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Effect of *Quillaja saponaria* Molina base gold nanoparticle on Russell's viper venom toxicity

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Snakebite is a medical emergency worldwide. The primary source of saponins for industrial use is *Quillaja saponaria* Molina. The present investigation intends to explore the characterization of green synthesized gold nanoparticles and assess its potential to neutralize viper venom-induced toxicity in male albino mice. The green synthesis of AuNPs has been carried out using saponin derived from *Quillaja saponaria* Molina bark extract and the nanoparticles were characterized. FTIR, XRD, SEM, EDX, UV-visible spectroscopy and DLS studies were used to characterize the green produced SP-AuNPs. The rise of the pro-inflammatory biomarker IL-6 and TNF- α induced by *Vipera russelli* venom could considerably be inhibited by the biosynthesized SP-AuNP. The hematological study showed viper venom treatment could greatly increase the number of white blood cells and platelets, it dramatically decreased the number of red blood cells and hemoglobin. Findings demonstrated the green-synthesized AuNPs' have promising ability to protect male albino mice against the hematological and pro-inflammatory changes caused by viper venom.

Keywords: Neglected tropical diseases, *Vipera russelli* venom, Gold nanoparticle, *Quillaja saponaria* Molina