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Antioxidant Effects of Crude Saponin Isolated from Glycine max (L.)on CCl_4-induced Acute Liver Injury Model.

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Recently, it has been found that phytochemicals have protective effects on liver injury. Especially, soybean is an important food source in most east asian countries and contains physiologically active phytochemicals such as protease inhibitor, phytosterol, phytic acid, isoflavone, and saponin.

Therefore, this study was conducted to find out the possible antioxidant and other physiological effects of soybean saponin and was designed as follows; forty ICR mice were divided into four experimental groups. Groups I and II were orally administerd with PBS (300$\mu\ell$/kg body wt.) and groups III and IV were treated orally with soybean crude saponin(50mg/kg body wt.) for 2 weeks, respectively. Three hours after the last adminstration, group II and IV were given intraperitoneally a single dose of CCl_4 (0.05ml/kg body wt.). The results were as follows; The level of liver cholesterol and triglyceride(TG) increased after CCl_4 treatment($p<0.05$). The increased cholesterol level was shown to be decreased significantly in the soybean saponin administered group with post-CCl_4 treatment, while the increased TG level was further increased($p<0.05$). The increased liver MDA level induced by CCl_4 treatment was decreased significantly by adminstration of soybean saponin($p<0.05$). The decreased liver SOD activity induced by CCl_4 treatment was not restored by adminstration of soybean saponin. The catalase activity was not affected by the doses of CCl_4 used in this study($p<0.061$), but was increased significantly in the soybean saponin alone administered group($p<0.05$). The increased catalase activity by adminstration of soybean saponin was maintained even after CCl_4 injection($p<0.05$). The increased GOT activity and decreased LDH activity induced by CCl_4 treatment was not restored by adminstration of soybean saponin.

These results indicate that soybean saponin can not prevent CCl_4-induced liver injury, but can modulate in part CCl_4-induced abnormalities of lipid composition profile. Also soybean saponin inhibits CCl_4-induced lipid peroxidation and it activates antioxidant enzyme such as catalase. Taken together, we expect that soybean saponin could serve as a natural antioxidant.