ABSTRACT

The Effect of Ratio HPMC K100M and K100LV towards Floating Characteristics and Release Ranitidine HCl from Floating Tablet.

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This study aimed to improve the efficiency of the drug in sustained release dosage ranitidine HCl. Since, ranitidine HCl is absorbed only at the beginning of the small intestine and colon metabolism of ranitidine HCl causing low bioavailability. Therefore, this study applied floating systems to hold the drug in the stomach that increases bioavailability. This study made four formulas of floating ranitidine HCl tablet, with matrix combination of HPMC K100M and K100LV (1:0, 12:1, 8:1, 4:1). The percentage of total matrix in each formula is 16%. Each formula tested the floating characteristics and release of ranitidine HCl from floating tablet. The testing was done by using a type II dissolution test with medium HCl 0.1 N (pH 1.2) with a temperature of 37 ± 0.5°C and stirring speed of 50 ± 2 rpm.

The test results showed that the combination of HPMC K100M and K100LV accelerates floating lag time of each tablet. Each formula resulted floating lag time less than 15 minutes and the total floating time is more than 8 hours. From the results found that matrix combination of HPMC K100M and HPMC K100LV with ratio of 4:1 increases the release rate of ranitidine HCl. The release mechanism of the F1 is dominated by first-order kinetics and Higuchi models, while the F2, F3, and F4 is dominated by the first-order kinetics. The release mechanism of all formula was dominated by porous matrix. When compared with the requirements of Welling obtained only F1 and F2 that meets the suitability requirements of drug release from sustained release tablets. From this study, it is advisable to do further research on the effects of excipients and drug-polymer ratio on release of ranitidin HCl from matrix combination of HPMC K100M and HPMC K100LV in floating tablet.

Keywords : ranitidine HCl, floating tablet, HPMC K100M, HPMC K100LV.