靈芝子實體之均相成膜及其性質探討

Preparation of Ganoderma residue under homogeneous conditions and its properties

中文摘要

本研究的主要目的在於：利用靈芝子實體殘渣在均相的狀態下製備薄膜，適用於傷口修復及軟組織的吸收性修復。另一方面並進一步對靈芝子實體殘渣作結構鑑別。首先以靈芝子實體萃取過有效成份後的殘渣爲材料，先將殘渣以粉碎機研成碎屑，接著以不同條件的 NaOH 爲變因進行鹼處理，鹼處理過後的殘渣以清水沖洗至中性，繼之以不同條件的 NaClO3 爲變因進行脫色，以清水沖洗至中性，且 AgNO3 檢測無 Cl- 離子殘留。歷經鹼處理及脫色手續的殘渣，將其以冷凍乾燥乾燥三日，之後取出乾燥過的樣品，取不同條件下的樣品，以 8% 的濃度置於二元溶劑系 6% LiCl/DMAc 中溶解三日，完成後依序成膜，再以 Ethanol/Acetone/Water 各 120、15、60 秒迅速浸泡後撈起，以清水放流 24 小時並平鋪在 Teflon 紙上，待其風乾，即可得到初步的靈芝膜。靈芝膜以 DMA 測強度並進行細胞毒性測試，初步評估可行；NMR、IR、GC/MASS 測得靈芝子實體主結構的幾丁質以 C-3 與其它 b-1,4-Glucan 鍵結；X-ray 及 DSC 測樣品處理前後結晶狀態的相異點。並將之前溶解的靈芝溶液以黏度計測分子量，最後綜合數據找出最合適的成膜條件，大量製造後並計劃與生體相關的實驗。

英文摘要

Ganoderma membrane in homogeneous conditions for wound healing and absortive reparing of soft tissues was investigated as well as the structure of Ganoderma residues was indentified in present study. Ganoderma residues after removing the triterpenes and polysaccharide were used for the treatment with several concentrations of NaOH, then the treated residues were water-washed to neutral pH. The NaOH treated residues were bleached with various concentrations of NaClO3 before another water-washed to remove pigment. Washing was lasted until the AgNO3 indicated negative reaction in the leach. After that, bleached Ganoderma residues were lyophilized for 3 days and 8% of the dried samples were dissolved in , a binary solvent, 6% LiCl/DMAc system for 3 days. The dissolved systems were put subsequently in ethanol for 120 seconds, then in acetone for 15 seconds, and finally in water for 60 seconds. The membranes were water-washed for 24 hours and then casted on Teflon papers to allow on drying in room temperature to produce a transparent membrane. Chemical structrure of GANOCHITIN was analysed by NMR, IR, GC/MASS to identify the Chitin structure with a cross-linked b-glucan at C-3 position. The strength measured by DMA indicated that GANOCHITIN has a stronger tensile. MTT assay of GANOCHITIN showed no cytotoxicity to cell line. Analysis DSC and X-ray indicated that degree of crystallinity increased slightly after dissoling and casting. The viscosity of the dissolving samples was measured to compare molecular weight with another by viscosity meter. The result of the present study could be useful for the optimation for large scale production of GANOCHITIN and further test in vivo.