

A Comparative Study on the Anti-Proliferative Activity of Green Tea (*Camelliasinensis*) and Gamma Radiation on Cultured Human Ovarian Cancer Cell Line

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ABSTRACT

Green Tea (*Camellia sinensis*) is a popular herbal drink believed to have an antiproliferative activity. Gamma radiation, on the other hand is a physical agent used in medicine to kill cancer cells. The effects of green tea and gamma radiation were studied *in vitro* using a human ovarian cancer cell line (HOCCL). Eight experimental set-ups were made: (A) control, (B) (C) and (D) were treated with 10 $\mu\text{g/mL}$, 50 $\mu\text{g/mL}$ and 100 $\mu\text{g/mL}$ of green tea respectively; set up (E) received 3 Gy of gamma radiation while F, G and H were each treated with the various concentrations of green tea in addition to gamma radiation. For each set-up three culture tubes were prepared. The mean mitotic indices were determined in each set up and comparisons were made. Data obtained revealed that the control set up (A) had the highest mean mitotic index (0.1300), and set up H showed the lowest mean mitotic index (0.03690). The latter may indicate the additive anti-mitotic action of the two agents (green tea and gamma radiation). When compared with the control set up, the percentage difference was found to be lowest in set up B (3.13%) and highest in set up H (111.6%). Mean values were analyzed using One Way Analysis of Variance. Results showed that the computed F value (303.8) was higher than the critical F value (2.42) at 0.05 level of significance. This means that there is a significant difference between the mean mitotic indices. The Tukey's test was also done to determine which among the mean mitotic indices are significantly different from each other. Results showed that set ups A and H were the most significantly different among all other set ups. From the data obtained, green tea concentration is shown to have an inverse relationship with the mitotic index. More so, gamma radiation has a stronger antimitotic activity than green tea. In conclusion, green tea and gamma radiation were found to have an anti-mitotic effect on the human ovarian cancer cell line.