Genotoxicity and Bioactivity Analysis of Extracellular Polysaccharopeptide from Trametes versicolor LH1

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ABSTRACT

Trametst versicolor is a medicinal mushroom with a wide range of application. The polysaccharopeptides (PSPs) of Coriolus versicolor have been used as functions immunomodulatory and anticancer agent. In this study, extracellular polysaccharopeptide (ePSP) from domestic Coriolus versicolor strain LH1 was subjected to genotoxicity and bioactivity analysis. Ames test, mouse lymphoma tk assay and micronuclei in peripheral blood of rodents were performed in genotoxicity analysis. Nevertheless, the ePSP extracts were evaluated for their antimutagenic , anticancer and antioxidant activity. In the genotoxicity analysis, the ePSP showed no genotoxicity risk. The antimutagenic effect was evaluated against the direct acting mutagen 4-nitroquinoline-N-oxide (4NQO) and mutagen needing activation benzo [a] pyrene (B[a]P). At concentration of 5 mg/plate, ePSP significantly inhibited 4NQO and B[a]P induced mutation of TA98 by 71% and 50%, respectively. The antimutagenic activity of 5 mg/plate ePSP against 4NQO and B[a]P induced mutation in TA100 was 84% and 76%, respecticely. In the anticancer activity, at concentration of 1.25 mg/ml, ePSP selectively inhibit the growth of HepG2 liver tumor cell and the cytotoxicity rate 66% reached. In the antioxidant activity, results showed that ePSP inhibits the ROS production and stimulates the increase of intracellular GSH under oxidative stress.

Keywords : Coriolus versicolor、extracellular polysaccharopeptide、Ames test、mouse lymphoma tk assay、micronuclei 、antimutagenic activity、antioxidant activity、antitumor

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