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Formulation and Evaluation of Fast Dissolving Tablets

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Abstract: *The present study was aimed at the formulation and evaluation of fast dissolving tablets (FDTs) of Parecoxib to achieve rapid onset of analgesic and anti-inflammatory action, enhancing patient compliance. Fast dissolving tablets were prepared using sodium starch glycolate and crosscarmellose sodium as superdisintegrants, camphor as a subliming agent to impart porosity, and microcrystalline cellulose as a diluent, employing direct compression technique. Nine formulations (F1–F9) were developed by varying the concentration of superdisintegrants. Pre-compression parameters such as bulk density, tapped density, compressibility index, Hausner's ratio, and angle of repose confirmed good flow properties suitable for direct compression. The prepared tablets were evaluated for hardness, friability, weight variation, wetting time, water absorption ratio, drug content uniformity, in vitro disintegration time, and dissolution profile. Among all batches, formulations F3, F4, F8, and F9 exhibited rapid disintegration (less than 40 seconds) and acceptable mechanical strength. The optimized formulation F9 showed a disintegration time of 33.6 seconds, satisfactory drug content (94.8%), and friability below 1%, indicating good mechanical stability. Stability studies performed under ICH conditions confirmed the physical and chemical stability of the optimized formulation over three months. These findings suggest that the developed FDTs of Parecoxib can serve as a promising delivery system for immediate pain relief with enhanced patient acceptability.*

Keywords: Parecoxib; Fast dissolving tablets; Superdisintegrants; Subliming agent; Direct compression; Disintegration time

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