# Toxicological studies of silver nanoparticles synthesized from Calopogonium mucunoides aqueous leaf extract on Wistar rats

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**Keywords:** Alterations, nanosilver, toxicity, upsurge.

## Abstract

Increasing usage of nanosilver (AgNPs) for biomedical purposes outstrips the handiness of safety evaluation studies. This study investigates oral toxicity of biogenic AgNPs (at 50, 75, 100 and 150 µg/kg) on rats. Results analysis revealed that C. mucunoides AgNPs improved dietary intake and body weight of rats. Level of serum total protein significantly increased 9.54±0.05, 8.31±0.06, 11.31±0.41, 10.48±0.65 g/dL compared to control 6.43±0.55 g/dL while serum AST significantly reduced to 0.05±0.00 and 0.10±0.02U/L at 50 and 75 µg/mL. AgNPs did not significantly ($P > 0.05$) altered serum chloride, urea, ALT and creatinine relative to the control. However, serum potassium (10.74±1.86 mmol/l) significantly decreased ($P < 0.05$) to 3.11±0.71, 3.12±2.50 4.64±1.47, 5.79±1.30mmol/L respectively. There was also a significant ($P < 0.05$) dose dependent upsurge in platelets (618.50±48.79, 743.50±17.68, 763.50±10.60 and 843.50±24.75) and MCV (49.50±0.71, 52.50±0.71, 53.50±0.71 and 56.00±4.24) compared to the control (617.50±79.90 and 43.00±0.00) respectively. The haemoglobin, PCV, MCHC, MCH, RBC, WBC, lymphocytes, monocytes, eosinophils and basophils values were not different ($P > 0.05$) from the control. Results obtained suggest that AgNPs is relatively safe, although it altered serum total protein and potassium concentrations, no rat died due toxicological effect.

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