ABSTRACT

The Influence of Tween 80 in Solid Dispersion of Allopurinol-PVP K30 about Disolution Rate of Allopurinol

The aim of the present study was to improve the dissolution rate of a poorly water-soluble drug allopurinol (ALP) by incorporation of nonionic surfactant (Tween 80) on the properties of allopurinol solid dispersions in polyvinylpyrrolidone K30 (PVP K30). Solid dispersion of a poorly water soluble allopurinol (ALP) with polyvinylpyrrolidone K30 (PVP K30), namely binary solid dispersion systems, were prepared at drug to carrier not less than 5:5. Tween 80 was incorporated into the binary solid dispersion systems as the third component to obtain the ternary solid dispersion systems. Physicochemical properties of the various solid system were determined by X-ray powder diffraction analysis. The results from dissolution studies using basket method, indicated that all ternary dispersed systems were significantly more efficacious corresponding binary ones, by virtue of the additive wetting and solubilizing effect due to the presence of the surfactant. The most effective dissolution rate of allopurinol was the 5-5-1 w/w drug-PVP K30-Tween 80 ternary solid dispersion.

KEYWORDS: allopurinol, ternary solid dispersion, PVP K30, Tween 80, dissolution