

P7

Antiproliferative Effect and apoptotic Mechanism of Extract of *Corydalis yanhusuo* on Human Hepatocarcinoma Cells

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We investigated the effect of extract of *Corydalis yanhusuo* (ECY) on the cell growth and apoptosis of Hep3B and HepG2 human hepatoma cells. It was found that ECY could inhibit the cell growth of HepG2 cells more effectively in a dose-dependent manner, which was associated with morphological change and apoptotic cell death such as formation of apoptotic bodies, DNA fragmentation and increased populations of apoptotic-sub G1 phase. And we observed the effects of ECY on loss of mitochondrial membrane potential (MMP), using the JC-1 probe by DNA flow cytometric analysis. Apoptosis of HepG2 cells by ECY was associated with a down-regulation of anti apoptotic Bcl-2 expression, inhibitor of apoptosis proteins (IAPs) expression and proteolytic activation of caspase-3 and caspase-9. However, ECY did not affect the pro-apoptotic Bax expression and activity of caspase-8. Additionally, induction of apoptotic bodies by ECY was connected with the activation of CAD/DFF40 and inactivation of ICAD/DFF45 protein expression.

P8

Isolation and Characterization of *Micrococcus* sp. HJ-19 Secreting Extracellular Protease

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In order to screen new source of protease, bacteria secreting extracellular protease were isolated by enrichment culture from deep sea water samples of East Sea, Korea. A bacterium, named as HJ19, showed the best growth and the largest clear zone in plates supplemented skim milk at 30°C. The partial DNA sequence analysis of the 16S rRNA gene, phenotypic tests and morphology identified that this strain was in genus *Micrococcus*. The best growth was observed at 30 to 37°C. At these temperature the activity of extracellular protease detected starting from early exponential phase to stationary phase.