

ANTI-TOXIC PRINCIPLES FROM *Morinda lucida* AND *Annona muricata* DOWN-REGULATED KI67 AND MULTI-DRUG RESISTANCE1 GENES IN LEAD-INDUCED HEPATO-TOXICITY IN RATS

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ABSTRACT

Morinda lucida (ML) and *Annona muricata* (AM) are ethno-medicinal plants with antioxidant potentials. In addition, lead is a toxic pollutant of global health concerns. This study evaluated the effects of column chromatography-extracted ethanolic fractions of ML and AM leaves on immuno-modulations of Ki67 and multi-drug resistance1 (MDR1) proteins in the liver of rats in lead acetate (LA)-induced hepato-toxicity in-order to determine their hepato-protective, anti-proliferation, anti-drug resistance and anti-cancer potentials. Sixty adult female rats were randomly divided into 12 groups (n = 5). Groups 1 and 2 received physiological saline and 100 mg/kg bodyweight of LA, respectively, for 5 weeks. Groups 3–6 received 100 mg/kg bodyweight LA for 2 weeks followed by post-treatments with 7.5 mg/kg and 15 mg/kg bodyweight of ML, and 7.5 mg/kg and 10 mg/kg bodyweight of AM, respectively, for another 3 weeks. Groups 7–10 received 7.5 mg/kg and 15 mg/kg bodyweight of ML, and 7.5 mg/kg and 10 mg/kg bodyweight of AM, respectively, for 5 weeks. Groups 11 and 12 received co-administrations of 100 mg/kg bodyweight LA simultaneously with 15 mg/kg bodyweight ML and 10 mg/kg bodyweight of AM, respectively, for 5 weeks. Drugs and extracts were administered orally. Consequently, liver histopathology (heamatoxylin and eosin technique) and enzyme linked immunosorbent assay (ELISA) homogenates' concentrations of Ki67 and MDR1 were evaluated. Computed data were statistically analysed ($p \leq 0.05$). Results showed normal liver histology in all groups. Post-treatments of LA-induced hepato-toxicity resulted in statistically significant ($p \leq 0.05$) and non-significant decreased concentrations ($p \geq 0.05$) of Ki67 and MDR1 in Groups 3–12 compared with Group 2. These observations

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indicated that ML and AM ameliorated LA-induced hepato-toxicity, abnormal proliferation, drug resistance and mutagenesis.

Keywords: *Morinda lucida*, *Annona muricata*, Lead, Hepato-toxicity, Anti-cancer potentials