The DNA Damage Effect of Aloe Vera Extracts

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The purpose of this project is to detect DNA damaging effect caused by various Aloe Vera extracts. A total of four Aloe Vera extract samples were tested using the Comet Assay. Three samples were purchased from three different companies (H, N, P) and one was provided by the scientist at NCTR, which was named as “FDA”. Aloe Vera extract samples were added to TK6 lymphoblastoid human cells in two different concentrations (2 l/ml and 20 l/ml, respectively) into 6-well plates for a 24-hour treatment. Following the treatment, trypan blue solution was used for the cell samples to determine the viable cell percentages by the Bio-Rad TC20 Automated Cell Counter. Then the Comet Assay was performed by centrifuging cells, mixing cells with 1% of low melting agarose gel, spreading cell/gel mixture onto a Comet Slide, and lysing cells in lysis solution. After unwinding the double-stranded DNA in fresh alkaline solution, electrophoresis was performed and the slides were stained with SYBR Gold in order to be read by the Leica epifluorescence microscopy. Of the 4 samples of Aloe Vera extract, two samples at high concentrations of 20 l/ml, N_20 and FDA_20, showed increases in the amount of DNA percentage in tail and all other samples induced similar amount of % DNA in tail to that of the control. All cells showed high cell viabilities of greater than 80%. These results demonstrated that some Aloe Vera extract products may cause DNA damage at high doses.

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