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FORMATION AND EVALUATION OF HERBAL ANTI DANDRUFF SHAMPOO

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ABSTRACT

Shampooing is the most common form of hair treatment. Shampoos are primarily been products aimed at cleansing the hair and scalp. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers. A more radical approach in popularizing herbal shampoo would be to change the consumer expectations from a shampoo, with emphasis on safety and efficacy. We have evaluated and compared the herbal shampoo, which was formulated in previous study, with two marketed shampoos. The findings of this investigation reveal that synthetic preservatives have sometimes been the cause of adverse effects among consumers. We have used the physico-chemical approach to preservation and by formulating a self preserving shampoo, have avoided this risk posed by chemical preservatives. However, the aesthetic attributes, such as lather and clarity, of the laboratory shampoo are not comparable with the marketed shampoos. The foam volume was on a par. Although the retail products were not fare so well in the tests conducted by us, they enjoy market popularity, especially if they foam well. This is mainly due to the false notion among consumers that 'a shampoo that foams well, works well', and no real effort on the part of manufacturers to counter this fallacy.

Keywords: Herbal shampoo, Radical approach, Physico-chemical approach, Aesthetic attributes

INTRODUCTION

Hair is a protein hair that grows from follicles on the dermis or skin. Scientific name of hair is pili or pilus. Hair is an element of the integumentary system and extends over into the dermal subcaste where it sits in the hair follicle. Hair is an important part of overall appeal of mortal body, historically been associated with beauty and social distinction. innumerous insects from all art forms can be cited supporting the special elevation accorded to hair by people of nearly all times and societies. Dandruff is reported to be a inoffensive, habitual condition that occurs when crown becomes dry or slithery and produces white flakes of dead skin that appear in hair or on shoulders. People most frequently suppose of it as anything that produces a flakes crown. Although it's inoffensive, dandruff can be disturbing for those who have it. It generally starts between the periods of 10 and 20 and affects up to 40 of people over the age of 30. Microorganism causing dandruff fungus belonging to genus Malassezia **[1, 2]**.

1.1 Hair anatomy

Hair grows from hair follicles positioned within the adipose subcaste of the crown. Contrary to the popular belief that hair grows as single beaches, hair follicles actually grow in groups of 1- 4 hairs called **[2]**.

Part of the hair

1. Dermal papillae: The dermal papilla is responsible for regulating the hair cycle and hair growth, and is also comprised of androgen receptors that are sensitive to the presence of DHT. **2.** Matrix: The matrix surrounds the dermal papillae and contains all the active cells demanded for hair growth and for the development of the different corridor of the hair, particularly the external root jacket, the inner root jacket and the hair shaft **[3]**. external root jacket. The external root jacket, or trichilemmal, is the remotest part of the hair and is keratinized. It covers the entire hair follicle inside the dermis and also transitions through to the epidermis, furnishing the hair follicle with an opening from which to surface from **[4]**. Inner root jacket inner root jacket is comprised of three corridor the Henley estate, Huxley estate, and cuticle. The Henley's and Huxley's layers are capsular layers that anchor onto each other with the purpose of stabilizing the hair. The cuticle, which is the inner utmost part that it closest to the hair shaft, is made from dead toughened cells and give the hair shaft added protection **[5]**. Hair shaft: The hair shaft is the solitary part of the hair follicle that completely exits the face of the skin. The hair shaft is made up of three layers the medulla, cortex, and the cuticle. The medulla is described as an unsystematic and unshaped area located in the inmost region of the hair shaft and isn't always

present. The cortex, in distinction to the medulla, is largely structured and ranged. Dandruff Dandruff represents one of the Most common dermatological skin conditions and is a habitual, non- seditious conditions of the crown that's characterized by devilish scalping of crown kerchief. Dandruff is supposedly caused by a fungus called Malassezia circumscribe a and M. globose. Malassezia formerly called Pityrosporum is a incitement causing infection of skin and crown. It constantly beget itching. warm and sticky atmosphere, overcrowding and poor particular hygiene are immaculately suited for the growth of Malassezia. Dandruff affects 5 of the population and substantially occurs after puberty, between 20- 30 times and dandruff affects males further than ladies. Dandruff occurs simply on skin in areas with high leaves of sebum **[4]**. Beget of dandruff Dandruff is a skin condition that affects around half of the world's population. The most egregious sings of dandruff are white or slate varicolored flakes that appear on the crown and hair. These flakes are old skin cells that have been nestled at a faster rate **[5]**. The excerpt cause of dandruff is still unknown, but it has been linked to the presence of a microbe called Malassezia which feeds on the crown's natural When the scalper's defensive hedge becomes weakened, irritants produced by Malassezia beget it to slip further skin cells than usual. Shampoo Shampoo is a medicine constraining surfactant in a suitable form- liquid, solid or cream- which when used under the specified condition will remove face grease, dirt, and skin debris from the hair shaft and crown without negatively affecting the stoner **[6]**. Utmost cleanser contain water, a cleaner (drawing agent), surfactant (lather making agent), navigator scent (nature and acritical), preservative and food coloring. With the exception of water and navigator (sodium chloride), different chemical composites are used depending on the asked result of the cleanser. numerous cleanser also contain vitamins and moisturizing alcohols to help too important of the hair and crown's nature canvases from being stripped down during sanctification **[7]**.

2. Evalutation work

2.1 Factory material collection

Collected from Rungta Institute of Pharmaceutical Sciences and Research Kokha Bhilai (C.G).

2.2 Extraction of Plant Material

Phyllanthus emblica, Sapindas indica and Sapindas trifoliate have been uprooted with hydroalcoholic using Soxhlet process for 6 hrs, filtered and dried using vaccum evaporator at 40°C **[8]**.

Figure 1: Factory Material

Figure 2: Extraction of plant material

2.3 Determination of percentage yield

The percentage yield of each extract was calculated by using following formula:

$$\text{Percentage yield} = \frac{\text{Weight of Extract}}{\text{Weight of powder drug Taken}} \times 100$$

2.4 Preparation of shampoo

Preparation of anti-dandruff soap Shampoo was formulated using simple mixing process. Herbalanti-dandruff soap was formulated by adding the needed quantities of herbal constituents as given in the expression **[9]**.

Formulation of Herbal Anti-Dandruff Shampoo

Table 2.1: Formulation of Herbal Anti-Dandruff Shampoo

S. No.	Ingredients	G1	G2	G3
1	Retha Extract	1.0	1.5	2.0
2	Amla Extract	1.0	1.5	2.0
3	Shikakai Extract	1.0	1.5	2.0
4	Sodium Lauryl Sulfate(gms)	15	10	5
5	Glycerin (ml)	1	1	1
6	EDTA (gm.)	0.15	0.15	0.15
7	Sodium Hydroxide	To adjust pH	To adjust pH	To adjust pH
8	Water	q.s	q.s	q.s
9	Perfume	q.s	q.s	q.s

2.5 Evaluation of shampoo

1. Physical Appearance/ Visual examination

The expression prepared was estimated for the clarity, colour, odour, and head producing capability and fluidity.

2. Froth and Froth stability

200 ml of surfactant result is dropped into a glass column containing 50 ml of the same result. The height of the froth generated is measured incontinently and again after a specified time interval, and is considered commensurable to the volume **[10]**.

3. cleaning Action and Detergency

5gm sample of bemired mortal hair is placed at 35 ° c in 200 cc of water containing of 1 gm of soap. The beaker is shaken 50 times a nanosecond for 4 twinkles. also washed formerly again with sufficient quantum of water, also after sludge the hair dried and counted. The quantum of soil is removed under this condition is calculated **[11]**.

4. Determination of pH

A 10% v/ v soap result was constituted in distilled water and the pH of the result was measured by using a calibrated pH complete.

5. Surface tension

face pressure dimension it has been mentioned that a proper soap should be able to drop the face pressure of pure water to about 40 dynes/ cm. surface pressure reduction is one of the mechanisms intertwined in detergency **[12]**.

6. Determination of solid content percentage

A clean dry sinking dish was counted and 4 grams of soap was added to the sinking dish. The sinking dish with soap was placed on the hot plate until the liquid portion was faded. The weight of the solid contents present in the soap was calculated after drying **[13]**.

7. Viscosity

Viscosity of the samples changes gradationally with the increase in rpm, thus the soap phrasings were time dependent. Secondly as the data showed the density decreases with increase in rpm, so the soap phrasings were shear thinning or mock plastic in nature.

3. RESULTS AND DISCUSSION

The end of the present work is to prepare Antidandruff soap by using anti-dandruff agents similar as Shikakai, Amla, Retha by various combinations. The set Antidandruff soap was estimated for physical appearance/ visual examination, determination if pH, determine of solid contents, froth capability.

3.1% Result of Yield of Extraction

The crude excerpts so attained after the maceration process, each extracts were further concentrated on water bath evaporation the detergents fully to gain the factual yield of birth. To gain the chance yield of birth is veritably important miracle in phytochemical birth to estimate the standard birth effectiveness for a particular factory, different corridor of same factory or different detergents used. The yield of excerpts attained from samples using hydroalcoholic as detergent is depicted in the **Table 3.1 [14, 15]**.

3.2 Result of Evaluation of Herbal Shampoo

3.2.1 Result of physical appearance

Physical Appearance results of visual inspection of series of formulations are listed in **Table 3.2**. As can be seen, all formulations had the good characteristics with respect to foaming **[16]**.

generation has little to do with the sanctification capability of shampoos, it's of consummate significance to the consumer and is thus an important criterion in assessing shampoos. All the Three shampoos showed analogous raging characteristics in distilled water **[17]**. The froth retention capability of Three samples is given in table. All Three shampoos showed similar raging parcels. The final expression produced stable lathers there was little bit change in froth volume **[18, 55-59]**.

3.2.2 Result of foaming ability foaming capability although foam (Table 3.3)

Result of Cleaning Action (%)

Dirt Dispersion Shampoo that be get the essay to concentrate in the head is considered poor quality, the dirt should stay in water. Dirt that stays in the head will be delicate to wash down. It will redeposit on the hair. All Three detergents showed similar results. These results indicate that no dirt would stays in the head **(Table 3.4) [17, 18, 50-54]**.

3.2.4 Result of pH

The pH of shampoos has been shown to be important for perfecting and enhancing the rates of hair, minimizing aggro to the eyes and stabilizing. The current trend to promote shampoos of lower pH is one of the ways to minimize damage to the hair **[19]**. Mild acidity prevents swelling and promotes tightening of the scales, there by converting shine. As seen from Table all Three shampoos were acid balanced and were ranged 5.78 to 5.96 **(Table 3.5) [20, 21, 42-49]**.

3.2.4 Result of Surface Tension

The reduction in surface tension of water to 31.53 dynes/ cm by the herbal shampoos is an indication of their good detergent action **(Table 3.6) [23, 40]**.

3.2.5 Result of percent of solids contents

Percent of Solids Contents If the shampoo has too many solids it'll be hard to work into the hair or too hard to wash out. The result of percent of solids contents is in table and found between 19.85-25.64. As a result, they were easy to wash out **(Table 3.7) [24, 28-32]**.

3.2.6 Result of Viscosity

These formulations showed pseudo plastic behavior which is a desirable attribute in shampoos formulation. At low rpm the herbal shampoos showed high viscosity and increase in the shearrate the viscosity of the shampoos drops, this is a favorable property which eases the spreading of the shampoos on hair. The results obtained from the rheological studies were fitted into different flow behaviors, using the linear or non-linear regression **(Table 3.8) [25, 26]**.

Table 3.1: % Yield of hydroalcoholic extract

S No.	Solvent	% Yield (w/w)		
		Shikakai	Amla	Retha
1.	Hydroalcoholic (70:30)	5.8 %	6.2	4.9

Table 3.2: Result of formulations for physical appearance

S. No.	Formulations	Appearance
1	G1	Pale yellow color, Good Foaming
2	G2	Pale yellow color, Good Foaming
3	G3	Pale yellow color, Good Foaming

Table 3.3: Result of foam ability of herbal shampoo

Time in Mins	Foam Volume (ml)		
	G1	G2	G3
1Min	173	142	169
2Min	169	137	166
3Min	166	136	163
4Min	164	133	162
5Min	162	132	160

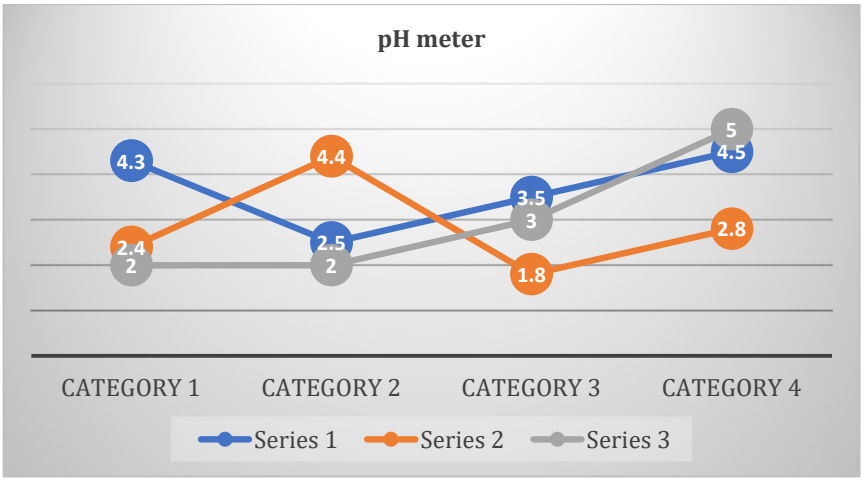
Figure 3: Foaming ability

Table 3.4: Result of formulations for cleaning action (%)

S. No.	Formulations	Cleaning action (%)
1	G1	23.62±0.06
2	G2	29.36±0.04
3	G3	19.57±0.03

Table 3.5: Result of formulations for pH

S. No.	Formulation	pH
1	G1	5.78±0.03
2	G2	5.81±0.05
3	G3	5.96±0.07

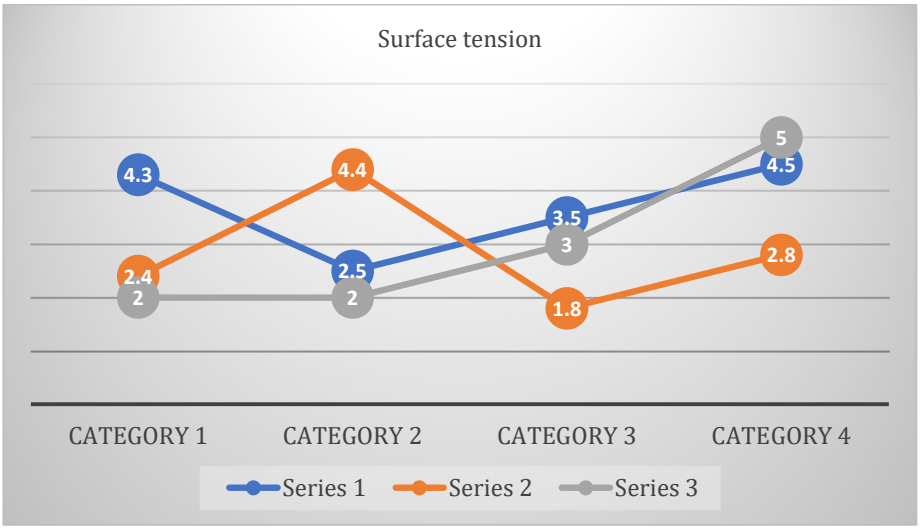


Graph :1 Result of formulation for pH

Figure 4: pH meter

Table 3.6: Result of formulations for surface tension

S. No.	Formulations	Surface Tension (dy/cm)
1	G1	29.69±0.72
2	G2	31.53±0.24
3	G3	28.48±0.63



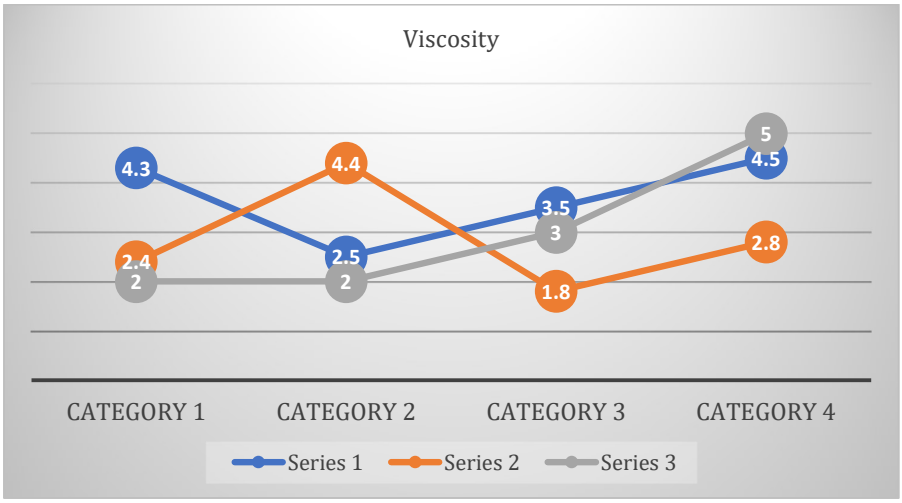
Graph 2: Surface tension

Table 3.7: Result of formulations for percent of solids contents

S. No.	Formulations	Solids (%)
1	G1	19.85±0.02
2	G2	22.28±0.02
3	G3	25.64±0.02

Table 3.8: Result of viscosity

RPM	Viscosity(cp)		
	G1	G2	G3
0.3	-	78563.25	-
0.5	58349.00	66245.55	-
1.0	41283.44	49748.48	28472.33
1.5	31968.00	38628.00	16245.33
2.5	22482.65	23473.33	8237.33
5	13282.45	14326.33	6268.00
10	8161.00	9869.66	5386.26



Graph 3: viscosity

CONCLUSION

At this time, Hair fall is the major problem so in this case we try to add some type of herbal medicines in the expression to obviates hair fall, make smooth, as well as give anti-dandruff action. The expression of herbal anti-dandruff shampoo is given positive effect and reduce dandruff and other type of fungal infection from hair. This type of expression we use Retha, Shikakai and Amla herbal plant which contain anti-dandruff property. There is no any type of side effect, so they're useful for all of them. The expression of Anti-dandruff hair shampoo provides a system for treating a crown dandruff or seborrheic dermatitis. Herbal antidandruff hair shampoo containing 2 ml of sauces attention of Retha, Shikakai, Amla with sodium lauryl sulfate base could be used as an effective in treatment of Dandruff on crown.

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