The Effects of Different Concentrations of Gold Nanoparticles on Daphnia magna

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Nanotechnology and nanoscale science are practiced at nano scale (1-100 nanometers), this scale is so small it involves interaction with atoms and molecules. Nanoparticles have been used for hundreds of years as bright coloring, but only recently have they been applied to medicine. Scientists are still trying to work out a way to use these nanoparticles for cancer treatment especially. The size of the nanoparticles make them an ideal carrier for cancer therapy as they have the potential to work directly in a tumor's microenvironment without damaging healthy cells. If Daphnia magna are exposed to large concentrations of nanoparticles regardless of shape or color, they will die, in which case there will evidence suggesting nanoparticles may be unsafe for humans as well. Through the study we observed that with the red nanoparticles the average heart rate of the Daphnia magna stayed at a relatively normal level, with an average of 225.36 BPM, a maximum of 264 BPM, and a minimum of 192 BPM.However when we exposed the Daphnia magna to the blue nanoparticles our results were completely different. The average heart rate of this batch dropped to 151.4 BPM, with a high maximum of 306, and a minimum of 0 with two of the specimen dying and many experiencing extreme cases of irregular heartbeat. This somewhat supported our hypothesis as although the blue nanoparticles were harmful or fatal to the specimen the red particles were not.

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