



Development and Evaluation of Polyherbal Hair Dye Formulation

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Abstract

Background and Objectives: Hair care products including hair dye play an important role in the maintenance and enhancement of appearance and overall wellbeing of the hair. Most of the hair dyes available in the market contain harmful chemicals that may cause allergic reactions or irritation of the scalp. The objective of this study focuses on the formulation and evaluation of hair dye as creams and gels with different shades by using herbs. **Methodology:** The collected plants were authenticated, and shade dried. Then, extractions were done using water, ethanol, and methanol. Preliminary testing was conducted to obtain burgundy, brown and black by manipulating the ratios. Later, almond oil, coconut oil, beeswax and Carbopol-934 gel were added to ease the penetration. Finally, accelerated stability studies were done to check the physical and microbial stability of the product. **Results:** Eight different shades of hair dye were formulated in gel and cream form. Among them, gel formulations F5 and F6 as well as the cream formulations F1, F2, F3, F4, F7 and F8 demonstrated good staining and better colour intensity. The accelerated stability studies of F1 to F8 revealed that there is no change in the physical evaluation and no evidence of microbial contamination. **Conclusion:** The output of this research is suitable for all races and age groups because it is not a permanent hair dye that might have a restriction for some groups of races. As such, this hair dye is fully formulated with natural sources by considering the reduction of severe side effects to the consumers.

Keywords: Creams, Gels, Herbal Extracts, Herbal Hair Dye, Human Hair

1. Introduction

Hair acts as an intrinsic part of the body by reflecting the image, and it can easily change someone's personality without resorting to surgical procedures. Healthy hair is considered an asset in this generation because people tend to spend more time on their hair to look perfect and lustrous. Therefore, fancy cosmetics and techniques have been used since ancient times to change the appearance of hair. To meet the demand, the beauty industry continues to establish reliable goods that are used to treat healthy hair and scalp diseases together and many cosmetic companies want to enter

the hair colour or hair dye industry. Regarding the hair dye, the dyes exaggerate the hair by bleaching or colouring it for a short time or longer time, depending entirely on the composition of a dye that has oxidative or non-oxidative¹.

Currently, the whole world is turning back to ancient days when only herbs were used for multipurpose functions. In this 21st century, all are going towards the usage of herbal products and trying to adopt a more natural way of life. People prefer natural food, herbal medicine and also natural curing practices for a healthy life. All this happened due to the excessive use of synthetic products, chemicals, synthetic dyes, and their

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