

Formulation Development and Evaluation of Polyherbal Emulgel for Anti Inflammatory Activity

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Abstract: *This study focuses on the formulation development and evaluation of a polyherbal emulgel incorporating curcumin and coriander seed oil, aimed at enhancing anti-inflammatory activity. Preformulation studies were conducted to characterize the physical, chemical, and mechanical properties of the active substances, and to establish a robust basis for the formulation approach. Various parameters including solubility, melting point, partition coefficient, and drug- excipient interactions were assessed to ensure compatibility and efficacy. The emulgel was prepared through a systematic process involving the preparation of a gel base, oil phase, aqueous phase, and subsequent emulsification. The final product was evaluated for various properties such as physical appearance, homogeneity, pH, spreadability, extrudability, swelling index, viscosity, drug content, and in vitro drug diffusion. Stability studies were also conducted over three months to ensure the longevity and reliability of the formulation. Results indicated that the formulated emulgel exhibited desirable physical properties, optimal pH, high spreadability, good extrudability, and a significant swelling index. Viscosity measurements confirmed appropriate consistency, while drug content analysis ensured accurate dosing. In vitro drug release studies demonstrated sustained release profiles, fitting well with kinetic models. Additionally, in vivo anti-inflammatory activity was assessed using a carrageenan-induced paw edema model in rats, showing promising results with notable inhibition of inflammation. Overall, the polyherbal emulgel formulation developed in this study offers a promising alternative for anti-inflammatory therapy, combining the therapeutic benefits of curcumin and coriander seed oil in a stable and effective dosage form. Further studies are recommended to explore clinical efficacy and potential applications in broader therapeutic areas.*

Keywords: Carbohydrates, Proteins, Amino-acids, Fats, Saponins, Alkaloids, Flavonoids, Triterpenoids.