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# Studies on Drug Release Kinetics of Controlled Release Matrices of Flurbiprofen and Comparison with Market Product

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***SUMMARY*. Controlled release dosage forms have both predictability and reproducibility in the drug release rates and reduces dosage frequency and improves patient compliance. In this research work, controlled release matrix tablets of flurbiprofen were designed and developed by using polymers Ethocel grade 7 (Ethocel 7 premium and Ethocel 7 FP) as rate controlling polymers. The tablets formulations were done at drug-to-polymer ratio (D:P) of 10:3 and in some selected formulations co-excipients such as hydroxyproply methyl cellulose (HPMC) carboxymethyl cellulose (CMC) and starch were added to check its effect on drug release rates. Tablets were compressed by direct compression method. Dissolution studies were conducted in 0.2 M phosphate buffer (pH 7.2) using USP Method-I (rotating basket method) in eight stationed pharma test dissolution apparatus. The release mechanisms of drug were determined by applying kinetic models such as zero-order, 1st-order, Highuchi, Hixson Crowell and Power law. Similarity factor ($f_2$) was applied to determine dissolution profiles equivalency between test formulations and reference standard Froben® SR (sustained release) formulation. The tablets containing polymer Ethocel 7 FP Premium extended the drug release rate proficiently than the Ethocel 7 Premium and this could be due to its small particles size. Both formulations released the drug by anomalous, non-fickian diffusion. The drug release rates were also increased by co-excipients in the selected formulations. In the designing and devolvement of controlled release matrix tablets, polymers Ethocel 7 Premium and Ethocel 7 FP Premium can be used successfully as rate controlling agents.**

*KEY WORDS:* Co-excipients, Direct compression, Flurbiprofen, Rate controlling polymer.

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