Genotoxicity Analysis of Microwave-Extract of Cordyceps militaris by Ames Test and In Vitro Mouse Lymphoma tk Assay

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ABSTRACT

Cordyceps militaris, belongs to the Dong-Chong-Xia-Cao group in Chinese herbs, possesses pharmacolugcal activities similar to Cordyceps sinensis. Several studies have been demosetrated that C. militaris has multiple biologacal actions, including anti-cancer, anti-infection, anti-inflammatory and immunological stimulating activities. In recent years, C. militaris is more popular and cheaper than C. sinensis on the market. In this study the cytotoxicity and mutagenicity of extracts from C. militaris were determined in the Ames test and in vitro mouse lymphoma tk assay. The Ames test was conducted by the plate incorporation method using five strains of Samonella typhimurium, TA97a, TA98, TA100, TA102 and TA1535. The L5178Y tk+/- cell was used for detecting and assessing the mutability of extracts from C. militaris by microwell method. In the cytotixicity test, water extracts and 50% ethanol extracts form C. militaris significantly inhibited the growth of S. typhimurium. When the concentration of water extract of fruiting body from C. militaris was 5 mg/plate, the survival rate was 41.1% and 52.7% in TA100 and TA98, respectively. However, when the concentration of 50% ethanol extracts of C. militaris locus was 0.63 mg/plate, the survival rate of TA100 and TA98 were 40.8% and 49.1%, respectively. In the mutagenesis analysis, the results show that whether the water extract and enthanol extract of fruiting body from C. militaris were treated with the S9 mix or not, no significant was shown. In addition, the inhibition of cell proliferantion was assessed by XTT. The results showed that the water and ethanol extracts of fruiting body from C. militaris effectively inhibited the proliferation of breast cancer (MB-MDA231 cell) with the range of 50% inhibited concentration (IC50) of 29 μg/ml and 27 μg/ml, respectively.

Keywords : Cordyceps militaris、Microwave Extraction、Ames Test、Mouse Lymphoma Assay

Table of Contents

圖目錄

表目錄

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