

Effects of water extracts from mugwort on cadmium(Cd) toxicity in rats

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In oriental medicine, mugwort(*Artemisia iwayomogi* : Compositae) has been used clinically for hepatic diseases . Mugwort consists of saponins, coumarins, chromones, flavonoids and caffeic acid etc. This study was designed to investigate the effects of water extracts from mugwort on cadmium(Cd) toxicity in Sprague-Dawley rats. The Cd-treated rats were co-administered i.p. with mugwort extracts during 30 days. Rats were divided into four groups : control group(Con.), cadmium treatment group(Only Cd : 0.4 mg/kg body weight/day) and two mugwort co-treatment groups(i.p. and p.o. groups; 1% of daily feed consumption). Effects of mugwort on body weight, cadmium accumulation, glutathione-peroxidase(GSH-Px) activity, glutathione-reductase(GR) activity, glutathione (GSH) concentrations in liver and glutamic oxaloacetic transaminase(GOT) · glutamic pyruvic transaminase(GPT) in plasma were studied. The increment of body weight of each group was high Only Cd>Con.>i.p.>p.o. in order, but it was not significantly different. There was no significant difference in the cadmium accumulation between Only Cd and mugwort co-treatment groups, it was high liver>kidney>testis in order. The activity of cytosolic GSH-Px in liver, kidney and testis was not changed by mugwort-water extracts. Neither was the activity of cytosolic GR in liver, kidney, testis and plasma. However, the activity of GOT in plasma was significantly decreased ($p<0.05$) in i.p. group compared with p.o. and Only Cd groups, and plasma GPT was significantly decreased ($p<0.05$) in mugwort-treated groups against Only Cd group. The concentrations of GSH in liver of i.p. group were significantly higher($p<0.05$) than that of Only Cd group. These findings, an increased concentrations of hepatic GSH level and a decreased GOT · GPT activity in plasma, suggest that the co-administration of water extracts from mugwort may modify the toxicities of Cd in the Cd-treated rats. In additions, such elevation of hepatic GSH would play an important role in preventing the liver from various toxicants including Cd.

Key words : mugwort, liver, cadmium, GSH-Px, GR, GOT, GPT, GSH