Liver protective effect of chloroform extract of Bauhinia purpurea leaves is attributed partly to its antioxidant action and the presence of flavonoids

ABSTRACT

Context: Bauhinia purpurea L. (Fabaceae) is used in the Ayurvedic system to treat various oxidativerelated ailments (e.g., wounds, ulcers etc.). Therefore, it is believed that the plant also has the potential to alleviate oxidative-related liver damage. Objective: This study elucidates the hepatoprotective activity of chloroform extract of B. purpurea leaves (CEBP) in paracetamol (PCM)-induced liver injury (PILI) rats. Materials and methods: Male Sprague-Dawley rats (n ¼ 6) were pre-treated once daily (p.o.) with CEBP (50–500 mg/kg) for seven consecutive days before being administered (p.o.) a hepatotoxic agent, 3 g/kg PCM. Liver enzyme levels were determined from the collected blood, while the collected liver was used to determine the activity of endogenous antioxidant enzymes and for histopathological examination. CEBP was also subjected to radical scavenging assays and phytochemical analysis. Results: CEBP significantly ($p < 0.05$) reversed the toxic effect of PCM by increasing the serum levels of AST and ALT, and the activity of endogenous catalase (CAT) and superoxide dismutase (SOD) while reducing the liver weight/body weight (LW/BW) ratio. Other than low TPC value and radical scavenging activity, CEBP had a high antioxidant capacity when evaluated using the oxygen radical absorbance capacity (ORAC) assay. UHPLC-ESI-MS analysis of CEBP showed the presence of flavonoids. Discussion and conclusions: CEBP exerts its hepatoprotective activity through a non-free radical scavenging pathway that involves activation of the endogenous enzymatic antioxidant defense system. Further study is needed to identify the responsible bioactive compounds before the plant can be developed as a future alternative hepatoprotective medicament for clinical use.