The Effect of Extracted Phycocyanin from Spirulina platensis on Irradiated Saccharomyces cerevisiae Cells

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Experimentation used yeast as a model organism to determine possible benefits phycocyanin could provide to irradiated cells. Since genetic damages may be caused by UV radiation, finding a solution for this threat is important for future human health. By investigating the potential benefits of Spirulina platensis and the extracted protein phycocyanin, we may be able to determine a basic solution for preventing radiation damage. It was hypothesized if a Spirulina platensis solution was introduced to irradiated Saccharomyces cerevisiae cells, then the growth rate and the amount of genetic damages would be reduced because of the radiation resistant and anti-cancerous properties of the phycocyanin protein within Spirulina. The project was conducted by experimenting on four groups of yeast, giving two groups of yeast 6% phycocyanin contained within Spirulina. Test groups consisted of yeast that was 1)not irradiated, nor fed Spirulina , 2)not irradiated but fed Spirulina, 3)irradiated but not fed Spirulina, and 4) irradiated and fed Spirulina. The results indicated Saccharomyces cerevisiae receiving Spirulina platensis was genetically similar to the control group. Yeast solely irradiated had the greatest variance in band lengths from the control (average of 1.56 mm), while yeast given Spirulina and irradiated had the least variance from the control (0.91 mm). The group receiving both UV radiation and Spirulina had the slowest growth rate, indicating Spirulina may have reduced the rate of cell growth, suggesting a role in apoptosis. It can be concluded phycocyanin in association with Spirulina, prevented genetic damages within the yeast, suggesting it may be an effective preventative.

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