

## **Effects of *Andrographis paniculata* on Carbon Tetrachloride (CCl<sub>4</sub>)-Mediated Renal Oxidative Damage in Rats**

### **ABSTRACT**

A herbal medicinal plant known as *Andrographis paniculata*, or "hempedu bumi," is recognised for its numerous medicinal properties and role in promoting community health. Despite its widespread use, the potential nephroprotective effects and underlying mechanism of action of *Andrographis paniculata* remain unexplored. To address this gap, the present study aimed to investigate the nephroprotective effects of *Andrographis paniculata* against renal oxidative damage induced by carbon tetrachloride (CCl<sub>4</sub>) in rats. Sprague-Dawley rats were pre-treated with *Andrographis paniculata* extract via gavage (100, 200, and 300 mg/kg b.w., respectively) once daily for 14 days, followed by two doses of CCl<sub>4</sub> (1.2 ml/kg b.w.) on the 13th and 14th days. After two weeks, rats were sacrificed, and a nephroprotective analysis was performed. CCl<sub>4</sub> administration at a dose of 1.2 ml/kg body weight resulted in oxidative stress in the renal system, as evidenced by elevated lipid peroxidation levels (TBARS). This oxidative stress was accompanied by a significant decrease in the activities of antioxidant enzymes and a depletion in the levels of reduced glutathione ( $p < 0.05$ ). Histopathological examination confirmed the impairment of renal function. *Andrographis paniculata* significantly mitigated the majority of these alterations. Based on our research, the nephroprotective advantages of *Andrographis paniculata* can be attributed to its ability to act as an antioxidant and scavenge free radicals.