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Improvement of aqueous solubility and In-vitro drug release rate of Telmisartan using hydrophilic base by various dispersion techniques

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Abstract: Telmisartan is angiotensin-II receptor blocker used as antihypertensive agent in the treatment of hypertension. This drug belongs to BCS class II i.e. low solubility and high permeability. The low aqueous solubility and low dissolution results in poor bioavailability which leads to low therapeutic response. In present investigation an attempt was made to overcome this problem by enhancing aqueous solubility. In present study solid dispersions of telmisartan were prepared by different methods, i.e. kneading, solvent evaporation and fusion methods using PEG 8000 as hydrophilic carrier. The prepared solid dispersion was evaluated and characterised by different techniques, which includes solubility determination, in-vitro dissolution, UV, FTIR, DSC and XRD analysis. Enhancement of aqueous solubility and dissolution of telmisartan was observed with solid dispersion of drug using carrier PEG 8000 by kneading method. Formulation containing 1:4 ratio of drug: PEG 8000 exhibited the highest aqueous solubility almost eight times greater than the pure drug and best cumulative release of 97.80 % as compared to 45.90 % for the pure drug.

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