



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

<b>Name(s)</b> Iffat Alamgir	<b>Project Number</b> <b>J2202</b>
<b>Project Title</b> <b>The Effect of Nanosilver in Consumer Products on Daphnia magna in Different Temperatures</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project was to find out if nanosilver found in consumer products is harmful to Daphnia Magna, and if the temperature of the water affects the way nanosilver affects pond life.</p> <p><b>Methods/Materials</b> Daphnia Magna cultures, colloidal silver, pond water, ice, light bulbs.</p> <p>Nanosilver solutions of 3 different concentrations were made. 10 Daphnia Magna were put in each solution. This was done 3 times, and each time a different temperature was maintained (Warm/hot, Cold, Room temperature) using light bulbs, ice, etc. A control population for each temperature was also maintained. 3 trials were done for each concentration in each temperature. The amount of Daphnia dead and alive was recorded every 2 hours for 10 hours.</p> <p><b>Results</b> The effect of nanosilver on Daphnia Magna was studied. 3 trials were conducted for each solution, in each temperature. The average Daphnia alive and dead for each concentration in each temperature was then calculated, and compared. Results showed that in the cold environment, an average of only 1 Daphnia magna died in the control (0 ug/L), but in the 25 ug/L nanosilver solutions, most of the Daphnia magna had died around hour 6-8. In the warm/hot environment, an average of 3 Daphnia magna died in the control/0 ug/L, as well as in the 5 ug/L and 25 ug/L solutions.</p> <p><b>Conclusions/Discussion</b> During the room temperature trials, the nanosilver did not have a significant effect on the Daphnia magna. But the death rate of the Daphnia magna had a significantly higher increase in the cold environment than the warm/hot environment, even though the control population of the Daphnia magna in the cold environment fared quite well. From this project you can learn that nanosilver in room temperature environments is not harmful to Daphnia magna of the Phyllopod subclass. However, the temperature of water does affect the way nanosilver affects pond life.</p>	
<b>Summary Statement</b> I found that nanosilver found in consumer products is not harmful to Daphnia Magna in room temperature water, but that the temperature of the water affects the way that nanosilver affects pond life.	
<b>Help Received</b> None. I performed the project and analyzed the results on my own.	