

## Toxicological effects of *Flueggea leucopyrus* Extracts on Wistar Rats: Impact of Different Doses on Physiological Parameters and Organs

US Kulasekara<sup>1</sup> and KMGP Premadasa<sup>1#</sup>

<sup>1</sup>General Sir John Kotelawala Defence University, Sri Lanka

#prasanna.premadasa@kdu.ac.lk

The present study assessed the toxicological effects of *Flueggea leucopyrus* leaf extracts on Wistar rats, focusing on physiological parameters and organ function. Despite its traditional use in Sri Lanka for its alleged anti-cancer properties, the safety of *F. leucopyrus* needs to be validated scientifically. The study involved preparing aqueous extracts from air-dried and ground leaves of *F. leucopyrus*. Male Wistar rats were administered varying doses of extract (100, 250 and 500 mg/kg) over 21 days, with a control group for comparison. Throughout the experiment, mortality, clinical indicators of toxicity, and body weight were monitored. Blood samples were collected for haematological and biological analysis and organ tissue sections were labelled with H&E for histopathological examination. Results showed no mortality or overt signs of toxicity in any of the groups. A decline in mean body weight was observed for treated rats, a significant ( $p < 0.05$ ) increase in white blood cell counts was observed in the 100 mg/kg and 500 mg/kg treated groups. Biochemical analysis indicated a significant ( $p < 0.05$ ) rise in the levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST) and alkaline phosphatase (ALP) which may indicate possible liver damage. Histopathology examination revealed liver and kidney alterations in treated groups accompanied by vascular congestion and haemorrhage which indicated mild hepatic and renal damage. This study highlights that *F. leucopyrus* extract induces notable biochemical and histopathological changes with the liver and kidneys appearing to be the most exposed organs to toxicities; hence the results shows that *F. leucopyrus* needs to be used cautiously, despite its possible anti-cancer properties.

**Keywords:** *Flueggea leucopyrus*, hepatotoxicity, nephrotoxicity