

Anti-hepatotoxicity Effect of Orthosiphon stamineus Benth against Acetaminophen-induced Liver Injury in Rats by Enhancing Hepatic GST Activity

J.H. Chin, A.H. Hussin, S. Ismail

School of Pharmacy, Faculty of Medical Sciences, UCSI University, No. 1, Jalan Menara Gading, UCSI Heights, 56000. Kuala Lumpur, Malaysia.

ABSTRACT

The present study was undertaken to assess the sub-chronic (14-day treatment) effect of oral administration of *O. stamineus* on hepatic drug metabolising enzymes and the protective effect against acetaminophen-induced liver injury in Sprague Dawley (SD) rats. Healthy male SD rats weighing 200 g $\pm$ 10 g were used throughout the experiments. Isolated hepatocytes and liver cytosolic fraction were used to examine the effect of *O. stamineus* on the activity of aminopyrine N-demethylase and glutathione-S-transferase respectively. Hepatoprotective effect of *O. stamineus* was judged by comparing the serum levels of hepatic markers, i.e. AST, ALT and ALP and the percentage of hepatocytes viability between *O. stamineus* treatment groups and acetaminophen (APAP) control group. *O. stamineus* extract at 125 mg/kg ($P < 0.01$) and 500 mg/kg ($P < 0.01$) exhibited significant hepatoprotective effect by restoring the elevation of serum levels of AST and ALT and increased the percentage of hepatocytes viability in rats. The hepatoprotective effect exhibited by *O. stamineus* at dose 500 mg/kg was comparable to silymarin at dose 20 mg/kg in acetaminophen-induced liver injury rats. The activity of GST was 17% higher in the rats treated with 500 mg/kg ($P < 0.01$) of *O. stamineus* compared with the control group. There was no significant difference in body weight gained, food consumption, water intake and relative organ weight between the treatment group and the control group. Methanol extract of *O. stamineus* protects against acetaminophen-induced liver injury in rats by enhancing the activity of GST in liver.

KEYWORDS

Acetaminophen . Glutathione-S-transferase . Hepatoprotective . Orthosiphon stamineus . serum enzymes

REFERENCES