

Polymer-directed crystallization of catechin

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In the pharmaceutical fields, changing the properties of crystalline pharmaceutical by crystallization has been an important subject of research and development. In our study, we could tailor the properties by adding a small amount of polymer as an additive. We used a cooling crystallization for catechin in presence of polymers. From the polymer-directed crystallization, we watched the changed morphology and properties like the melting point of catechin. The particle sizes of catechin with hydroxypropyl methylcellulose(HPMC), polyethyleneimine branched(PEI) and polyvinylalcohol(PVA) were reduced. Also, the crystal melting point of catechin with PEI was not observed and the melting point of catechin with PVA was declined by about 12°C comparing to the pure catechin. In FTIR, the crystal of catechin with PVA seemed to have a strong interaction between PVA and catechin. Catechin with PEI showed the sustained release. Those results might be affected by the surface adsorption of polymers onto the surfaces of growing crystals. Therefore, those results are predicted to be connected with other thermodynamic properties, offering a chance of stability or release control.