

## **Effect of edible bird's nest supplement on hepato-renal histomorphology of rats exposed to lead acetate toxicity**

### **ABSTRACT**

Lead acetate (LA) has been shown to cause hepato-renal damages through induction of oxidative stress. Edible bird's nest (EBN) has reportedly been shown to alleviate these damages, but no studies have been conducted on this area. The present study was aimed to evaluate the protective effects of EBN supplement on the liver and kidney of rats exposed to LA toxicity. Five groups of rats were used and grouped as follows: group 1 (positive control, C), was given distilled water; group 2 (positive control, T0), was administered with LA (10 mg/kg BW); and groups 3 (T1), 4 (T2), and 5 (T3), were given LA (10 mg/kg BW) plus graded concentrations of 30, 60, and 120 mg/kg BW of EBN, respectively. At day 35, blood was collected via cardiac puncture, serum was used for biochemical analysis, and rats were euthanized to collect liver and kidney for histomorphological study. Laboratory analysis revealed significantly elevated liver enzymes, urea and creatinine levels in the T0 and T1 compared to C and T3 ( $p < 0.05$ ). The level of aspartate aminotransferase (AST) and alkaline phosphatase (ALP) was significantly lower in the T3 and C compared to T0 and T1 ( $p < 0.05$ ). Histo-morphological studies showed that exposed rats to LA without EBN supplement with portal and central vein dilatation and congestion evidenced by hepatocyte necrosis and degeneration as well as increased number of kupffer cells, while degree of damage was decreased in EBN treated groups. The animals in T3 showed ameliorating effects against LA toxicity, as well as decreased number of kupffer cells. In T0 and T1 rats, histopathological lesions of the kidneys were characterized by the degenerations of the tubular system, while T2 and T3 groups showed no such lesions. In conclusion, the findings showed that EBN can protect the hepatic and renal tissues from the damaging effects of LA toxicity and modulate biochemical alterations.

**Keyword:** EBN; Lead acetate; Liver; Kidney; Kupffer cell