Investigating the Effects of UV Radiation on Yeast Colony Growth

Couchara, Nicholas

Almost all organisms on Earth are either directly or indirectly affected by ultraviolet radiation emitted from the sun. For this reason, it is imperative to understand how and to what extent UV radiation affects DNA. The purpose of this experiment is to investigate the effects of ultraviolet radiation on wild Saccharomyces cerevisiae yeast and genetically modified Saccharomyces cerevisiae G948-1C/V yeast. Twelve petri dishes with YED agar were created for both the wild and genetically modified yeast strains. Serial dilutions of 1:10,000 and 1:100,000 were also created for each yeast species, with each of those dilutions being exposed to 4 min, 8 min, and 12 min of continuous UV radiation. The resulting percent of colonies with inhibited growth would be calculated using the control plates of each serial dilution. Initially, the sun was to be the source of UV radiation, but due to inclement weather on test day, UV lights were employed instead. It was found that there was a statistically significant difference between the wild Saccharomyces cerevisiae yeast and genetically modified Saccharomyces cerevisiae G948-1C/V yeast only when exposed to UV radiation for specifically 12 minutes (699 J/m2). Graphing the percent of colonies with inhibited growth indicated that the genetically modified yeast was negatively affected by UV radiation more than the wild yeast for the entirety of the exposure, supporting the suggestion that the genetically modified species is more greatly affected by UV radiation than the wild species.

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