

**DEVELOPMENT OF SAFER POLYHERBAL HAIR SPRAY  
FOR THE TREATMENT OF ALOPECIA**

Submitted By

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**Abstract**

The present work describes the development and evaluation of topical polyherbal hair spray prepared from extracts of *Allium cepa*, *Allium sativum*, *Eclipta alba*, *Aloe vera*, *Hibiscus rosa sinensis*, *Psidium guajava* and, *Camellia sinensis*; as a safer alternative therapy to allopathic formulations.

The physicochemical and phytochemical screening was performed for the extracts. Compatibility study was performed by TLC. The polyherbal hair spray was optimized using different concentration of PVP K 30 and PEG 6000 as independent variables; Drying time, Volume per spray and Area of film as dependent variables using  $3^2$  factorial design with the help of Design Expert Software in order to obtain polyherbal hair spray formulation having maximum Volume per Spray and Area of Film and minimum Drying Time. The optimized formula was further evaluated by different parameters like pH, dose uniformity, leak test, qualitative hair growth analysis and quantitative hair growth analysis.

TLC study showed compatibility of excipients with the extracts. The optimized formulation was found brown in colour, having characteristic odour, pH  $5.6 \pm 1.3$ , drying time  $280 \pm 0.21$  sec, volume per spray  $0.12 \pm 0.64$  ml, area of film  $159.28 \pm 2.07$  cm<sup>2</sup>, hair growth initiation time 8 days, hair growth completion time 22 days and mean hair length  $3.4 \pm 0.25$  mm. For the optimized batch 37,1 and 12 follicles were

found to be in anagen, catagen and telogen phase respectively. Further, animal study showed no skin irritation and prepared formulation was found to be stable.

Although the polyherbal hair spray formulation does not supersede the effects seen with standard minoxidil treatment, at least it is devoid of side effect profile seen with minoxidil. Hence, it can be concluded that the polyherbal hair spray formulation F6 has a potential effect on maintaining the hair growth and has an excellent hair growth activity with no or minimal side effects.

**Keywords:** Alopecia, Polyherbal Hair Spray, Safer Treatment for Alopecia, Hair Growth Promoter, Hydro-alcoholic Spray.