Strengthening Daphnia magna's Resistance to Poisoning Caused by Copper (II) Sulfate Pentahydrate using Non-Invasive Methodology

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Daphnia Magna are invertebrate organisms that live in streams and rivers, and are used for medical research, environmental, pharmaceutical, and other types of studies. Many vertebrae animals, such as fish, feed off Daphnia Magna, so without them, a large part of the food supply would be missing. This project examines if non-invasive methodology can strengthen Daphnia Magna's resistance to poisoning caused by Copper (II) Sulfate Pentahydrate. This project was chosen because while conducting research, no information was found on how to prevent the poisoning, and death, of Daphnia Magna. This experiment was conducted by exposing Daphnia Magna to high doses of vitamins A and D, then exposing them to Copper (II) Sulfate Pentahydrate. These vitamins were chosen because Daphnia Magna are hosts of vitamins A and D, so these substances are non-invasive. Copper (II) Sulfate Pentahydrate was chosen as it is highly toxic to Daphnia Magna and other marine life, and is used in the cleaning of ponds and rivers. The hypothesis was that vitamin A would provide the greatest resistance to poisoning caused by Copper (II) Sulfate Pentahydrate, because it is essential for growth and development, and serves as an anti-infective agent. The hypothesis was accepted. The average time for the primary percentage of the Daphnia Magna to die was 70-80 minutes for vitamin A, 0-10 minutes for the Controlled group, and 20-30 minutes for vitamin D.

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