

Ultrasound-Assisted Micellar Extraction of Paclitaxel from *Taxus chinensis*

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Abstract

In this study, an ultrasound-assisted micellar extraction method that can effectively purify paclitaxel from plant cell *Taxus chinensis* was developed. This method is based on the transfer of paclitaxel within the crude extract to an aqueous surfactant solution as a micelle, allowing the use of organic solvents to be used for the removal of lipids and non-polar impurities. In addition, we optimized the important process parameters (ultrasound power, surfactant, temperature, and time) of micellar extraction to obtain a high purity and yield of paclitaxel in a pre-purification step. The crude extracts from the liquid-liquid extracts were efficiently pre-purified by micellar extraction, increasing in purity from 6% to over 21%, with a yield of 99%. Overall, the use of micellar extraction in the pre-purification process allowed for rapid and efficient separation of paclitaxel from interfering compounds, and dramatically increased the yield and purity of the crude paclitaxel for subsequent purification steps

Key words: Paclitaxel; Micellar Extraction; Ultrasound; Optimization, Purification