The effect of supersaturation on formation of polymorphs by cooling crystallization

장효준, 김광주†
한밭대학교
(kjkim@hanbat.ac.kr†)

Active Pharmaceutical Ingredients(API) used for the prevention or treatment of neurodegenerative disorders, including spinocerebellar degeneration in medicine acting on the central nervous system to the raw materials are commercially available with the current crystal β form. The β form of API is more stable but less soluble compared to the α form. In this study, a new method of making α form is ascertained. The API was dissolved at a high temperature followed by rapid cooling to create high supersaturation which resulted in nucleation of the α form. The nuclei were left to grow within the same time interval and same temperature which was then filtered and dried. High concentration resulted in shorter nucleation time and a higher tendency for α form to be produced. In contrast, for lower initial concentration, longer nucleation time there was a higher tendency for β form to be formed.