

The poor solubility of drug substances in water and their low dissolution rate in aqueous G.I.T fluid often leads to insufficient bioavailability. The present investigation is an attempt to improve the solubility and dissolution rate of diacerein (a poorly soluble drug) by solid dispersion technique. Binary solid dispersions were made using PEG-4000 or PEG-6000 as carriers with varying drug: carrier ratios 1:1, 1:3 and 1:5. Also ternary solid dispersions were made using PEG-4000 and Pluronic F-68 at ratios 1:5:1, 1:5:2 and 1:5:3. Nine formulae were prepared and evaluated for saturated solubility, in-vitro drug release. Solid state characterization including DSC, FTIR, XRD and SEM is also carried out. All formulae showed marked significant improvement in the solubility and dissolution rate of the drug. The interaction studies showed no interaction between the drug and any of the used carriers. Formula SD9 (1:5:3; drug: PEG-4000: Pluronic F-68) showed the best dissolution profile with about 44.73% of the drug being released in the first 5 minutes and more than 79 % of the drug being released in the first 15 minutes. Also this formula showed the highest dissolution rate of 6.66 %/min. It was concluded that combination of PEG-4000 and Pluronic F-68 can be well utilized to improve the solubility of poorly soluble drugs.