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GANODERMA LUCIDUM CHITOSAN NANOPARTICLES-ENCAPSULATED SENNA OCCIDENTALIS ROOT PHENOLICS ATTENUATE LEAD-INDUCED HAEMATOLOGICAL A LTERATIONS IN WISTAR RATS

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This study investigated the effects of Ganoderma lucidum chitosan nanoparticles-encapsulated *Senna occidentalis* root phenolics (ChNPs-PSOR) on lead-induced haematological alterations in rats. Eight groups (I, II, III, IV, V, VI, VII and VIII) of Wistar rats comprising of 6 rats each were used for the study. Haematological alteration was induced in groups I-VII by administering lead acetate (2 ml/kg), thereafter groups I, II, III, IV, V, VI, VII and VIII received 10 mg/kg body weight (bw) of ChNPs-PSOR, 20 mg/kg bw of ChNPs-PSOR, 10 mg/kg bw of *Senna occidentalis* root phenolic (PSOR), 20 mg/kg bw of PSOR, 10 mg/kg bw of chitosan nanoparticles-encapsulated, 10 mg/kg bw of non-encapsulated standard drug calcium disodium edetate ($CaNa_2$-Edetate.ChNPs and $CaNa_2$-Edetate and normal saline (2 ml/kg) treated naïve control. The results revealed that phenolics contents were total phenols (26.82 mg/g), flavonoids (15.84 mg/g) and tannins (12.15 mg/g) with $LD_{50} > 2000$ mg/kg bw. Administration of lead acetate significantly ($p<0.05$) reduced the packed cell volume, red blood cells, haemoglobin, mean corpuscular haemoglobin concentration, mean corpuscular volume, mean corpuscular haemoglobin, neutrophils and lymphocytes counts and increased white blood cell, platelets and red cell distribution width. The administration of ChNPs-PSOR and $CaNa_2$-Edetate significantly ($p < 0.05$) reversed the lead-treatment related changes in the haematological parameters. The study concluded that lead-induced haematological alterations were ameliorated by ChNPs-PSOR. Hence, ChNPs-PSOR can be explored in the development of drug for the management of lead toxicity.

Keywords: Lead toxicity, *Senna occidentalis*, Phenolics, Chitosan nanoparticles, haematological parameters.