SOLID DISPERSION SYSTEMS OF POORLY WATER SOLUBLE DRUG FEBUXOSTAT: PREPARATION, CHARACTERIZATION AND OPTIMIZATION

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ABSTRACT

Febuxostat is a poor soluble drug used in the management of hyperuricemia and gout. The present study aims at increasing the solubility of febuxostat by solid dispersion technique with the aid of various pclymers (Beta cyclodextrin, Soluplus®, HPMC E5, and Kolliphor® P 407) in various drug: carrier ratios employing the solvent evaporation method. Solid dispersions were evaluated for physical appearance, percentage yield, drug content, saturation solubility and dissolution properties. Saturation solubility data of the study depict an increased solubility of the solid dispersion compared to the pure drug. In *in vitro* release profiles revealed that formulation SD20, having drug: Kolliphor® P 407 in 1:9 ratio exhibited highest dissolution rate. The powder X-ray diffraction study and scanning electron microscopy (SEM) exhibited a crystalline to an amorphous transformation in the solid dispersion. The study demonstrated that solid dispersions are a highly effective technique to increase solubility and bioavailability of febuxostat.