

Effects of silver nanoparticle on oxidative stress biomarkers in liver mitochondria male rat: In vitro study

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Nanotechnology and nanoparticles are increasingly recognized for their potential applications in aerospace engineering, nanoelectronics, environmental remediation, medical healthcare and consumer products. As some nanoparticles can cross the cell membranes particularly mitochondria and mitochondria has a vital role in the regulation of cellular energy through aerobic pathway and electrolyte homeostasis, therefore the defects in mitochondrial function induced by nanoparticles can have severe effects on cellular function. The purpose of this study was to investigate the effect of AgNP on the oxidative stress biomarkers in rat liver mitochondria during different time intervals. In this study, the isolated mitochondria from the liver of male Wistar rats (180-250 g) were used. Isolated mitochondria were treated with different doses (5, 1, 50, 100, 250 mmol/ml) of 20 nm diameter AgNP respectively for 24, 48 and 72 hours. After treatment, oxidative stress biomarkers such as Total Antioxidant Capacity (TAC), Lipid Peroxidation (LPO), Total Thiol Groups (TTG) and Catalase Activity (CAT) were determined in isolated rat liver mitochondria. The results confirm oxidant/antioxidant effects of AgNP in various time. Results of this study showed that AgNP has paradox properties in liver mitochondrial sample, while mitochondria is a source of reactive oxygen species (ROS).

Biography

Sara Malih has completed her MSc in Medical Biotechnology from Hamadan University of Medical Sciences. She has published more than three papers in reputed journals. She has two more research articles under review. She is Reviewer of *Tumor Biology*-Springer and has participated in more than three international congresses.

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