Research Paper on Antidandruff Formulation and Evaluation of Antidandruff Shampoo

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Abstract:
Shampooing is the most common form of hair treatment to remove dirt, grease, and debris from the hair, scalp and other parts of body without damaging the natural gloss of hair and to keep the hair fragrant, lustrous, soft and manageable. The shampoo is prepared by using Antidandruff Agents Zinc Pyrithione. The other ingredients used are sodium lauryl sulphate as surfactant, urea as solubilizing agent, sodium EDTA as chelating agent, guar gum as foam stabilizer and thickening agent, distilled water is used as vehicle. It was evaluated for various test and the ranges were in acceptable limits. The Ph range was 6.5 to 9.0, physical appearance was off white color. percentage (%) of zinc contents ranges from 9.3% to 11.3%, particle size was in the range of 90% <1 Micron, Assay of (%) ZPT was 48% to 50%.The present research emphasizes about the preparation and evaluation of synthetic antidandruff cosmetic shampoo.

Keywords: Antidandruff, Zinc Pyrithione.

1.0. INTRODUCTION

The first antidandruff shampoo containing Zinc Pyrithione was launched almost four decades ago. Since then Zinc Pyrithione bactericide-fungicide has become the world’s leading antidandruff agents. It also used as an antibacterial agent in Dermatological creams and ointments. It effectively does the job any antidandruff agents are expected to do i.e. relieving the flaking and itching symptoms of dandruff. Its lasting properties make Zinc Pyrithione a superior one, meaning it sticks and remains active on the scalp, so it’s effectiveness lasts from one use to the next. Combination of efficacy and safety has made it the most effective antidandruff agent for several decades. 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 c”. The word derived from Anglo-Indian shampoo, in turn from Hindi champu, meaning ‘to massage’. Today, a plethora of shampoos are available for men and women. A good shampoo should almost immediately form abundant foam irrespective of the type of water used or the nature of soil or fat to be removed from hair. Though foam formation is not released to the cleansing effect, but people psychologically always prefer a high foam product. Some good shampoo is found to have side effects like drying effect on the hair. This leaves the hair too dry to handle or comb. So proper conditioning of the hair is also an important consideration, some shampoo cause irritation to the eye and a lasting corneal cloud. These should be avoided. The function of shampoo is expected to be various. A good and acceptable shampoo should have the following characteristics.

1.1. Composition of Shampoo

The following are the ingredient used for preparation of shampoo. They include Primary surfactants e.g. sodium lauryl sulphate, triethanol lauryl sulphate. Secondary surfactant e.g. dialkyl sulphosuccinates, monoalkyl sulphosuccinates. Germicides and Antidandruff E.g. Zinc Pyrithione. Conditioning agents e.g. fatty substance like lanolin, oils. Pearlescent agent e.g. 4-methyl-7-dietylaminocoumarin. Sequestrants e.g. Sodium salt of EDTA. Thickening agents e.g. Alginates. Preservatives e.g. methyl paraben, propyl paraben. Solubilizing agents e.g. water, ethanol, methanol, chloroform, ether.

2.0. MATERIALS AND METHODS

The antidandruff agent used in present study is Zinc Pyrithione. The other ingredients include sodium lauryl sulphate (surfactants), Urea (solubilizing agents), Citricacid (sequestering agents), Sodium EDTA (chelating agents), Guar gum (stabilizer and thickening agents), Distilled water (vehicle). All ingredients were purchased from fine chemicals.

2.1. Preparation of Antidandruff Shampoo

The antidandruff shampoo was formulated using simple mixing process. Formulation was made by using antidandruff agent Zinc Pyrithione. The other ingredients are sodium lauryl sulphate, urea, citric acid, sodium EDTA, guar gum, distilled water.

3.0. PRODUCT DATA

Zinc Pyrithione is actually Zinc complex of Pyrithione which is 2-pyridine thiol-1-oxide. Under chemical abstract registry it is named as bis [ 1-hydroxy-2(1H)-Pyridinethionato-o, s]-[T-4] Zinc(CAS No: 13463-41-7). The molecular and structural formulaC10H8N2O2S2ZN2

3.1 Physical Properties

Description : Off white color, stable aqueous dispersion free from sign
Of impurities
Odour : Mild, Characteristic odour
Assay (%ZPT): 48%-50%  
Zinc Content : 09.3 to 11.3 %  
Ph (5% slurry in ph. 7 water) : 6.5 to 9.0  
Particle size : 90%<Micron

3.2 Solubility Properties  
Water : 0.01% max  
Ethanol : 0.02% max  
Methanol : 0.03% max  
Chloroform : 0.10% max  
Ether : 0.01% max

4.0. STABILITY STUDY

4.1. Heat Stability  
It is stable at 100 degrees Celsius for at least 120hrs. Around 240 degrees Celsius it undergoes decomposition.

4.2. ph. Stability  
Zinc Pyrithione is quite stable over the ph range from 4-10. Below 4.5 the Zinc complex starts dissociating forming free Pyrithione. Above ph 9.5 the Zinc complex undergoes a hydrolysis to give ionized Pyrithione.

4.3. Light Stability  
Zinc Pyrithione undergoes gradual decomposition when exposed to light.

5.0. ANTIMICROBIAL PROPERTIES

Data shows very low concentrate of Zinc Pyrithione inhibits the growth of many micro-organisms like staphylococcus aureus, Escherichia coli, Bacillus subtilius, Pytyrosporum ovale, trichophyton. Zinc Pyrithione, an effective biocide with anti Pityrosporum activity, eliminates P.ovale the causative organism of dandruff and maintain good personal hygiene.

6.0. RESULTS

It prevents flaky ness and small particles.  
It reduces secretion of oil glands which cause more dandruff.  
It helps to inhibit the growth of micro-organism.  
It reduces itching, flaking, redness, irritation of the scalp.  
It is also used to treat seborrheic dermatitis

7.0. CONCLUSION

In the present work, efforts have been made to prepare and evaluate Antidandruff shampoo by using Antidandruff agent Zinc Pyrithione. It inhibits the growth of various micro-organism. It helps to reduce secretion of oil glands. It helps to prevent dandruff.

8.0. REFRENCES

[4]. kelkin K, Cosmetics Magazine.