



## Study of Drug Release Retardant Capability of Hydroxypropylmethylcellulose and Carbopol in Matrix Tablets

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**SUMMARY.** The present study was undertaken to investigate the effect of nature of polymers like HPMC, carbopol-934P and their content levels on the release profiles of water soluble drug, diclofenac potassium. For this purpose, different tablets were prepared by wet granulation technique using HPMC-K15, carbopol-934P and blends of HPMC with carbopol-934P. Release kinetics was evaluated using USP apparatus II at 50 rpm in phosphate buffer pH 6.8 for 12 h. HPMC showed less release retardant effect compared to carbopol-934P at same concentration, while blends of these polymers gave an intermediate release profile, *i.e.* decreasing the quantity of carbopol-934P while increasing the amount of HPMC, increased the release of drug from matrix tablets. The release retarding capacity of two used polymers is as follows: Carbopol-934P > HPMC-K15. Formulations containing HPMC exhibited first order release, while all other formulations showed zero order pattern. Present study showed that drug release retardant effect of carbopol was higher as compared to HPMC. It also confirmed that release rate of drug is mainly controlled by drug-polymer ratios.

**KEY WORDS:** Carbopol, Diclofenac potassium, HPMC, Sustained release tablets.

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