ABSTRACT

Allopurinol is a commonly used drug in the treatment of chronic gout or hyperuricemia. which practically insoluble in water, but it has good penetration on the biological membran, so that dissolution rate is the rate limiting step of drug absorbsion process and determine bioavailability of oral drug administration. Solid dispersion could enhance dissolution rate of allopurinol. PEG 8000 and nicotinamide are the matrix that usually used in solid dispersion. Matrix combination between PEG 8000 and nicotinamide could enhance dissolution rate of allopurinol.

The aim of this study were to enhance dissolution rate of allopurinol preparing into solid dispersion of PEG 8000 combination with the addition of nicotinamide were made by solving and melting method with ratio of allopurinol:nicotinamide 1:1; allopurinol-PEG 8000 5:5; allopurinol-PEG 8000-nicotinamide 5:5:1. Ratio of allopurinol and nicotinamide was based on molar ratio and allopurinol-PEG 8000 was bases on weight ratio. Evaluation were carried out by dissolution test of solid dispersion, physical mixtures and allopurinol substance. The result showed that solid dispersion give a highest dissolution rate compared to physical mixtures and allopurinol substance.

The characterization was performed using Powder X-ray diffractometry (PXRD). Characterization with PXRD showed the significant decrease in cristalinity of pure drug present in solid dispersion.

Keywords: Allopurinol, PEG 8000, Nicotinamide, Solid Dispersion, and Dissolution rate.