Preparation of Carbamazepine-Sacchrin Co-crystal via Anti-solvent crystallization and process monitoring via ATR FT-IR

왕인천, 최광진[1,*], 이민정, 천난희[1]
인제대학교; [1]순천향대학교
(guangchoi@sch.ac.kr*)

The co-crystal approach has been investigated extensively over the last decade as one of the most promising methods to enhance the dissolution properties of insoluble drug substances. In this study, high-purity carbamazepine saccharin (CBZ SAC) co-crystals were manufactured by a novel method, anti-solvent addition.
When water was added to the methanol solution of CBZ and SAC at room temperature under agitation, nucleation of CBZ SAC co crystals occurred within 2–3 min. Co-crystallization was complete after 30 min, giving a solid yield as high as 84.5% on a CBZ basis. The effects of initial concentrations, focusing on the SAC/CBZ ratio, were examined to establish optimal conditions.
The whole anti-solvent co-crystallization process was monitored online via ATR-FTIR analysis of regularly sampled solutions.
In conclusion, an anti-solvent approach can be used to produce highly pure CBZ-SAC co crystal powders with a high solid yield.