

Decrease in the particle size of paclitaxel by increased surface area fractional precipitation process using hydrophilic polymer

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In this study, we have for the first time applied increased surface area fractional precipitation with hydrophilic polymer in order to decrease the particle size of the anticancer agent paclitaxel from plant cell cultures. When compared with the case where no hydrophilic polymer was employed, the addition of polymer in increased surface area fractional precipitation resulted in a considerable decrease in the size of the paclitaxel precipitate. Among the polymers used, PVP-K90 was the most effective for inhibition of precipitate growth. In addition, a polymer concentration of 0.2 wt% yielded the smallest particle size. This result might be due to inhibiting an appropriate diffusion of the solvent toward the antisolvent (water) caused by the high viscosity of the solution containing polymer. Acknowledgment This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (Grant Number: 2015016271).