



Research Article

FORMULATION AND EVALUATION OF HERBAL NEEM ANTI-DANDRUFF SHAMPOO

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<p>Article info</p> <p>Article History: Received: 12-11-2022 Revised: 03-12-2022 Accepted: 22-12-2022</p> <p>KEYWORDS: Anti-dandruff shampoo, <i>Tulsi</i>, <i>Neem</i>, <i>Aloe vera</i>.</p>	<p>ABSTRACT</p> <p>The purpose of this present research work was to formulate and evaluate anti-dandruff shampoo which was prepared from herbal plant <i>Neem</i> leaves and <i>Tulsi</i>. These two plants are major role in formulation of anti-dandruff shampoo with antimicrobial and anti-inflammatory activity. The dandruff is a common disorder which is caused by yeast over growth, there is a fungus which is lives in the scalp of peoples called <i>Malassezia</i>. When a shampoo used under prescribed condition removes skin debris and the dirt from the scalp. Various antifungal and antimicrobial agents or drugs are uses in the preparation of shampoos, which causes the various side effects like hair loss, scratching, discomfort. An attempt to formulate <i>Neem</i> anti-dandruff shampoo which is safer and healthier than other anti-dandruff shampoo's who are based on the chemicals. Herbal anti-dandruff shampoo formulated by all the herbal ingredients <i>Neem</i> leaves extract as API and anti-dandruff activity, <i>Tulsi</i> leaves which have the anti-microbial activity, <i>Aloe vera</i> which has moisturizing effect etc. The formulated shampoo were passed through evaluation parameter such as visual inspection, foaming capacity pH, viscosity, consistency of foam, etc.</p>
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INTRODUCTION

Aloe vera and *Neem* are medicinal plant they are used as traditionally from ancient year in various herbal medicines such Ayurveda, Siddha, and Homeopathic. Dandruff is a major hair problem and a great public distress in India and in all over the world. Dandruff is one of the most common dermatological skin states and is a long non-inflammatory state of the scalp that is characterised by overweening scaling of scalp tissue. Dandruff caused by a fungus called *Malassezia restricta* and *M.globusa*. *Malassezia* is also called pityrosporum is a yeast which is cause disinfection of skin.^[1] Shampoos are most usually used in cosmetic product. Earlier soap cakes were used for washing hair, but now days both men and women's population mostly uses shampoos. A shampoos may be defined as preparation of surfactant in a suitable form liquid, solid or powder which when used under the conditions specified will remove surface grease and skin debris from the hair.^[2]

A good shampoo can directly form abundant foam irrespective of the type of water used or the nature of soil or fat to be removed from the hair. But mostly people always prefer a high foam shampoos. This makes the hairs too dry to handle or comb. So proper conditioning of hair is an also important fact. In another and in anatomical condition abnormal sebum from sebaceous gland called as seborrhea. This may lead to acne and psoriasis.^[3] The herbal shampoos are cosmetic preparation which are made by the traditional medical herbs and prepare for the cleansing of hair and dandruff free scalp. They are used for the removal of oil, dirt, environmental pollution and dandruff. Dandruff is a chronic scalp condition leading to scaling, itching, and redness of the scalp by shedding epidermal cells. Some shampoos cause irritation to the eyes, these should be avoided. The herbal products presented in the market are contains herbal constituents such as plant extract and essential oils. Most frequently used of herbal ingredients in preparation of herbal shampoos are *Neem*, *Tulsi*, *Aloevera*, *Shikakai* etc.^[4,5]

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Classification of dandruff

Depending upon the symptoms dandruff categorize-

- 1) Dry dandruff
- 2) Oily dandruff^[6]

1) Dry dandruff

- A) It is also called pityriasis simplex characterize by excessive.
- B) Information on the minute scale which accumulates on the scale area.

2) Oily dandruff

- A) It is also called pityriasis steroids.
- B) It arrives on the scale with sebum production.^[6,7]

Functions of Medicated Shampoo

- It should clean the hair and should leave hair manageable.
- It should not irritant to sebaceous gland.
- It should contain anti-microbial to percent growth of incidence microbes.
- It should remove soil and residues of hair setting

lotions/dressing from hair and scalp.

- It should produce foam of degree that will satisfy the user^[8].
- Shampoo should be easy to remove by rinsing, leaving the hair soft and manageable.
- It should impart pleasant fragrances during used masking the odour of wet hair
- Lubrication
- Conditioning
- Medication^[8]

Benefits

- Pure ingredients were used
- Free from side effects
- No synthetic additives
- Low at cost
- No petroleum based ingredients.^[9,10]

MATERIALS AND METHODS

Plant materials: (API), *Tulsi*, *Aloevera*, Lavender Oil, Tea tree Oil, Liquid Castile Soap, etc collected.



Fig.1: Neem Leaves



Fig.2: Tulsi Leaves



Fig.3: Aloe vera



Fig.4: Other

(Lavender Oil, Tea tree Oil, Liquid Castile Soap)

Ingredients Used in Formulation

Table1: Ingredients Used in Formulation

S.No	Ingredients	Uses
1	<i>Neem</i>	Prevent dryness, fight scalp infection, anti dandruff activity
2	<i>Tulsi</i>	Anti-microbial activity
3	<i>Aloe-Vera</i>	Moisturizing effect
4	Lavender Oil	Flavouring agent
5	Tea tree oil	Anti-dandruff agent
6	Liquid Castile Soap	Foaming agent
7	Water	Q.S

Formulation Table of Anti-dandruff Shampoo

Table 2: Formulation table of anti-dandruff shampoo

Ingredients	F1 Batch	F2 Batch	F3 Batch
<i>Neem</i> extract (ml)	15	15	12
<i>Tulsi</i> extract (ml)	7	8	7
<i>Aloe vera</i> gel (ml)	7	8	7
Lavender oil (ml)	2	3	3
Tea tree oil (ml)	2	3	2
Liquid Castile Soap (ml)	10	10	15
Water	q.s.	q.s.	q.s.

Procedure

Preparation of Plant Extraction

- The extraction was prepared by using simple maceration process.
- Firstly take fresh and healthy leaves of *Neem* and *Tulsi*.
- Then washed it with purified water and dried pulverized in air.
- Make the heat assembly and boiled the *Neem* and *Tulsi* leaves in 100ml of purified water separately and filter it with filter paper.
- And extract the *Aloe vera* jelly from *Aloe vera* leaves.
- The total extract was combined and filtered.
- The evaporation of solvent was completed by using heating mental.
- Store in a container for further use.^[11]



Fig.5: Aloe Vera Extract



Fig.6: Neem Extract

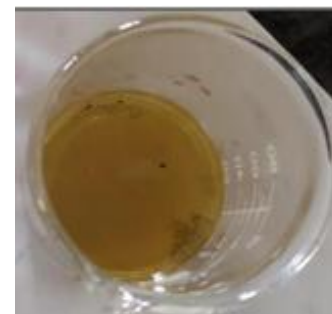


Fig.7: Tulsi Extract

A) Preparation Process of Anti-dandruff Shampoo

1. *Neem* and *Tulsi* Extracts are mix with each other
2. Next add the *Aloe vera* jelly and mix it gently.
3. Then add liquid Castile soap very slowly and stirred it. No foam can be form.
4. Then add tea tree essential oil and lavender essential oil.
5. And make quantity sufficient with purified water.^[12,13]

B) Pharmaceutical Evaluation of Formulation

The formulation were evaluated for different pharmaceutical parameter ^[12,13]

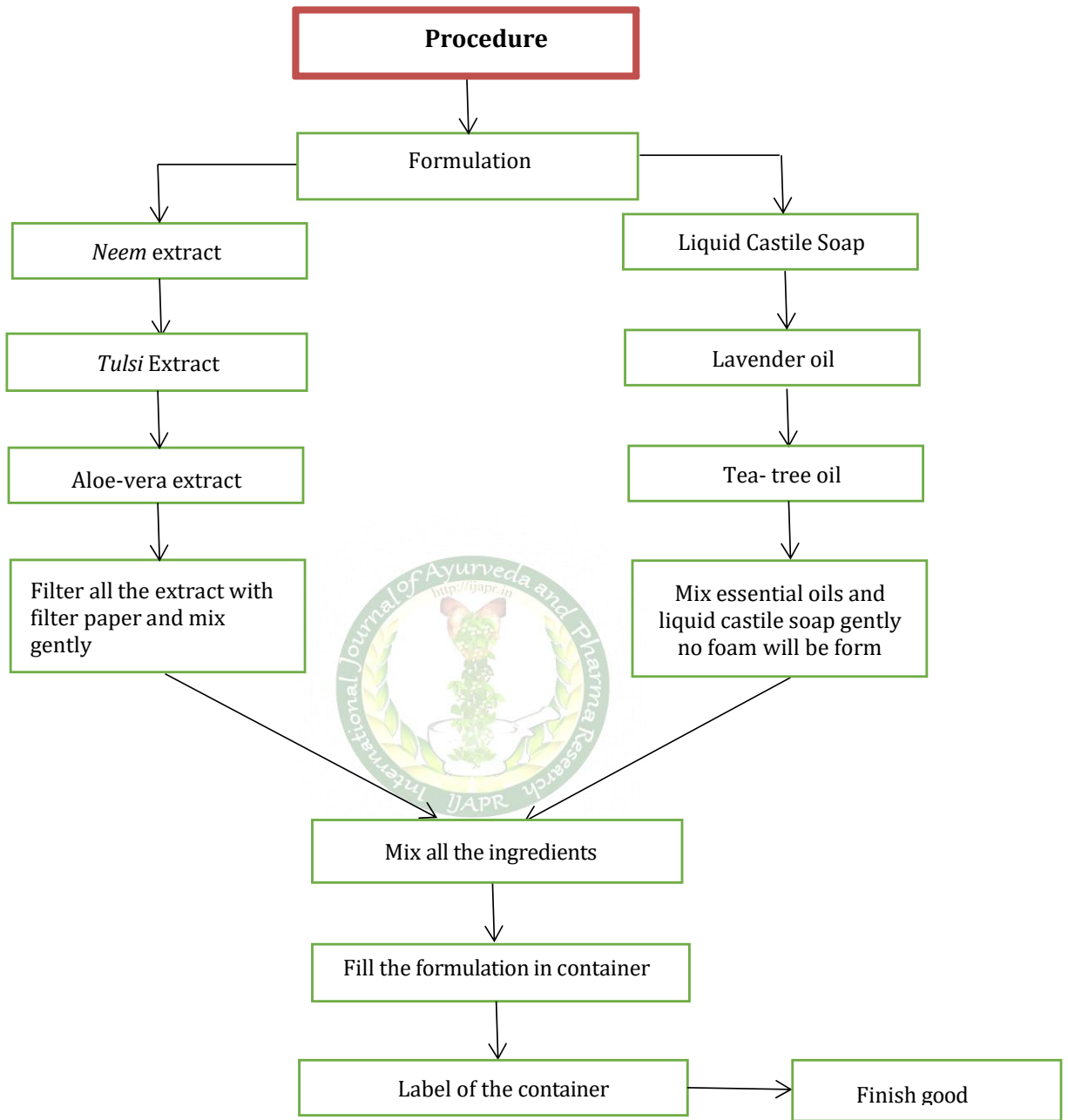
Table 3: Physical Appearance Test

	F1	F2	F3
Physically appearance	Physically appear, good foam	Physically appear, good foam	Physically appear, good foam
Odour	Lavender	Lavender	Lavender
Transparency	Not transparent	Not transparent	Not transparent
Colour	Yellowish green	Yellowish green	Yellowish green

pH

The pH of prepared shampoo was carried out by using digital pH meter. Dissolving 1ml of shampoo in 100ml of water.^[14]

The prepared shampoo pH was found to be 6.5-6.7.



Flow chart No-01:- Procedure for Formulation of Herbal *Neem* Anti-Dandruff Shampoo

Table 4: Evaluation of formulation for physical appearance, viscosity, pH

Formulations	Appearance	pH	Viscosity	% Solid Content	Dirt Dispersion
F1	Yellowish green, Good foaming	6.7-6.9	±17327 cp	28.03±0.04	None
F2	Yellowish green, Good foaming	6.7-6.8	±17533 cp	28.93±0.90	None
F3	Yellowish green, Good foaming	6.9-6.11	±18210 cp	29.12±0.9	None



Fig 8: Digital pH Meter

Viscosity

The resistance of fluid (solid, liquid or gas) to change in shape or movement of neighboring portion soft relative to mean other is called viscosity. The rheological evaluation show that the viscosity of samples changes gradually with the increase in rpm^[15,16].

Percentage Solid Content

4g of shampoo was added to a clean and dry evaporated dish. The dish and shampoo were weight together. The exact weight of shampoo was calculated. The weight of the shampoo after drying was calculated ^[17].



Fig9: Percentage Solid Content

Consistency can be defined as the way in which the substance or sample hold together the uniformity or prosperity. ^[17,18]

Eg. The formulated shampoo has the consistency like smooth cream butter.

Foam Stability Test

50ml of the 1% shampoo solution was placed into 250-ml graduated cylinder which was then shaken 10 times. The total volume of the foam content after 1 min of shaking is recorded at RT (Room Temperature). The height of the foam produced was measured rapidly.

Foam ability and foam stability although foam generation has title to do with the cleansing ability of shampoos. All the five observation of formulated shampoo showed similar Characteristics in distilled water. The foam retention ability of all samples are given in table below. Three formulations observations showed comparable foaming activity. The final formulation produced stable foams there was little change in foam volume^[19,20]

Cylinder shaking method was used for determining the foam stability test



Fig10: Foam Stability Test

Consistency

Herbal Shampoo Evaluation Foam Stability Test

Table5: Evaluation of Foam Stability of Herbal Shampoo Formulation

Time in Min	F1	F2	F3
1 min	165	170	170
2 min	168	168	167
3 min	170	164	164
4 min	165	165	168
5 min	163	164	165

RESULTS: The present research work was the preparation and evaluation of herbal anti-dandruff *Neem* shampoo. The evaluation parameters such as physical properties, pH, viscosity, consistency, solid content and foam stability of shampoo gives good results was shown in table number 3, 4 and 5.

DISCUSSION

In the present research work in that three formulations was prepared and evaluated different

parameters such as Physical appearance, as can be seen all formulations had the good characteristics with respect to foaming. Percent of solid contents, if the shampoo has too many solids it will be hard work in hair too hard to washout. The viscosity of the samples changes gradually with the increase in rpm, therefore the shampoo formulation were time dependent. Foam stability although foam generation has little to do with cleansing ability of shampoos. Our three batches (F1,

F2 and F3) showed similar foaming characteristics in distilled water out of three batches F1 is suitable for use.

CONCLUSION

Preparation of herbal anti-dandruff *Neem* shampoo was done and further evaluated parameters such as physical properties, pH, viscosity, consistency, solid content and foam stability and of shampoo and gives good results.

REFERENCES

- Chandrani D, Lubaina SZ and Soosamma M, A review of antifungal effect of plant extract vs. chemical substances against *Malassezia* spp, *Int J Pharm Bio Sci*3(3), 2012, Page no: 773-780.
- Deepak Bhati, Dr.Amer Quazi, Dr. Amol Joshi, Sabale Kundan, Havelikar Ujwal, Student and Associate Professor. Formulation And Evaluation of Anti-dandruff Shampoo, research Article, vol-10, Issue No.(3). Page-no:-25116-25122.
- Vijayalaxmi A, Sangeetha S, Ranjith N(2018), Formulation and Evaluation of Herbal anti-dandruff Shampoo, *IJRBP* 1(6), November-December 2013, page no:-834-844.
- D.K. Shrivastava & Kshma Swarankar, Antifungal activity of *Azadeachta Indica*, Extraction of *Neem*,*Int. J. curr. Microbial. Appl. Sci.*2014 Volume, 3(5), page no-306
- A.R.Manikar, C.I.Jolly, Formulations of Natural Shampoos, *International Journal of cosmetic Science*, 2001, 223, 59-62.
- Jaya Preeti P. Padmini k. Srikanth j, Lohita M, Sweyha K, vengal Rao P, A review of herbal Shampoo and its Evaluation, *Asian J. Pharm.Ana.*3 (4): 2013, 176-182.
- B.M. Mithal, R.N. Saha a hand book of cosmetics by, first edition 2000, 212.
- A Cooper and Gunn's book of Dispensing for Pharmaceutical students, Revised By S.J. Carter B.Pharm.,F.P.S, Twelfth edition. Page no, 317.
- Dr.Vrushali. S. Kashikar, Dr.Amol A. Kulkarni, Dr.Vikram gcharge and Dr.Indrajeet D. Gonjari, A book of cosmetic science by Page no-112-113.
- Dr.Pulok K.Mukherji, A reference book of Quality Control of Herbal Drugs, Page no. 46.
- Dr. Alfred Martin, A book of Physical Pharmacy by, with the participation of Pillar Bustmante, Indian Edition, distributed by B.I Publication. Pvt. Ltd. Page no,76
- TiwariP, KumarB, KaurG, KaurH. Phytochemical screening and Extraction. A Review. *Int. Pharm Science*, 1(1), 2011, 98t.
- Richa Madhu Sharma, Kinjal Shah, Janki Patel Evaluation of preparation Herbal Shampoo Formulations and to Compare Formulated Shampoo with Marketed Shampoos, *Int J Pharm Sci.*Vol 2 (7). 2011, 402-406.
- Swati Deshmukh, Bindurani Kaushal And Shweta Ghode, (2012), Formulation and Evaluation of Herbal Shampoo and Comparative studies with herbal marketed Shampoo, *Int J Pharm Bio Sci*, Vol3(3), Page no-638-645.
- Naveen S, Karthika S,Sentila R, Mahenthiran R, Micheal A, In-vitro evaluation of herbal And Chemical Agents in the management of Dandruff, *J. Microbial, Biotech. Res.* 2(6), 2012, 916-921.
- Abhishek Sing and Abhishek Saxena, Formulation And Evaluation of Herbal Anti-dandruff Shampoo by journal of pharmacy Practice and research Vol.1 (1). 5-11.
- Asmita Ashok Pakale, Pratibha Tanhaji, And Pranali Dilip jadhav, A Digital pH Meter by, A Journal of Electronic Design Engineering, Provided by MAT Journal, Vol 4, Issue 1.
- Anusha Potluri, Harish G.B, Pragati Kumar, And Dr. Durraivel, Formulation And Evaluation of Anti-dandruff Shampoo by, *IJRBP*, ISSN: 2321-5674. Page no-835-839.
- Ronnie Wolf, MD. Danny Wolf MD. Soaps, Shampoos, and Detergents, *Clinics in Dermatology*, 2001, 124-129.
- Badi KA, Khan SA, Formulation, evaluation and Comparison of the herb shampoo with the commercial shampoo. *Ben-Suef Univ. J Badic Appl. Sci.*2014. Volume (3), 301-305.

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