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Effects of Red-Ginseng Treatment on Expression of TCDD-related Genes in TCDD-treated Rat Liver

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2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) is one of the most toxic environmental pollutants that induces hepatotoxicity and hepatocarcinogenesis

We investigated the effects of red-ginseng extract administration on reductive expression of TCDD-related genes in liver of TCDD treated rat. For this study, Sprague Dawley rats were exposed to TCDD, red-ginseng extracts, and TCDD/red-ginseng extracts (25ug/kg, 100mg/kg, and 25ug/kg+100mg/kg body weight, single i.p administration, respectively). We examined the mRNA expression level in rat liver by RT-PCR at 1, 5, 16, 32 days after injection.

In 1 day after administration, CYP1A1, 1A1, 2E1, 1B1 mRNA levels were significantly increased in TCDD-treated rat liver. Interestingly, the mRNA levels of TCDD/red-ginseng extract group were dramatically decreased to the levels of TCDD-treated group. In 5, 16, 32 days after administration, the transcripts of CYP1A1, 1B1, 2E1 of TCDD/red-ginseng extract group were decreased to the level of TCDD-treated group. This result suggests that red-ginseng extract significantly decrease the expression of CYP genes in TCDD-treated rat liver.

Keyword : 2,3,7,8-tetrachlorodibenzo-p-dioxin(TCDD);CYP450 genes; RT-PCR; red-ginseng