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Cytotoxicity of *Lentinus edodes* mushroom toward human acute leukemia Jurkat T cells is attributable to apoptotic cell death induced via endoplasmic reticulum (ER)-mediated activation of caspase cascade

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In relation to anti-tumor activity of *Lentinus edodes* mushroom, we have investigated it has an apoptogenic activity toward human acute leukemia Jurkat T cells. When the mushroom extracted with 70% methanol was dissolved in water and were then sequentially extracted by organic solvents methylene chloride and n-butanol, the methylene chloride extract appeared to possess the highest cytotoxicity with the IC<sub>50</sub> value of 100 µg/ml. After exposure to the methylene chloride extract at concentrations of 75, 100, and 150 µg/ml for 46 hr, the cell viability, and several apoptotic events including activation of caspase-12, -8, -9, and -3, degradation of poly (ADP-ribose) polymerase (PARP), apoptotic DNA fragmentation were induced in a dose-dependent manner, without an enhancement in the level of cytosolic cytochrome c released from mitochondria. At the same time, there was no alteration in the level of Fas and Fas ligand (FasL), excluding a possible involvement of Fas/FasL system in the methylene chloride extract-mediated death signaling pathway. In addition, these apoptotic events were slightly suppressed, but not completely, by ectopic overexpression of Bcl-xL. To identify the apoptogenic components of *Lentinus edodes* mushroom, the methylene chloride extract was analyzed by GC/Mass spectrometry. The major components of the methylene chloride extract were linoleic acid (30.6%) and ergosterol (27.6%). These results indicate that the cytotoxicity of the methylene chloride extract from *Lentinus edodes* mushroom toward Jurkat T cells is attributable to apoptotic cell death induced via endoplasmic reticulum (ER)-mediated activation of caspase cascade.

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Effect of *Ecklonia cava* on Fibrinolytic Activity and on Serum Lipid in Ovariectomized Rats

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The menopause transition, as well as the early postmenopausal period, is associated with an increase body weight in the rate of body fat, aggravating certain cardiovascular risk factor. This study attempted the effect of *Ecklonia cava*(EC) on the fibrin activity *in vitro* and on the serum lipid and body weight in experimental animal models through *in vivo*. Fibrinolytic activity was measured by the fibrin plate method and three groups were surgically ovariectomized(OVX) in experimental animal model. The fourth group was sham operated. Sprague-Dawley female rats were randomly assigned to the following groups : sham-operated rats (Sham), ovariectomized control rats (OVX-Control), ovariectomized rats supplemented with EC at 5mg/kg body wt (OVX-EC5) and ovariectomized rats supplemented with EC at 10mg/kg body wt (OVX-EC10). The EC were orally administrated at 1mL per day. The serum triglyceride level was decreased after supplemented with the EC and the serum HDL-cholesterol level in the EC groups was higher than in the OVX-Control group. The body weight was increased after removal of an ovary in experimental animal, but the body weight in the EC5 group was decreased than OVX-Control group. The fibrinolytic activity of EC showed concentration dependent. Taken these together, *Ecklonia cava* may be used to improve the quality of life in menopausal women.