

Preparation and Release Behaviors of Poly(ϵ -caprolactone) Containing SiO₂ and Nifedipine

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In this study, the poly(ϵ -caprolactone) (PCL) microcapsules containing chemically treated SiO₂ and nifedipine were prepared in the release behaviors of microcapsules. The PCL microcapsules containing drugs were confirmed using FT-IR. The inclusion of nifedipine into PCL microcapsules was determined in the presence of drug's specific peak, i.e., C=O stretch vibration at 1682 cm⁻¹. And the morphologies of PCL microcapsules were observed with image analyzer and scanning electron microscope (SEM). As a result, the average particle size of PCL microcapsules was decreased with the increase of the stirring rate. Also, the drug's release behaviors of PCL microcapsules were obtained with UV/vis spectra. It was found that in the case of using basic treated SiO₂ the release time of drug was increased while the adsorption capacity of drug on SiO₂ was decreased due to the decreased specific surface area of SiO₂.