

Micronization by Aerosol Solvent Extraction System to Enhance the Dissolution rate of Valsartan

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The recrystallization by means of ASES (Aerosol Solvent Extraction System) was used to prepare micro sized valsartan particles to enhance dissolution rate. From ethyl acetate (EA) solution, valsartan particle formation using this technique has been achieved under a liquid condition of CO₂ as an antisolvent for preparation of free-flowing fine particles with less agglomeration. For comparison, fine particles of valsartan also obtained at supercritical condition of antisolvent. When the temperature was set at 5°C, fine valsartan particles were obtained with mean diameters that estimated about 0.1 μ m of the smallest size at a pressure of 70 bar. It is found that the micronization of valsartan enhanced its dissolution rate by approximately 43% when compared to processed valsartan particles at supercritical antisolvent condition due to small size of particles and lower crystalline. Even dissolution rate of fine valsartan particles by liquid antisolvent ASES process showed higher than those of processed valsartans with additive such as hydrochlorothiazide and hydroxypropyl- β -cyclodextrin for enhancing solubility.