PREPARATION AND EVALUATION OF CARNAUBA WAX MICROSPHERES LOADED WITH LAMIVUDINE FOR CONTROLLED RELEASE

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Abstract

A congealable disperse phase encapsulation method was used to prepare controlled release wax microspheres of lamivudine to increase the efficacy of anti retroviral drug, lamivudine against HIV infections and decrease its gastric unwanted effects. The prepared lamivudine loaded wax microspheres were evaluated for drug content, particle size distribution, surface morphology, in-vitro release studies, dissolution efficiency (DE5%) and release kinetic study. Drug release from wax was compared with the release behavior of commercially available formulation Lamidine®150. The Carnauba wax microspheres were spherical in shape and non aggregated. The drug content was found to be 40.54-62.93 %W/W. The particle size was ranged from 13-17 µm in size and in-vitro release profile showed that the prepared wax microspheres effectively controlled the release of lamivudine compared to the market product. (DE5%) was ranged from 48.185-62.96%. The in vitro release data were in favor of diffusion release kinetics (for formulae F5, F6 and F7) and koresmeyer-peppas release kinetics (for F8). The values of n were = 0.43 indicating Fickian (case I) diffusion transport for all formulae (except for formulae F8). Marked retardation of lamivudine release may provide a useful controlled release of anti retroviral drug therapy.

PublishedIn: Pharmaceutical Process Development