

OFFICIAL ABSTRACT and CERTIFICATION

An in vitro Evaluation of the Effects of Resveratrol and Amygdalin on Cell Division of *Lytechinus variegatus* Zygotes

Armaan Mahajan

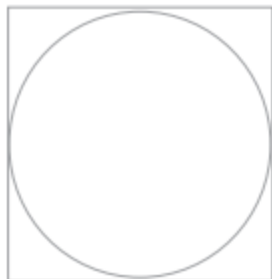
Saginaw Arts and Sciences Academy, Saginaw Michigan, United States of America

Cancer is not an unknown killer. This disease is the second leading cause of death in the world. Cancer is the uncontrolled replication of cells within the body. Cancer cells do not respond to signals that regulate the growth of most cells. Many cancer cells have a defect in the p53 gene, causing cells to lose information needed to respond to signals to control growth. Although there are many treatments for cancer, there is no cure as of now. The most common form of treatment for various types of cancer is chemotherapy. Chemotherapy drugs prevent the division of cancer cells, effectively stopping the growth of cancer throughout the body. Although chemotherapy is the most common form of cancer treatment, there are still many harmful side effects of this treatment. It can result in lung tissue damage, heart problems, infertility, and nerve damage. Because of these side effects, many people have switched to dietary supplements to help prevent cancer. Some of the most discussed dietary supplement cancer treatments are resveratrol and amygdalin. The objective of this study is to compare the rates of cell division of Echinoidea (specifically *Lytechinus variegatus*) cells when exposed to resveratrol and amygdalin. A 0.5 Molar Potassium Chloride solution was used to extract the gametes of the sea urchins. These gametes were then combined and exposed to various concentrations of resveratrol and amygdalin. The rate of cell division was then viewed under a simple light microscope. The resveratrol managed to only slow down the rate of cell division, while the amygdalin managed to stop cell division from occurring at the start. This supported the hypothesis that stated that the amygdalin would prevent cell division more effectively.

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