

Research article

Effect of polymers on release pattern of Ondansetron Hydrochloride bioadhesive sustained release matrix tablets

Asim Mehmood^{*1}, Sharjeel Adnan¹, Abdurrehman Sarwar²

¹Faculty of Pharmacy, the University of Lahore, Lahore, Pakistan.

²Bahaudin Zakaria University Multan, Pakistan.

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***Corresponding Author:** Asim Mehmood, Faculty of Pharmacy, the University of Lahore, Lahore, Pakistan.

Abstract

The objective of this research was to conclude the effect of bioadhesive polymers on the release pattern of Ondansetron from bioadhesive matrix tablets. To observe this effect bioadhesive sustained release tablets having ondansetron hydrochloride as active ingredient were formulated using bioadhesive polymers like CMC in concentration of 10%, 17%, 25%, 33% and 40% HPMC in concentration of 10%, 26%, 45%, 64% and 80% and Carbopol with concentration of 5%, 11%, 18%, 24% and 30%. Direct compression method was used to compress the tablets, then these tablets were analyzed for physical and chemical testing. For dissolution 12 hours study was performed by using USP type II apparatus. The order of bioadhesion with relative to polymers was as Carbopol 934P > HPMC > CMC. Formulations A-5, A-10 and A-12 showed the optimum level of results as they followed zero order and Higuchi kinetic model presenting sustained release pattern as their R² values are 0.960, 0.985 and 0.984 respectively. All formulations followed the equation of Korsmeyer and Peppas drug release profiles as the values of N in all formulations were above 0.5 except A6 and A13, that shows it follows non-Fickian diffusion. According to the results it was concluded that CMC with concentration of 35% to 45%, carbopol 934P with concentration of 20 to 30% and HPMC with concentration of 70% to 80% can be used with Ondansetron to make bio-adhesive sustained release matrix tablets with optimum release over the period of 12 hours.