

A Novel Ultrasound-Assisted Fractional Precipitation of Paclitaxel from *Taxus chinensis* cell cultures

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Abstract

In this study, we developed an improved fractional precipitation method by ultrasound treatment for the purification of poorly water-soluble anticancer agent paclitaxel. Ultrasound was applied to liquid antisolvent precipitation using distilled water as antisolvent at room temperature. The effects of ultrasound power (80, 180, 250, and 380 W) and sample purity (20.4, 63.6, and 92.7%) for precipitation were investigated. Higher precipitation rate and shorter precipitation time were found with ultrasound treated solutions than those without ultrasound. The yield of the powder products varied with the power input level and the processing time of the ultrasonic treatment. The present results show that a high yield of high-purity paclitaxel is possible with ultrasound at room temperature after adding all the distilled water, which is significantly more economical than the existing precipitation method of storing at a low temperature (0–4°C) for a long time (~ 3 days) after adding all the distilled water during fractional precipitation.