URN etd-0407109-183707-483
Author wen-shous Chang
Author's Email Address No Public.
Statistics This thesis had been viewed 38 times. Download 0 times.
Department
Year 2005
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title The Functional Assessment of fermented mycelium of Laetiporus supureus
Date of Defense 0000-00-00
Page Count 93
Keyword
Laetiporus sulphureus
antitumor
anti-metastasis
antioxidant
immuno- modulation
matrix metalloproteinase
Doxorubicin
FASCAN

Abstract
In recent decades, mushrooms have been widely consumed for their favor and nutritive values. However, some of them also have medicinal values. Laetiporus sulphureus is an edible mushroom known to cause heart-rot disease in deciduous trees and conifers. This fungus is widespread and grows in large clusters on live and dead trunks of hard wood species, and is therefore easily cultivated. The optimum cultural medium and some bioactivities such as antitumor for Laetiporus sulphureus had been studied previously. Therefore, other bioactivities, such as anti-metastasis, antioxidant and immuno-modulatory activities, will be further investigated in this study. Moreover, two-dimension electrophoresis analysis was also used to distinguish the different bioactivities of L. sulphureus between different cultural conditions such as different types of nutrients.
The results showed that the growth of tumor cells, such as HeLa cell, can be significantly inhibited by the water extract of mycelium from L. sulphureus, and the mechanism of the growth-inhibition was due to apoptosis pathway evaluated by flow cytometer. On the other hand, the study demonstrated that L. sulphureus significantly enhanced DOX-induced growth inhibitory effect of HeLa cells. However, L. sulphureus did not affect the DOX-induced inhibitory effect on CHO-K1 cells. In addition, two-dimension electrophoresis analysis was used to distinguish the different bioactivities of L. sulphureus in different nutrition sources. The results showed that there were significantly variant protein profiles between high and low anti-tumor activities. The anti-metastasis was conducted by getalin zymograph analysis and RT-PCR assays and the results showed that the secretion of protein and mRNA expression in matrix metalloproteinase (MMP-9) were obviously suppressed while HT1080 cells were treated with the water extract of mycelium from L. sulphureus cultured in PM. The immuno-modulation of L. sulphureus was also evaluated and this study was conducted by RT-PCR assay. The results showed that L. sulphureus cultured in SC can significantly enhance the mRNA expression of IL-1、IL-6、TNF-α and iNOS. Finally, the antioxidant activity from L. sulphureus was assayed by FASCAN and the result showed that the water extract of mycelium from L. sulphureus has higher antioxidant activity than fermentation broth.
All results, in this study, suggested L. sulphureus indeed possess some biology activities. Hopefully, these findings are useful to further studies on bioactivity of L. sulphureus.

Advisory Committee Jian-Chyi Chen - advisor

Files No Any Full Text File.
Date of Submission 2006-08-04