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## Effect of silicon quantum dots in tissue liver of swiss albino mice

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Quantum dots (QDs) are nanocrystalline semiconductor materials that have been recently tested for biological applications such as cancer therapy, cellular imaging and drug delivery. The purpose of this study was to evaluate *in vivo* the degree of oxidative stress generated at the liver level following administration of Si/SiO<sub>2</sub> QDs. Silicon QDs toxicity was investigated by injection into the codified vein of these Si/SiO<sub>2</sub> QDs in Swiss mice, being tested in 3 different concentrations (1, 10 and 100 mg QDs/kg body weight). After 24 hours of nanoparticle administration, the mice were sacrificed and liver tissue was sampling. From the total protein extracts, were measured the specific activities of the antioxidant enzymes (superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPX), glutathione reductase (Gred), glutathione S-transferase (GST), glucose 6-phosphate dehydrogenase (G6PDH), as well as reduced glutathione (GSH) and malonaldehyde (MDA) concentration, the results have been reported to mice injected with physiological serum. This analyzes showed that the highest dose (100 mg QDs/kg body weight), 30% decrease in CAT activity, 22% G6PDH activity, 15% GST activity, and 20% GPX and GSH concentration. The determinations performed demonstrate the lack of toxicity of Si/SiO<sub>2</sub> QDs to concentrations of 10 mg/kg body, not affecting the redox balance at the liver.

### Biography

Delia Alexandra Nita is currently a PhD student at the University of Bucharest, Department of Biochemistry and Molecular Biology, Romania. She has earned her Master's degree in 2013 with the thesis "Evaluation of renal function by analysis of biochemical parameters for dialysis patients". She is a Specialist Biochemist (in Medical Biochemistry) at the Clinica Polissano, Bucharest, Romania and her current fields of interest include Biochemistry and Immunology. She has attended a national conference with one oral presentation, and has participated with two posters at 2 national and international Molecular Biology conferences.

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