ABSTRACT

Influence of N-methylglucamine on the dissolution rate of alopurinol in solid dispersion of alopurinol – PEG 8000

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Alopurinol is a commonly used drug in the treatment of chronic gout or hyperuricemia. Alopurinol is practically insoluble in water, but it has good penetration on the biological membrane, so that dissolution rate is the rate limiting step of drug absorption process and determine poor bioavability after oral administration. Solid dispersion could enhance dissolution rate of alopurinol. PEG 8000 is one of matrix that usually used in solid dispersion. Combination between PEG 8000 as matrix and N-methylglucamine as organic base could enhance dissolution rate of alopurinol.

The aim of this study was to enhance dissolution rate of alopurinol preparing into solid dispersion of PEG 8000 combination with the addition of N-methylglucamine could increase drug wettability, and happen ion interaction between allopurinol-N- methylglucamine when it contact with dissolution medium so that the dissolution rate of allopurinol could increase. Solid dispersion system of alopurinol-PEG 8000- N-methylglucamine were made by solvent evaporation method with ratio of 5:5:7,17. Evaluation were carried out by dissolution test of solid dispersion of alopurinol-PEG 8000- N-methylglucamine, physical mixtures and alopurinol substance.

The result showed that solid dispersion of alopurinol-PEG 8000- N-methylglucamine (5:5:7,17) give higher dissolution rate compare to solid dispersion of alopurinol-PEG 8000. And, alopurinol-N-methylglucamine give highest dissolution.

Keyword : Alopurinol, PEG 8000, N-methylglucamine, Solid dispersion, and Dissolution rate