

Extraction of Triterpenoids from *Antrodia cinnamomea* Fruiting Bodies Grown on China Fir and Optimization of Growth Condi

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ABSTRACT

This work focuses primarily on the growth and development of *Antrodia cinnamomea* fruiting bodies on China fir. We also analyzed the triterpenoids isolated from the fruiting bodies of *A. cinnamomea* and investigated their ability to scavenge DPPH by HPLC mapping analysis to identify the differences in the compositions of the fruiting bodies. Previous studies have shown that fewer fruiting bodies grow upon culture with China fir, yielding a triterpenoid level of 3.25% and a DPPH scavenging power of 67.25% (0.01 mg/ml), than upon culture with *A. cinnamomea*, yielding a triterpenoid level of 4.31% and a DPPH scavenging power of 72.31% (0.01 mg/ml). HPLC mapping analysis also revealed a number of differences in their composition. We used ultrasound techniques to efficiently extract and purify triterpenoids from fruiting bodies growing on China fir and found that different alcohol concentrations, temperatures, and liquid-to-solid ratios determine the efficiency of the triterpenoid extraction. Using a reverse methodology, we achieved the most efficient conditions using an alcohol concentration of 74.38%, a temperature of 60.41 ° C, and a liquid-to-solid ratio of 1 g/104.81 ml. We used a molecular template technique to effectively separate different triterpenoid compounds within different extractions. Separation rates of 68.47% and 85.31% were achieved using squalene and 18- α -glycyrrhetic acid as the molecular templates, respectively. Our results show that *A. cinnamomea* fruiting bodies can be cultured artificially on China fir. Useful components can be effectively separated using the molecular template technique, thus enhancing the productivity and pharmaceutical value of *A. cinnamomea* fruiting bodies.

Keywords : China fir、*Antrodia cinnamomea*、Ultrasonic extraction、Molecular template、Triterpenoid

Table of Contents

封面內頁 簽名頁 中文摘要iii 英文摘要iv 誌謝v 目錄vi 圖目錄ix 表目錄xi 1.前言1 2.文獻回顧2 2.1牛樟芝介紹2 2.1.1牛樟芝基本概述2 2.1.2牛樟芝分類3 2.1.3牛樟芝子實體4 2.2牛樟芝生理活性成分7 2.2.1牛樟芝三?衛?O7 2.2.2三?衛?芝z活性10 2.3牛樟芝藥用價值10 2.4其他活性成分12 2.4.1超氧岐化??SOD)12 2.4.2核酸類13 2.5牛樟芝人工培養13 2.6椴木栽培14 2.7福州杉14 2.8不同萃取方式15 2.8.1熱迴流萃取15 2.8.2微波輔助萃取15 2.8.3超臨界流體萃取17 2.8.4超音波萃取17 2.9分子模板之簡介18 3.材料與方法20 3.1材料與試藥20 3.2儀器20 3.3實驗方法21 3.3.1實驗流程21 3.3.2菌種培養21 3.3.2.1試管斜面培養21 3.3.2.2培養皿平板培養21 3.3.2.3液態培養23 3.3.3樟芝椴木培育24 3.3.4樟芝子實體生物活性檢測24 3.3.4.1三?衛? X物含量分析24 3.3.4.2HPLC分析條件24 3.3.4.3清除DPPH能力探討26 3.4最適化超音波萃取條件探討26 3.5統計分析29 3.6分子模板29 3.6.1分子模板製備30 4.1椴木栽培35 4.1.1福州杉與牛樟椴木生長情形35 4.1.2生長差異性35 4.1.3三?膚t量差異42 4.1.4清除 -diphenyl- -picrylhydrazyl (DPPH)能力42 4.1.5HPLC分析兩者差異43 4.2不同萃取條件之比較44 4.2.1不同濃度乙醇萃取之差異44 4.2.2清除DPPH能力50 4.2.3HPLC分析50 4.3超音波萃取最適化條件60 4.4分子模板分離三?膜 X物61 5.結論71 參考文獻72 圖目錄 圖1、樟芝在生物學上的分類地位 6 圖2、樟芝子實體中Ergostane型化合物8 圖3、樟芝子實體中Lanostane型化合物9 圖4、分子模板示意圖 19 圖5、超音波輔助萃取裝置22 圖6、實驗流程圖25 圖7、椴木栽培模組27 圖8、最適化萃取實驗流程圖31 圖9、分子模板製備流程圖34 圖10、一個月後牛樟椴木上樟芝菌生長情形36 圖11、一個月後福州杉椴木上樟芝菌生長情形37 圖12、三個月後牛樟椴木上樟芝菌生長情形38 圖13、三個月後福州杉椴木上樟芝菌生長情形39 圖14、六個月後牛樟椴木上樟芝菌生長情形40 圖15、六個月後福州杉椴木上樟芝菌生長情形41 圖16、牛樟芝與福州杉子實體總三?膜鴟?5 圖17、清除DPPH能力比較(A)牛樟芝子實體(B)福州杉子實體46 圖18、野生牛樟芝子實體HPLC圖譜分析47 圖19、乙醇萃取牛樟椴木栽培之子實體HPLC圖譜分析48 圖20、乙醇萃取福州杉椴木栽培之子實體HPLC圖譜分析49 圖21、不同濃度萃取溶劑及不同萃取時間樟芝萃取液顏色變化51 圖22、不同萃取方式於不同時間點總三?膜巫雉?3 圖23、一次萃取後子實體三?膚t量54 圖24、不同濃度之萃取溶劑清除DPPH能力55 圖25、利用熱水分別萃取10、30、60 min之萃取液HPLC分析圖譜(紅)10min(黑)30min(藍)60min56 圖26、利用50%乙醇分別萃取10、30、60 min之萃取液HPLC分析圖譜(紅)10min(黑)30min(藍)60min57 圖27、利用95%乙醇分別萃取10、30、60 min之萃取液HPLC分析圖譜(紅)10min(黑)30min(藍)60min58 圖28、熱水萃(紅)、50%乙醇(黑)及95%乙醇(藍)之萃取60min後萃取液HPLC圖譜分析59 圖29、萃取樟芝子實之三?膚t量實驗值與觀測值比較模型63 圖30、固定酒精濃度50%條件下固液比與溫度對樟芝三?蔥惆?v響之反應曲面圖64 圖31、固定溫度50 條件下固液比與酒精濃度對樟芝三?蔥惆?v響之反應曲面圖65 圖32、固定固液比1/100 (g/ml)條件下酒精濃度與溫度對樟芝三?蔥惆?v響之反應曲面圖66 圖33、不同分子模板之專一性吸附率探討69 表目錄 表1、牛樟樹分

布劃分 5 表2、牛樟芝培育方法及其差異性比較16 表3、HPLC分析條件28 表4、三階層三變數之實驗設計反應參數32 表5 、三階層三變數之Box-behnken實驗設計33 表6、不同萃取溶劑及萃取時間之Lab值52 表7、三階層三變因對於樟芝子實體萃取三?膚t量之影響62 表8、三階層三變因條件下最佳萃取條件68 表9、不同分子模板在樟芝萃取液中之吸附效果70

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