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Formulation and Evaluation of Antihistaminic Drug (Cetirizine Hydrochloride)

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Abstract: *The present study focuses on the formulation and evaluation of Fast Dissolving Tablets (FDTs) of Cetirizine Hydrochloride, an effective second-generation antihistamine widely used in the treatment of allergic conditions such as rhinitis, urticaria, and hay fever. FDTs are an innovative dosage form designed to disintegrate rapidly in the oral cavity without the need for water, thereby enhancing patient compliance, particularly among pediatric, geriatric, and dysphagic populations. In this project, FDTs were prepared using the direct compression method, employing various superdisintegrants such as Crospovidone, Croscarmellose Sodium, and Sodium Starch Glycolate in different concentrations. Post-compression evaluation of the tablets included hardness, friability, disintegration time, wetting time, drug content uniformity, and in-vitro dissolution studies. Among all the formulations, Formulation F3, which contained 5% Crospovidone, exhibited the best performance, with a disintegration time of 29 seconds, wetting time of 28 seconds, and 98.7% drug release within 30 minutes. The formulation was further evaluated for drug release kinetics, which followed the Korsmeyer-Peppas model, indicating a non-Fickian diffusion mechanism.*

Keywords: *Fast Dissolving Tablets (FDTs); Cetirizine Hydrochloride; Antihistaminic Drug; Direct Compression; Superdisintegrants; Crospovidone; In-vitro Drug Release; Drug Release Kinetics; Korsmeyer-Peppas Model; Patient Compliance*

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