



Encapsulation of Olanzapine into Beeswax Microspheres: Preparation, Characterization and Release Kinetics

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SUMMARY. The objective of the present study was to minimise the unwanted side effects of olanzapine (OZ) drug by kinetic control of drug release by entrapping into gastro resistant, biodegradable waxes such as beeswax (BW) microspheres using meltable emulsified dispersion cooling induced solidification technique utilizing a wetting agent. Solid, discrete, reproducible free flowing microspheres were obtained. The yield of the microspheres was up to 94.0 %. The microspheres had smooth surfaces, with free flowing and good packing properties, indicating that the obtained angle of repose, % Carr's index and tapped density values were well within the limit. More than 97.0 % of the isolated spherical microspheres were in the particle size range of 312-330 μm were confirmed by scanning electron microscopy (SEM) photographs. The drug loaded in microspheres was stable and compatible, as confirmed by DSC and FTIR studies. The release of drug was controlled for more than 8 h. Intestinal drug release from microspheres was studied and compared with the release behaviour of commercially available formulation Olanex[®]. The release kinetics followed different transport mechanisms. The drug release from the bees wax microspheres was found sufficient for oral delivery and the drug release profile was significantly affected by the properties of wax used in the preparation of microspheres. These results demonstrate the potential use of wax for the fabrication of controlled delivery devices for many water soluble drugs.

KEY WORDS: Bees wax microspheres, Controlled release, Kinetic control, Olanzapine.

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