ABSTRACT

Secnidazole is a water soluble drug used for the treatment of amoebiasis, an infection of the large intestine caused by *Entamoeba histolytica.*Water soluble drug, if formulated as matrix tablets, may release a significant amount of drug from the matrix surface in the physiological environment of the stomach and small intestine before reaching the site of action. Hence an attempt was made to minimize the drug release in the physiological environment of the upper GIT and to ensure drug release in the colon by applying calcium pectinate and HPMC K15M as compression coating polymer. The drug delivery system was based on the gastrointestinal transit time concept, assuming colon arrival time to be 6 h. Rapidly disintegrating core tablets containing Secnidazole were compression coated with Calcium pectinate and HPMC K15M. A 3^2 full factorial design was applied for optimization of the formulation. Both variables, the coat weight (X_1) and the proportion of HPMC K15M in polymer blend (X_2), had an influence on the percent drug release after 6 h of the dissolution of tablet and difference in percent drug release after between 6h and 10h of dissolution of tablet (YD) in the presence of the pectinase enzymes and time to require release 80% of the drug ($T_{80\%}$). The results revealed that for protecting the rapidly disintegrating core tablets of Secnidazole in the physiological conditions of stomach and upper intestine, the core tablets should be coated with 10% HPMC K15M and higher coat weight.

Key words: Secnidazole; Calcium pectinate; HPMC K15M; compression coating; 3^2 full factorial design; YD; $T_{80\%}$; colon targeting.