

P87

Inhibition of N-ethyl-N-nitrosourea-Induced Mammary Tumorigenesis in Sprague Dawley Rat by *t, t* Conjugated linoleic Acid

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The inhibitory activity of *t,t* conjugated linoleic acid (*t,t* CLA) was investigated on the N-methyl-N-nitrosourea (MNU)-induced rat mammary tumorigenesis. Female Sprague Dawley rats (7 weeks of age) were injected, i.p., with MNU (50 mg/kg body weight), followed by subjecting 3 groups for 16 weeks: control, 1% *t,t*CLA and linoleic acid (6 rats/group). Food and water were *ad libitum*. The *t,t* CLA significantly, $p<0.05$, reduced tumor incidence, total tumor numbers, tumor multiplicity, and tumor size, relative to control and linoleic acid. The *t,t* CLA significantly, $p<0.05$, increased apoptosis by TUNEL and DNA fragmentation assays. Meanwhile, *t,t* CLA led to an increase in the level of Bax protein, whereas it suppressed the expression of Bcl-2 protein. The *t,t* CLA also activated caspase-3, leading the cleavage of poly (ADP-ribose) polymerase (PARP) to execute apoptosis. The *t,t* CLA rather stimulated body weight gains and food intakes, relative to control and linoleic acid. These results indicate that the *t,t* CLA acts as a potent anticarcinogenic agent for NMU-induced rat mammary tumorigenesis by apoptotic induction

Key words: Conjugated linoleic acid (CLA), *t,t* CLA, N-methyl-N-nitrosourea (MNU), apoptosis

P88

Effect of Garlic and Medicinal Plants Composites on the Liver Function and Lipid Metabolism in Alcohol Administered Rats for Long-term

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The effects of garlic and 13 kinds of medicinal plants composite(GP) on the liver function and lipid metabolic disorder induced by 20% ethanol-administration on rats were investigated. Total phenol and flavonoids contents of medicinal plants composite were 8.83 ± 0.36 mg/100 g, 0.88 ± 0.03 mg/100 g, respectively. DPPH radical scavenging, reducing power and ABTs radical scavenging ability were significantly increased by GP concentration. Blood glucose was significantly decreased by GP supplementation, but it was not significantly different by garlic concentration. Albumin content of serum was significantly increased by garlic supplementation. Total lipids, cholesterol and triglyceride of serum were significantly decreased by GP supplementation. Total cholesterol and triglyceride were not significantly different by garlic concentration. LDL-cholesterol was decreased in 58%(GP- I group) and 73%(GP-II group) than control group. LDL- cholesterol among the performed lipids assay was the highest decrement. Lipid levels of liver due to alcohol consumption, were decreased by GP supplementation and significantly difference showed in GP-II group. GOT and *r*-GTP activities were significantly higher in control than normal, but GPT and ALP activities were not significant by 20%-administration on rats. GP supplementation was significantly lower for GOT, GPT and *r*-GTP activities. TBARS contents was not significant in serum, but it in liver was significantly decreased in GP group than control group. DPPH radical scavenging ability in serum and liver was significantly increased in GP group. These result indicated that GP supplementation was effective in improving and protecting for the liver disorder induced by long-term alcohol consumption.

Key words: Garlic, Medicinal plants, Alcohol, Liver damage