

## **Dissolution enhancement of telmisartan by liquisolid compacts**

### **Abstract**

**Objective:** The main objective of this study was to enhance the dissolution of a practically insoluble antihypertensive drug (telmisartan) by liquisolid compact technique. Liquisolid compact is one of the most promising and new techniques, which promotes dissolution rate of water-insoluble drugs. **Methods:** In this study, all liquisolid tablets were prepared using propylene glycol, Avicel PH 102, Aerosil 200 and indion 414 as non-volatile solvent, carrier, coating and super-disintegrant respectively. Telmisartan was formulated in form of liquisolid compacts in different concentration of drug in non-volatile vehicle: 20% w/w, 30% w/w and 40% w/w with different excipients ratio (R): 10:1, 15:1, and 20:1 and the effect of these two variables on the in-vitro dissolution characteristics at two different dissolution media (HCl pH 1.2 and phosphate buffer pH 6.8) was studied and the release behavior was compared with that of the marketed tablet. Before compression, the prepared liquisolid powders were evaluated for their flow properties by measuring angle of repose, Carr's compressibility index and Hausner's ratio and also were evaluated for post compression parameters such as hardness, friability, drug content uniformity, disintegration time and dissolution test. Fourier transform infrared (FTIR) analysis, differential scanning calorimetry (DSC), X-ray powder diffraction (XRPD) and scanning electron microscopy (SEM) were performed. **Results:** The results showed that liquisolid formulas exhibited acceptable flowability and compressibility and markedly higher percentage of drug release than of the marketed tablet and it was found that excipients were compatible with the drug in the prepared liquisolid system that was determined by fourier transform infrared spectroscopy and differential scanning calorimetry. The X-ray diffraction and the scanning electron microscopy showed conversion of drug from crystalline to amorphous (solubilized) form that lead to increase the dissolution rate. **Conclusion:** From

this study it was concluded that the liquisolid technique is an effective approach to enhance the dissolution rate of telmisartan.