

Ultrasonic Cavitation Bubble- and Gas Bubble-Induced Extraction of Paclitaxel from Biomass

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Abstract

Experimental studies were carried out for the ultrasonic cavitation bubble- and gas bubble-assisted extraction of paclitaxel from *Taxus chinensis* while varying parameters such as ultrasonic power, gas flow rate and contact time. Extraction efficiency has been dramatically improved, and the time required for extraction has been reduced compared to conventional methods. As a result of investigating the mechanism of extraction in which cavitation and gas bubbles were introduced, it was found that the bubble itself contributes to the improvement of extraction efficiency. In addition, the extraction behavior was quantitatively investigated by calculating the effective diffusion coefficient and mass transfer coefficient of paclitaxel.

Key words: Paclitaxel; Extraction; Ultrasonic cavitation bubble; Gas bubble; Mechanism