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DISCOVERY AND SCOPE OF ORYZA SATIVA HERBAL SHAMPOO

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ABSTRACT

Hairs are the important part of human body. Shampoos are not only used to clean the hair, but also to give it a shine. Our aim is to prepare herbal shampoo using natural ingredients and main ingredient we have used is *oryza sativa* water. Herbal shampoo with natural ingredients that focuses on safety and efficacy, avoiding the dangers of chemical additives. It removes sebum, filth, and dandruff as well as promoting hair growth, strengthening, and darkening. The main ingredient in this shampoo is fermented *oryza sativa* water which contain so many antioxidants. The main component that aids in hair loss reduction is inositol. Our research product designed by using Amla powder, aloe vera gel, neem powder, hibiscus powder, fenugreek powder and fermented *oryza sativa* water. Physico chemical characteristics such as pH, foam generation, dirt dispersion, surface tension, viscosity and wetting test were used to evaluate the herbal shampoo. This shampoo contain such a good foam ability, low surface tension, viscosity. The results of the herbal shampoo indicate ideal to use, safe and good for controlling hair fall.

Keywords: Oryza Sativa, shampoo base, *Phyllanthus emblica* (amla) powder, *Hibiscus* powder, *Azadirachta indica* (Neem) powder, *Aloe Vera* gel, *Trigonella foenum-graecum* (Fenugreek) powder

INTRODUCTION

In the field of self- care system, the use of herbal cosmetics has expanded dramatically and there is an herbal products are in high demand. All of this occurred as a result of the widespread use of chemical products and their derived products during the previous 150 years, their manufacturing and usage cause a health risk to humans, resulting in a

variety of side effects and disorders **[1]**. Absent of hairs, the person's skin is empty. It is linked to hair loss, unmanageable hair, a reduction of hair volume, early grey hair, dandruff, thinning hair, dullness, and other concerns. Hair was once thought to be a protective coating for the scale **[2]**. Shampoo seems to be the most extensively used hair product. A shampoo is a cosmetic preparation for washing the hair and scalp **[3]**. On the basis of texture shampoo is in powder form, in liquid form, in gel form, and in solid form **[4]**. There are a plethora of manmade shampoos on the marketplace currently, but medicinal shampoo has gained popularity due to its environmental origins, which are safer, and are free of adverse effects **[5]**.

Oryza Sativa (Rice) water makes hair more lustrous and shinier. Rice water was used for good hair growth, shine, smoothness, for eliminate dandruff and to protect from frizzy hair **[6]**.

Aloe Vera gel was used to maintain pH balance which is source of vitamin E **[7]**.

Amla, neem, hibiscus and fenugreek was used to boost the volume of hair, reduce dandruff and promote healthy hair growth **[8-11]**.

Looking towards boosting properties of above listed natural products clicked to discover oryza sativa based shampoo.

MATERIALS AND METHODS

Shampoo base is the main part for preparing shampoo. Base was prepared by mixing solution of NaCl (1 gm dissolved in 4-5ml of distilled water) with 50 mL 0.1 M solution of sodium lauryl sulfate.

PREPARATION OF HERBAL SHAMPOO

We have formulated three shampoos for the analysis using different amount of selected reagents which is shown in tabular form:

Table 1: Oryza Sativa based shampoo with different combination – F1, F2 & F3

Sr. No.	Ingradient Name	F1	F2	F3
I.	Oryza sativa water (ml)	15	20	25
II.	Phyllanthus emblica powder (gm)	0.6	0.9	1.2
III.	Hibiscus powder (gm)	0.6	0.9	1.2
IV.	Aloe Vera gel (gm)	0.6	0.9	1.2
V.	Foenum-graecum powder (gm)	0.6	0.9	1.2
VI.	Azadirachta indica powder (gm)	0.6	0.9	1.2
VII.	Shampoo base (ml)	6	6	6

Above three different combinations of shampoo were prepared by a common method at room temperature *Hibiscus* powder, *Phyllanthus emblica* (amla) powder, *Azadirachta indica* (neem) powder, *Foenum-graecum* (fenugreek) powder and *aloe vera* gel were collected and mixed with fermented *Oryza sativa* (rice) water. The mixture was added into the shampoo base in 15-20 minutes until it reached the desired viscosity.

RESULTS & DISCUSSION

Three different formulations – F1, F2 & F3 of discovered *oryza sativa* shampoo were

tested by different parameters to evaluate quality by listed method **(Table 2)**.

Physical Appearance: Such as transparency, color and odor were assed.

Foaming ability: 50ml of shampoo was shaken in 250ml of test bottle for multiple times to estimate the total foam.

Dirt dispersion test: The volume of ink in the froth was measured in the dirt dispersion test with Indian ink and the results was rated as none, light, moderate, or heavy. In a wide opened test tube, two drops of designed shampoo were introduced to 10ml of distilled water. Single droplet of Indian ink was put to the test tube, and by covering the test tube, it was shook for ten minute.

Surface tension measurement: It was measured by using a stalagmometer at room temperature.

Wetting test: A disc with a diameter of one inch was carved out of 0.44g canvas paper. Place it on the shampoo solution's surface. Keep track of how long it takes for the paper to soak in. keeping track of the time with a stopwatch.

pH determination: The pH of the shampoo was measured using a pH analyzer.

Determination of solid content: In an evaporating dish 4g of shampoo solution was poured. Put the dish on a hotplate evaporated the liquid part of the shampoo. There is still a lot of part in the dish. After drying, the weight of dish was calculated.

Formula for determination of solid content;

Percentage of solid content = C-A/B-A*100

A= Weight of empty evaporating dish

B= Weight of evaporating dish with herbal shampoo solution

C= Weight of evaporating dish after evaporation of herbal shampoo solution.

Formulation F3 acquired best results among three different combinations as foaming index, wetting test and surface tension acquired higher favorable values and pH also towards neutral which favored biologically. As we increase amount of rice water better results obtained. So, costing of F3 done and compared to market shampoo and found relatively very low cost **(Table 3)**.

Table 2: Different parameters of discovered shampoo

Sr. No	Parameter	F1	F2	F3
1	Color	Crimson	Crimson	Crimson
2	Odor	pleasant	pleasant	pleasant
3	Appearance	Viscous	Viscous	Viscous
4	Dirt Dispersion	Medium	Medium	Medium
5	Foaming index(ml)	25	31	36
6	Wetting Test (sec)	90	109	120
7	Surface Tension	21	26	31
8	pH	7.9	7.6	7.2
9	Percentage of solid content	11	14	17

Table 3: Costing of F3 Oryza Sativa Shampoo

Sr. No.	Ingredients	Amount	Price/100gm (INR)	Quantity	Price (Rs. in INR)
1	Sodium lauryl sulphate	100	60	4 gm	2.4
2	Sodium chloride	100	20	1 gm	0.2
3	Hibiscus powder	100	89	1.2 gm	1.06
4	Neem powder	100	50	1.2 gm	0.6
5	Fenugreek powder	100	15	1.2 gm	0.1
6	Amla powder	100	59	1.2 gm	0.7
7	Aloe Vera gel	100	40	1.2 gm	0.48
Total				11 gm	5.54

CONCLUSION

To avoid negative effects herbal natural extracts with the same activity should be used instead of synthetic components. Herbal shampoo was created with the use of ancient herbs that are both safe and effective. Inositol, a chemical ingredient found in rice water, prevents hair damage, gives support for hair strands and is beneficial for the hair growth. Many herbs use in this formulated shampoo are act as a good conditioning agents. The pH of the shampoo was changed to 7.0. The aesthetic inspection pH, dirt dispersion, percent of the prepared herbal shampoo, surface tension, wetting test were all analyzed. Looking towards sets of experiments as we increase quantity of rice water better results observed. As a result, the fermented *oryza sativa* shampoo was created to be safe and effective for use as well as to aid in the reduction of hair fall. Looking toward relatively very low costing of invented shampoo it can be a great scope for commercialization.

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REFERENCES

[1] V P Kapoor, Herbal cosmetics for skin and hair care, International Journal of National Plant Research, 2005; 4(4):306-314.

[2] Lanjewar A, Maurya S, Sharma D, Gaur A, Review on Hair Problem and its Solution, Journal of Drug Delivery and Therapeutics. 2020; 10(3-s):322-329.

[3] Pooja Arora, Dr Arun Nanda, Dr Maninder Karan, Shampoos based on synthetic ingredients vis- a - vis shampoos based on hebal ingredients; International Journal of Pharmacognosy and Phaytochemistry Journal of Pharmaceutical Sciences Review and Research,2011; 7(1):07.

[4] Ashwini Sukhdev Pundkar and Sujata P. Ingale, Formulation and evaluation of herbal liquid shampoo, World Journal of Pharmaceutical Research, 2020; 9:901-911.

[5] Vijayalakshmi A, Sangeetha S, Ranjith N, Formulation and evaluation of herbal shampoo, Asian journal of

pharmaceutical & Clinical Research, 2018;11(Special Issue 4):121-4.

[6] Prachi D. Barsagade, Pranali Patil and Dr Milind J. Umekar, A formulation of face pack and hair products of rice water for the use of skin and hair problem, World Journal of Pharmacy and Pharmaceutical Sciences, 2020; 9:683-694.

[7] Debjit Bhowmik, K. P. Sampath Kumar, and Chiranjib, and Biswajit, Aloe vera: A Potential Herb and its Medicinal Importance, Journal of chemical and pharmaceutical research, 2010; 2(1):21-29.

[8] Sankaran Mirunalini, Velusamy Vaithiyanathan and Mani Krishnaveni, Amla: A novel ayurvedic herb as a functional food for health benefits, International Journal of Pharmacy and Pharmaceutical Sciences, 2013; 5: 1-4.

[9] Anand Niharika, Johnson M. Aquicio, Arulsamy Anand, Antifungal properties of neem (*Azardirachta indica*) leaves extract to treat hair dandruff, International Scientific Research Journal,2010; 2(3):244-252.

[10] Che Rose, L., Syahirah Rusdi, N. N., Asari, A., Effendy Abd Wahid, M., Suhaimi, H. Potential hair growth of crude extract from *Hibiscus rosa-sinensis* Linn., Archives of Pharmacy Practice. 2020; 11(4):13-9.

[11] Wong Hendra Wijaya, Abdul Mun'im, and Joshita Djajadisastra, Effectiveness test of fenugreek seed extract hair tonic in hair growth activity, International Journal of Current Research, 2013; 5:3452-3460.