

Amelioration of paracetamol-induced hepatotoxicity in rat by the administration of methanol extract of *Muntingia calabura* L. leaves

ABSTRACT

Muntingia calabura L. is a tropical plant species that belongs to the Elaeocarpaceae family. The present study is aimed at determining the hepatoprotective activity of methanol extract of *M. calabura* leaves (MEMC) using two models of liver injury in rats. Rats were divided into five groups ($n = 6$) and received 10% DMSO (negative control), 50 mg/kg N-acetylcysteine (NAC; positive control), or MEMC (50, 250, and 500 mg/kg) orally once daily for 7 days and on the 8th day were subjected to the hepatotoxic induction using paracetamol (PCM). The blood and liver tissues were collected and subjected to biochemical and microscopical analysis. The extract was also subjected to antioxidant study using the 2,2-diphenyl-1-picrylhydrazyl-(DPPH) and superoxide anion-radical scavenging assays. At the same time, oxygen radical antioxidant capacity (ORAC) and total phenolic content were also determined. From the histological observation, lymphocyte infiltration and marked necrosis were observed in PCM-treated groups (negative control), whereas maintenance of hepatic structure was observed in group pretreated with N-acetylcysteine and MEMC. Hepatotoxic rats pretreated with NAC or MEMC exhibited significant decrease ($P < 0.05$) in ALT and AST enzymes level. Moreover, the extract also exhibited good antioxidant activity. In conclusion, MEMC exerts potential hepatoprotective activity that could be partly attributed to its antioxidant activity and, thus warrants further investigations.

Keyword: *Muntingia calabura* L.; Methanol extract; Hepatotoxicity; Rat; Paracetamol