8ml	0.8ml
5.	Borax	Cleansing agent	0.04gm	0.04gm	0.04gm
6.	Acacia	Emulsifying agent	0.04gm	0.04gm	0.04gm
7.	Allium cepa extract	Scalp reduce agent	1ml	2ml	3ml
8.	Eucalyptus oil	Antimicrobial agent	1ml	2ml	3ml
9.	Sodium bicarbonate	Cleanser	0.12gm	0.12gm	0.12gm
10.	Lemon juice	Antidandruff agent	1ml	1ml	1ml
11.	Methyl paraben	Preservative	0.06gm	0.06gm	0.06gm
12.	Perfume	Fragrance	q.s.	q.s.	q.s.
13.	Distilled water	Aques medium	20ml	20ml	20ml

### Formulation of herbal shampoo:

Coconut oil and castor oil were saponified with potassium hydroxide using reflux condenser. After complete saponification, glycerin was incorporated with stirring followed by mixing of onion and eucalyptus oil. Then add the ethyl alcohol, methyl paraben used as preservative and lemon juice used for masking smell of formulation then add the perfume and water to gives the formulation will be prepared <sup>7</sup>.



**Figure 1: formulation of herbal shampoo**

### Evaluation test for herbal shampoo:

**1. pH:** The prepared formulation was checked by using pH paper. All the prepared formulation of 3 batches were check for their pH range <sup>8</sup>.

**2. Physical appearance-** As any other cosmetic products, the attractiveness of shampoos for consumers tends to be judged visually thus having good physical appearance is important. Hence formulated shampoo was checked for physical appearance.

**3. Viscosity** was determined by using the Ostwald viscometer (Borosil Pvt.Ltd) <sup>7</sup>.

**4. Ease of Rinsing** The time taken to remove the detergent was performed by applying 5 ml of the shampoo and time taken for complete removal of frothing from wash water was determined.

**5. Foam formation (shake test):** take the shampoo in bottle and shake the bottle to foam will be produced

**6. Surface tension:** The surface tension is carried out by the Ostwald stalagmometer. Mount the stalagmometer in a vertical position on any suitable stand to avoid unnatural of drop. Fill the preparation in dry stalagmometer up to a level higher than mark A and count the total number of drops formed as the formulation meniscus travel from mark A to a mark B. Repeat the step for F2 and F3.

**7. Skin irritation test:** Apply the solution of prepared herbal shampoo on skin and kept for 5 min and observed for redness of skin and irritation <sup>7</sup>

**8. Stability study <sup>8</sup>:** The stability study was carried out of the prepared herbal shampoo at standard temperature of 25-30



**Figure 2: Formulated herbal shampoo.**

## RESULT

**Table 2: Evaluation of formulation of herbal shampoo for physical appearance, pH, surface tension and viscosity**

Formulation code	Physical appearance	Foaming ability	pH	Surface tension (dyne/cm)	Viscosity (cp)
F1	Clear, no characteristics smell	Good	14	25.73	4.13
F2	Clear, no characteristics smell	Good	13	19.6	10.88
F3	Clear, no characteristics smell	Good	10	29.20	11.89

**Ease of rinsing:** The formulation was easy to rinse. Optimized batch formulation was rinsed out in 3 to 4 minutes easily.

**Skin irritation:** No skin irritation was observed.

**Stability study:** formulation remained stable.

## CONCLUSION

The main aim was to formulate hair nourishing shampoo, will improve and strengthen the hair by proper nourishment and other problems like dryness and dandruff. It was concluded that formulated shampoo of F2 batch is optimized having good hair nourishing property.

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