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Chitosan and silver nanoparticles: Promising antitoxoplasma agents

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Toxoplasmosis is a worldwide infection caused by obligate intracellular protozoan parasite which is *Toxoplasma gondii*. Chitosan and silver nanoparticles were synthesized to be evaluated singly or combined for their antitoxoplasma effects as prophylaxis and as treatment in the experimental animals. Results were assessed through studying the parasite density, studying the ultrastructural parasite changes and estimation of serum gamma interferon. Weight of tissue silver was assessed in different organs. Results showed that silver nanoparticles used singly or combined with chitosan have promising antitoxoplasma potentials. The animals that received these compounds showed statistically significant decrease in the mean number of the parasite count in the liver and the spleen, when compared to the corresponding control group. Light microscopic examination of the peritoneal exudates of animals receiving these compounds showed stoppage of movement and deformity in shape of the tachyzoites, whereas, by Scanning Electron Microscope, the organisms were mutilated. Moreover, gamma interferon was increased in the serum of animals receiving these compounds. All values of silver detected in different tissues were within the safe range. Thus, these nanoparticles proved their effectiveness against the experimental Toxoplasma infection.

Biography

Gaafar M R has her expertise in diagnosis of different parasitic infections in various samples; blood, stool, urine and aspirates using novel and rapid techniques as enzymatic assays and real-time PCR. Her trials in treatment of the most common infectious diseases based on the use of new and safe lines of treatment as herbal treatment as well as the use of nanoparticles either natural or metal as anti-parasitic agents.

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