



FORMULATION AND EVALUATION OF TWO IN ONE HERBAL CONDITIONING SHAMPOO CONTAINING EXTRACT OF ALLIUM CEPA AND TRIGONELLA FOENUM GRAECUM

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ABSTRACT

Shampooing and conditioner is the most common form of hair treatment. The primary function of shampoo is cleansing of the hair and the conditioner is used as a hair tonic. We formulated onion and fenugreek two in one herbal conditioner shampoo for specially dry hair. Dry hair is common problem in India. Our formulation was clear, good foam formation. The formulation with 10% extract showed best results of evaluations of parameters .the efficacy was in the range 10% extract containing conditioner shampoo (F2)>5% extract containing conditioner shampoo (F1)>12% extract containing conditioner shampoo (F3)>15%extract containing conditioner shampoo (F4).the advantage of this shampoo is better nutrient and nourishment to hair follicles and promote hair growth possess antibacterial, antimicrobial, anti-inflammatory properties.

KEYWORDS -Allium cepa, Conditioner, Cosmetic, Herbal, Shampoo, Trigonella foenum graecum.

INTRODUCTION

Allium cepa, family liliaceae has been reported to possess antimicrobial, antibacterial, better nourishment, nutrients and also used as hair scalper hair loss.^[1, 2] Trigonella foenum graecum, family Fabaceae has been reported constituent of fenugreek seeds include vitamins and saponins; the most prevalent alkaloid is trigonelline and coumarins include cinnamon acid and scopoletin. Also used as a conditioning agent.^[3, 4] Shampooing and conditioner is the most common form of hair treatment. The primary function of shampoo is cleansing of the hair and the conditioner is used as a hair tonic.^[5] we formulated onion and fenugreek two in one herbal conditioning shampoo for specially dry hair. Dry hair is common problem in India. Formulating cosmetics using completely natural raw materials is a difficult task. The challenge lies in selecting materials and two in one combination formulation that can be rationally justified as Natural and formulating them into cosmetics whose functionality is comparable with the synthetic counterparts.^[6] A more radical approach in popularizing herbal conditioner shampoo would be to change the consumer expectations form a conditioner shampoo, with emphasis on safety and efficacy.^[7]

MATERIAL AND METHODS

Bulbs of Allium cepa (onion) and seeds of Trigonella foenum graecum (fenugreek) were collected and authenticated by the central India Institute of Pharmacy, Indore and used for the preparation of extract. Extract was used for shampoo with conditioner formulation. Potassium hydroxide, glycerin, ethyl alcohol, methyl paraben, lemon juice, coconut oil, castor oiled.

Plant extraction was performed by simple extraction process. First 100 grams of bulbs of Allium cepa and 100gm of trigonella foenum was weighed and it was extracted using ethanol (100%) within four days. After Filtered with cloth and filtrate was allowed to heating mantel at 40 degree temp. The supernatant was collected and incorporated in the shampoo base formula.

Formulation of Conditioner 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 fenugreek extract.

Ethyl alcohol, methyl paraben used as preservative and lemon juice used for masking the pungent smell of extract. Four different formulations F1, F2, F3 and F4

were prepared taking 5%, 10%, and 12% and 15 % w/w of extract respectively as shown in table I given below.

Table 1: Composition of conditioner shampoo formulation.

S.N.	Ingredients	Importance	Quantity (w/w %)			
			F1	F2	F3	F4
1.	Coconut oil	Moistening agent	18.0	18.0	18.0	18.0
2.	Castor oil	Thinning agent	4.0	4.0	4.0	4.0
3.	Potassium hydroxide	Disinfectant	5.3	5.3	5.3	5.3
4.	Glycerol	Surfactant	4.0	4.0	4.0	4.0
5.	Borax	Cleansing agent	0.2	0.2	0.2	0.2
6.	Acacia	Emulsifying agent	0.2	0.2	0.2	0.2
7.	Allium cepa extract	Scalp reduce agent	5.0	10.0	12.0	15.0
8.	Trigonella foenum	Conditioning agent	5.0	10.0	12.0	15.0
9.	Sodium bi carbonate	Cleansers	0.7	0.7	0.7	0.7
10.	Lemon juice	Antidandruff agent	5.0	5.0	5.0	5.0
11.	Methyl paraben	Preservative	0.3	0.3	0.3	0.3
12.	Perfume	Fragrance	q.s	q.s.	q.s.	q.s.
13.	Distilled water	Aqueous medium	100	100	100	100

Abbr.: q.s. = quantity sufficient

Characterisation: Prepared 1% v/v solution of shampoo formulations by mixing, 2 milliliters of shampoo with 100 ml of distilled water. The shampoo was taken in the beaker and then slowly added distilled water. After thorough mixing of shampoo and water all the evaluation parameters were determined.

- **pH:** 1% shampoo solution was used to determine the pH by using the pH meter.
- **Foam Formation (Shake Test):** Took 50 ml of the 1% shampoo solution in a 250 ml graduated cylinder and recorded the volume. Then covered the cylinder with hand and shaken 10 times. The total volume of the contents was recorded after shaking. Calculated the volume of the foam and recorded the size of the bubbles.
- **Surface Tension:** Prepared 1% v/v solution of shampoo by mixing 2 milliliters of shampoo with 200 ml of distilled water. The shampoo was taken in the beaker and then slowly added distilled water. After thorough mixing of shampoo and water the surface tension was measured by using stalagmometer (Borosil Pvt. Ltd.).
- **Skin irritation test:** Applied the solution of prepared shampoo on skin and kept for 5 min and observed for redness of skin and irritation there, were no any red coloration and the irritation to the skin.
- **Viscosity:** Viscosity was determined by using the Ostwald viscometer (Borosil Pvt. Ltd).
- **Conditioning effect experiment:** In order to test the conditioning effect of the shampoo, we had to see how it is easy to comb the hairs, and to do so, we had to use a comb connected to a spring and a scaled page. The scaled page was able to display the rate of hair resistance against combing. In this method, the incoming force on ergo-meter caused by moving of the comb between hairs after and before using of

shampoo was measured. This experiment was done five times.

RESULT AND DISCUSSION

The result of visual inspection of series of formulations are listed in table 1.as can be seen, all formulations were clear and had good characteristics with respect to foaming. The main challenge with this formulation was of characteristics smell of A. cepa extract and this smell masked by sodium bi carbonate. With less concentration i.e. Formulation F1 and F2 were free from characteristic smell and were acceptable, but in F3 and F4 the smell was observed. Due to various adverse effects of available synthetic preparation the present work was conceived by us to formulate an herbal shampoo with conditioner having minimal or no side effects which will extensively use by the man or women of our communities with great surety and satisfaction.

The present work carries the results of "Formulation and Evaluation of two in one herbal shampoo containing extract of allium cepa (onion) and conditioner containing trigonella foenum graceum (fenugreek seed)" It indicates the results of use of herbal/natural ingredients in the formulation of two in one shampoo with conditioner with minimal or no side effect. In last few decades there has been tremendous boost in use of cosmetics by women. The present work formulation and evaluation of herbal shampoo with conditioner was aimed to formulate a two in one formulation using herbal ingredients with a hope to minimize the side effects as produced by the available synthetic ones. The prepared formulation (Table 1) was evaluated (Table 2) and it was found that was best among the four formulations. Hence, from present investigation it was concluded that this formulated herbal formulation in two in one has better option to women with minimal side effects though a detailed clinical trials

may be done to access the formulation for better conditioning property.

The shampoo conditioning effect assessment is not easy as it depends on the consumer views and the consumer views is also depended on previously used formulations, their expectation from the new shampoo and the new changes that they feel in their hair and skin. It must be noted that conditioned hairs should be soft, shiny, smooth, slippery and easy to comb in wet and dry status. Other properties also are color, odor and physicochemical properties which can be used for comparison when consumers were asked if they have hair properties such as foam productivity, cleansing, sensitivity, dandruff and hair loss. One of the important factors affecting the separation of soil from substrate is moistening of the substrate surface and the ability to penetration detergent component in the soil. The hair shining and its glittering are two values for consumers showing the suitability after using a shampoo. Since fenugreek seeds have carbohydrates and protein compounds, it is expected that a shampoo containing fenugreek extract makes hair combing very easy. In another word, it makes changes in the surface features and this theory has been confirmed in our conditioning experiments. Fenugreek seeds also contain proteins and amino acids and this is important for hair strength and its softness. Hydrolyzed proteins are important components in the formulation of conditioning shampoos nowadays. Fenugreek prevents hair loss and it contains lecithin, which helps hair growth. The seeds contain four flavonoids and two steroid saponins. Fenugreek is an effective herb to reduce hair loss and baldness in male. Fenugreek seeds are very nutritious and as a result they are effective in reducing hair loss, baldness and thin hair. They also contain progressive hormones that increase hair growth. There are natural emulsions for hair

moisturizing that contains high concentration of proteins and are similar to fenugreek seeds, they have the ability to eliminate hair loss and hair damage. That increase hair growth. There are natural emulsions for hair moisturizing that contains high concentration Fenugreek is an effective herb to reduce hair loss and baldness in male. Fenugreek seeds are very nutritious and as a result they are effective in reducing hair loss, baldness and thin hair. They also contain progressive hormones of proteins and are similar to fenugreek seeds, they have the ability to eliminate hair loss and hair damage. Flavonoids are important for increasing blood cells and they also help the blood to circulate to all parts of the body including scalp. Trigonelline helps the blood cells and it increases the blood flow in the hair follicle. In this study, according to TLC results, 50% fenugreek was used which contains substantial trigonelline. Fenugreek caused blood vessels dilatation in the scalp and thus, increases the blood flow in the area. Researchers have explained that trigonelline or trigonelic acid extracted from fenugreek has strong effect on the skin and animal nails. The reason is because it provokes the epidermal cells in animals to start their growth again especially the hair cells. It contains alkaloid gonylin and other materials, such as biotin, Asian ginseng extract and horse chestnut or tocopherol. Based on the literature, ginseng has enhancing effect on trigonelline and it decreases its action effect from four months to one month. According to this research results, our product is able to suspend the soil materials easily. In this study, we also found that our shampoo has strong cleaning effect and has ingredients in formulation such as sodium lauryl sulfate and N-alkyl betaine with high cleaning properties. It is recommended that it is better to use herbal extract like fenugreek extract rather than using other chemical because herbal shampoos are safer and healthier.

Table 2: Evaluation of Formulations conditioner shampoo for physical appearance, pH and viscosity Formulation.

Formulation Code	Physical appearance	Foaming	pH	Solids	Surface tension	viscosity
F1	Clear, no characteristic smell	Good	6.22	23.21	38.45	6.5
F2	Clear, no characteristic smell	Good	5.82	24.52	37.25	6.1
F3	Clear, slight characteristic smell	Good	5.53	25.23	39.23	5.8
F4	Clear, characteristic smell of extract absorbed	Good	5.01	25.41	39.87	5.4

CONCLUSION

According to the assessment of physicochemical formulation and results taken from consumers, it can be expected that fenugreek conditioner shampoo has the criteria needed for a standard conditioner shampoo. Finally, it is recommended that making standardized fenugreek extract based on the amount of trigonelline and producing its shampoo as industrial products should

be consider. Today when cosmetics offers artificial and chemical ingredients at sky rocking prizes as well as several adverse effects, herbal cosmetics bring goodness of natural alternatives with its herbal products. These ecofriendly, herbal, natural skin care products are made from natural plant extracts that promises to rejuvenate and revitalize skin with new freshness. The present investigation was done to formulate conditioner shampoo

containing herbal ingredients, since conditioner shampoo are one of the key cosmetics to be used by women. Attempt was also made to evaluate the herbal conditioner shampoo formulation. From the present investigation it was concluded that the formulation, F4 have better results as compared to other three formulations. Further, work in biological evaluation and clinical trials of formulation to prove the efficacy and safety profile of the formulation.

Hence, in future the formulation prepared from these will be useful in the development of effective herbal formulation.

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