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Formulation, Development and Evaluation of Anti-Dandruff Shampoo using Piroctone Olamine

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ABSTRACT

The aim of this study was to formulate and develop anti dandruff shampoo by determining the antifungal activity of Piroctone olamine as well by agar diffusion method based on zone of inhibition. Piroctone olamine, also known as Octopirox and piroctone ethanolamine, is a compound reported to be used in the treatment of fungal infections. Piroctone olamine is the ethanolamine salt of the hydroxamic acid derivative piroctone. In this study, shampoo was formulated using various concentrations of Piroctone olamine. Piroctone olamine and shampoo formulations containing Piroctone olamine were evaluated for antifungal activity against Malassezia furfur (1374) and Candida albicans. The results showed that Piroctone olamine and shampoo formulation containing Piroctone olamine is effective against the microorganisms responsible for dandruff.

Keywords: *Dandruff, Piroctone olamine*

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INTRODUCTION

Dandruff

Dandruff represents a common scalp disorder affecting half of the world's population regardless of gender or ethnicity [1]. In recent days, many people are facing problems due to dandruff. Dandruff causes lots of problems such as itching, scaling, irritation etc. Due to dandruff, hair fall occurs giving a dull and diminish look to the hair. Microorganisms such as *Malassezia furfur* 1374 and *Candida albicans* are mainly responsible for the formation of dandruff [2].

Piroctone Olamine

Piroctone olamine, also known as Octopirox and piroctone ethanolamine, are compounds reported to be used in the treatment of fungal infections [3]. Piroctone olamine is the ethanolamine salt of the hydroxamic acid derivative of piroctone [4].

Piroctone olamine is a white crystalline powder, having the empirical formula, $C_{14}H_{23}NO_2 \cdot C_2H_7NO$ and molecular weight of 317.7 g/mol. Its chemical name is 1-Hydroxy-4-methyl-6- (2, 4, 4-trimethylpentyl) 2-(1H) pyridinone, 2-aminoethanol salt. Its pH ranges from 8.5-10.0 (for a 1% suspension in water, at 20°C) and the temperature range for melting is 130-135°C. It is freely soluble in 10% ethanol in water; soluble in solution containing surfactant in water or in 1%- 10% ethanol; slightly soluble in water and in oil. It can be used up to 1.0% in various cosmetic preparations [5]. With reference to literature survey, in this study,

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