Protective effects of betulin and betulinic acid against ethanol-induced cytotoxicity in HepG2 cells

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Abstract
Plant triterpenes, such as oleanolic acid and betulin were described as hepatoprotective active against cytotoxicity of acetaminophen or cadmium. The aim of this paper is to compare the cytoprotective activity of betulin, betulinic acid and oleanolic acid against ethanol-induced cytotoxicity in HepG2 cells. The influence of three triterpenes on ethanol-induced production of superoxide anion and hydrogen peroxide was also examined. Among the examined triterpenes, betulin was the most active protectant of HepG2 cells against ethanol-induced cytotoxicity. Betulin and betulinic acid significantly decreased ethanol-induced production of superoxide anion. Oleanolic acid inhibited only ethanol- and phorbol ester-induced production of hydrogen peroxide. The results indicate that cytoprotective or antioxidative activity of triterpenes depends on their chemical structure.

Key words: triterpenes, HepG2 cells, cytoprotective effect, antioxidant activity