ABSTRACT

Candesartan cilexetil is an orally administered ACE inhibitor for the treatment of hypertension and cardiac failure, but its solubility, stability and oral bioavailability are poor. The objective of our investigation was to formulate a self microemulsifying drug delivery system (SMEDDS) of candesartan cilexetil using minimum surfactant concentration that could improve its solubility, stability and oral bioavailability. The composition of optimized formulation [C7IIB] consist of Capryol 90 as oil, Labrasol as surfactant and Captex 500 as cosurfactant , containing 32 mg of candesartan cilexetil showing drug release for liquid SMEDDS formulation (99.91%), droplet size (9.15 nm), Zeta potential (-23.2), viscosity (0.8824 cP) and infinite dilution capability. In-vitro drug release of the C7IIB was highly significant (p <0.05) as compared to marketed conventional tablet (M). The C7IIB was further used for the preparation of various Solid SMEDDS(S-SMEDDS) formulations (Tablet). These tablets were prepared via adsorption to solid carrier technique, using optimized liquid SMEDDS formulation [C7IIB] whereas Aeropearl 300 pharma as optimized adsorbents .The resulting S-SMEDDS tablet exhibited particle size (78.3 nm) whereas the liquid SMEDDS showed (9.15 nm). The in vitro release was almost similar for the S-SMEDDS as well liquid i.e. 78.32% and 84.6% respectively within 5 min. Also, one of the main objective to enhance the oral bioavailability of drug (15%) which was enhanced to 1.78 folds. In conclusion, our studies illustrated that adsorption to solid carrier technique could be a useful method to prepare the solid SMEDDS tablets from liquid SMEDDS, which can improve oral absorption of candesartan cilexetil, nearly equivalent to the liquid SMEDDS, but better in the formulation stability, drugs leakage and precipitation, etc.