

### Preparation of micro sized valsartan using compressed CO<sub>2</sub> at low temperature: Anti-agglomeration strategy

손원수, 윤용석, 이윤우\*  
서울대학교  
(ywlee@snu.ac.kr\*)

To enhance bioavailability of valsartan drug, it is important to prepare micro sized valsartan without agglomeration. Since the agglomeration is size enlargement process, it can inhibit bioavailability of valsartan. In this study, micronization of valsartan is accomplished by Aerosol Solvent Extraction System and ethyl acetate is selected as a proper organic solvent. In this work, agglomerated valsartan is shown when they are recrystallized using CO<sub>2</sub> of 40°C and 100bar. It is observed that recrystallized valsartan tends to be re-melted by melting point depression in CO<sub>2</sub> condition. On the other hand, small and non-agglomerated valsartan particles are successfully obtained using CO<sub>2</sub> of 5~15°C. In this case, valsartan particle size is decreased comparing to the valsartan particles processed at 40°C. It is thought that Ostwald ripening process is accelerated in high temperature of 40°C. As a result, processed valsartan particles at low temperature shows increased dissolution rate successfully. Therefore, low temperature process is a promising technique to micronize pharmaceuticals with small particle size and anti-agglomeration.