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Therapeutic Efficacy of YCY on CCl4-induced Liver Dysfunction in Rats

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Introduction

Carbon tetrachloride (CCl_4) is known to cause liver injury characterized by centrilobular necrosis. The toxicity is thought to be exerted via cytochrome P-450-mediated metabolism of CCl_4 to trichloromethyl and trichloromethylperoxy radicals, which initiates lipid peroxidation, leading to hepatocellular membrane damage [1, 2]. Our study demonstrates a therapeutic efficacy of YCY, extract of a cricket, *Gryllus bimaculatus*, on liver injuries induced by CCl_4.

Materials and Methods

To examine therapeutic efficacy, liver damage was induced by repeated oral administration of CCl_4 with an initial dose of 1 ml/kg, followed by 0.5 ml/kg twice a week for 10 weeks. The animals were coadministered orally with YCY from 7 weeks during CCl_4 administration, and sacrificed 24 hr after the final administration.

Results and Discussion

The YCY treatment remarkably reduced the increases in liver weights and serum alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels induced by CCl_4 exposure (Table 1), and attenuated hepatocytic degeneration and fibrosis (data not shown).

Table 1. Effect of YCY on CCl_4-induced liver injuries

Treatment (mg/kg)	Liver weight	ALT	AST
Control(vehicle)	2.82±0.27	59.8±4.3	110.3±14.6
CCl_4 alone	3.12±0.33	399.5±245.6	596.8±371.8
CCl_4+YCY(100)	2.84±0.19	305.3±162.8	546.7±156.2
CCl_4+YCY(300)	3.02±0.44	236.0±66.9	320.6±163.3

References

1. **Klaassen, C. D.** Toxicology. p.887. McGraw-Hill, New York. 2001.
2. **Lee, K. Y. et al.** J. Appl. Pharmacol. 2002. **10**, 12-18.