

Negative pressure cavitation extraction of paclitaxel from *Taxus chinensis* and its kinetic analysis

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In this study, the recovery efficiency of paclitaxel from *Taxus chinensis* was remarkably improved through negative pressure cavitation extraction. Most of the paclitaxel could be recovered from the biomass at a negative pressure of -260 mmHg with a one-time extraction in a short operating time (10–20 min). The pseudo-second-order model was suitable for the kinetic analysis, and the diffusion of paclitaxel in the biomass played a dominant role in the overall extraction rate according to the intraparticle diffusion model. As the negative pressure increased (0, -160, -260 mmHg), the extraction rate constant (4.3325–5.9126 mL/mg·min), the effective diffusion coefficient (1.083×10^{-12} – 1.377×10^{-12} m²/s) and the mass transfer coefficient (1.428×10^{-7} – 2.371×10^{-7} m/s) increased.

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