Averrhoa carambola in the Oxidative Stress of Caenorhabditis elegans

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Oxidative stress produces macromolecular damage. It is implicated in several disease states such as cancer, aging and neurodegenerative disorders. Therefore, it is necessary to find solutions to prevent this form of stress. The most viable solution is to increase the production of antioxidants, in order for them to create a defense system and decrease the production of pro-oxidant molecules (Barrera, n.d.). Therefore, the fruit Averrhoa carambola (Carambola; Star fruit) was chosen to evaluate the effects it will have on the ROS system of Caenorhabditis elegans nematodes. Through this method, it will be determined that antioxidants from Carambola will decrease the oxidative stress levels of C. elegans by producing less hydrogen peroxide than those that were not exposed to the fruit. A C. elegans plate culture was prepared and maintained. Then, a Toxicity Test was performed to calculate the percentage of Carambola extract to which the nematodes could be exposed to. Once this percentage was determined, the ROS-Glo H_2 O_2 Test procedures followed, which measure oxidative stress levels by bioluminescent analysis of peroxide. When analyzing the test results, a difference of up to 0.1393 RLU in peroxide production was observed between the control group and the treated C. elegans group, this last one having a higher production. It is concluded that Carambola, despite containing antioxidant properties, increases oxidative stress levels in C. elegans, producing a higher peroxide amount. My project provides a base for the development of a cost-effective and sustainable product that can be used by humans to reduce oxidative stress.

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