A REVIEW ARTICLE ON: FORMULATION AND EVALUATION OF ANTIDANDRUFF COSMETIC SHAMPOO

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ABSTRACT-
Dandruff is a common problem and is suffered by as much as half of the population at some time post puberty. It is a common disorder caused by pityrosporum yeast that affects the scalp conditions. They can not be removed completely but can only be handle and regulated effectively. Shampoos are cosmetic product which are use to removes dirt, surface grease from the hair shaft and scalp. Shampoo is prepared by using antidandruff agent such as sulphur, benzoic acid, ketoconazole etc. They help in resolving the symptoms of dandruff. Various antidandruff agent are used in hair care preparation. Such drugs act against the dandruff and dandruff causing agent resulting as prevent and treat dandruff on scalp. The present research point up about the preparation and evaluation of synthetic antidandruff cosmetic shampoo.

1 INTRODUCTION-
1.1 Shampoo:-
A shampoo may be defined as a preparation of a surfactant (i.e.surface active material) in a suitable form-liquid, solid, or powder which when used under the conditions specified will remove surface grease, dirt and skin debris from the hair, shaft and scalp without affecting adversely the hair, scalp or the health of the user.
The word shampoo in English usage dates back to 1762, with the meaning “to massage”. The word derived from Anglo-Indian shampoo, in turn from Hindi champoo, imperative of champna to smear, knead the muscles, massage. Today, a plethora of shampoos are available for men and women.[1] The added functions of shampoo include lubrication, conditioning, body building, prevention of static charge build up, medication and so on. Finally, the complete shampoo formulation must be medically safe for long-term.[2]

**Type of Shampoos**-

Shampoos are of the following types:

- Powder Shampoo
- Clean Liquid Shampoo
- Liquid Cream Shampoo
- Cream Shampoo
- Gel Shampoo
- Aerosol Shampoo
- Special Shampoo
- Conditioning Shampoo
- Anti-dandruff Shampoo

**1.2 Dandruff**-

Dandruff is a common scalp disorder, characterized by presence of corneocytes that form clusters due to their high cohesive power, in the form of flaky white to yellowish scales, accompanied by itching.[3] It has been observed that dandruff occurs mainly between puberty to middle age, the phase when sebaceous glands are most active.
FIGURE: DANDRUFF ON SCLAP

1.3 Antidandruff Shampoo-

Antidandruff Shampoos are chemical agents which are used to prevent and treat dandruff on scalp. Cosmetic companies have developed shampoos specifically for those who have dandruff. These contain fungicides such as ketoconazole, zinc pyrithione and selenium disulfide, which reduce loose dander by killing fungi like Malassezia furfur. Coal tar and salicylate derivatives are often used as well. Alternatives to medicated shampoos are available for people who wish to avoid synthetic fungicides. Such shampoos often use tea tree oil, essential oils or herbal extracts.[4]

1.4 Composition of Antidandruff Shampoo-

The following are the ingredients used for preparation of shampoos. They include Primary surfactants e.g. sodium lauryl sulphate, triethanol lauryl sulphate. Secondary surfactants e.g. dialkyl sulphosuccinates, monoalkyl sulphosuccinates. Germicides and Antidandruff agents e.g. Salicylic acid, Benzoic acid. Conditioning agents e.g. fatty substances like lanolin, oils. Pearlscent agents e.g. 4-methyl-7-diethylamino coumarin. Sequestrants e.g. Sodium salt of EDTA. Thickening agents e.g. Alginates. Preservatives
e.g. formaldehyde, methyl paraben, propyl paraben. Solubilizing agents e.g. Aliphatic alcohols, Urea etc.[5] [6]

2. MATERIALS AND METHODS-

The antidandruff agents used in present study are Sulphur and Benzoic acid. The other ingredients include Sodium lauryl sulphate (surfactant), Urea (solubilizing agent), Citric acid (sequestering agent), Sodium EDTA (chelating agent), Guar gum (stabilizer & thickening agent) Tween80, Ethanol, Distilled water (vehicle). All ingredients were purchased from SD fine chemicals, Boisar.

2.1. Preparation of antidandruff shampoo-

The antidandruff shampoo was formulated using simple mixing process. Formulations were made by using two antidandruff agents such as sulphur and benzoic acid. The other ingredients used are sodium lauryl sulphate as surfactant, urea as solubilizing agent, citric acid as sequestering agent, sodium EDTA as chelating agent, guar gum as foam stabilizing agent and thickening agent, tween 80 & distilled water as vehicle.

Table. Composition of antidandruff shampoo-

<table>
<thead>
<tr>
<th>QS.N.</th>
<th>Ingridient</th>
<th>Quantity in (gm)</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Sulphur</td>
<td>0.25</td>
</tr>
<tr>
<td>2.</td>
<td>Benzoic acid</td>
<td>2</td>
</tr>
</tbody>
</table>
3. Sodium lauryl-sulphate 20
4. Urea 1
5. Citric acid 0.5
6. Sodium EDTA 0.5
7. Guar gum 2
8. Tween 80 0.5
9. Distilled water 100 upto (100 ml)

2.2 Evaluation of prepared antidandruff shampoo-

2.2.1. Physical appearance/Visual inspection: The formulations prepared were evaluated in terms of their clarity, foam producingability and fluidity[7].

2.2.2. Determination of pH: The pH of 10% shampoo solution in distilled water was determined at room temperature 250 C[8].

2.2.3. Determine percent of solid contents: A clean dry evaporating dish was weighed and added 4 grams of shampoo to the evaporating dish. The dish and shampoo was weighed. The exact weight of the shampoo was calculated (only solids) and evaporating dish with shampoo was placed on
hot plate until the liquid portion was evaporated. The weight of the shampoo (only solids) after drying was calculated.

2.2.4. **Rheological evaluation:** The viscosity of the shampoos was determined by using Brookfield viscometer by setting different speeds from 0.3 to 10 rpm[8]. The viscosity of the shampoos was measured by T95. The temperature and sample container’s size was kept constant during the study.

2.2.5. **Surface tension measurement:** Measurements were carried out with a 10% shampoo dilution in distilled water at room temperature. Thoroughly clean the stalagnometer using chromic acid and purified water. Because surface tension is highly affected with grease or other lubricants[9,10]. The data is calculated by using the equation given below:

\[ R_2 = \frac{(W_3 - W_1) \times n_1}{(W_2 - W_1) \times n_2 \times R_1} \]

- \( W_1 \) = weight of empty beaker.
- \( W_2 \) = weight of beaker with distilled water.
- \( W_3 \) = weight of beaker with shampoo solution.
- \( n_1 \) = number of drops of distilled water
- \( n_2 \) = number of drops of shampoo solution.
- \( R_1 \) = surface tension of distilled water at room temp.
- \( R_2 \) = surface tension of shampoo solution.
2.2.6. Foaming ability and Foam stability: Cylinder shake method was used for determining foaming ability. 50ml of 1% shampoosolution was put into a 250ml graduated cylinder and is shaken for 10times. The total volumes of foam contents after 1minute shaking were recorded. The foam value was calculated immediately after shaking the volume of foam at 1 minute intervals for 4 minutes were recorded[11].

2.2.7. Anti Microbial activity against Staphylococcus aureus: The prepared antidandruff shampoo formulations F1 to F8 were subjected to antimicrobial activity by cup plate method using the agar medium. 1% antidandruff shampoo was used to study this antimicrobial activity. The petriplates were then sealed using para film an incubated at 37ºc for 24hrs. The zone of inhibition was observed successfully for formulation.

3. OUTCOME AND REVIEW-

The aim of the present work is to prepare Antidandruff shampoo by using two antidandruff agents such as Benzoic acid and Sulphur by various combinations. The prepared Antidandruff shampoo was evaluated for physical appearance/visual inspection, determination if pH, determine % of solid contents, rheological evaluation, surface tension measurement, foam ability and antimicrobial activity.

4. CONCLUSION-

The preparation and evaluation of Antidandruff shampoo by using two antidandruff agents such as Benzoic acid and Sulphur with another igrredient. In which Staphylococcus aureus after incubating for 24 hrs. It may have fair antidandruff activity efficiency.
5. REFERENCES-


