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Investigation of Iranian white tea (*Camellia sinensis* L.) inhibitory effect on the proliferation of colon cancer cell line, HCT-116

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Apart from water, Tea (*Camellia sinensis* L.) is probably the most widely consumed beverage all around the world, and it is rich in polyphenolic compounds known as tea flavonoids. Having this group of compounds in their structures, tea possesses high antioxidant activity and radical scavenging activity. The major catechins present in tea are: (-)-epigallocatechin (EGC), (+)-catechin (C), (-)-epigallocatechin gallate (EGCG), (-)-epicatechin (EC) and (-)-epicatechin gallate (ECG). Studies have shown that public awareness about benefits of tea has increased in the recent past. Much of beneficial effects of tea are related to the primary polyphenolic constituents of tea and strong antioxidant potential. It has remedial action on cancers, arthritis, cardiovascular diseases, and diabetes. The goal of this research is to assess the effect of different concentration of Iranian white tea extracts on the inhibition of proliferation in the colorectal cancer cell line, HCT-116. The present study evaluates the MTT (3-(4, 5-dimethyl thiazol-2-yl)-2, 5-diphenyl tetrazolium bromide) test were used for 16h and 24h in colon cell lines HCT-116 as the biological test. We investigated the effect of Iranian white tea extract on two groups of genes, oncogenes and tumour suppressor and the expression of DCC (Deleted in Colorectal Carcinoma) and TGFBR2 (Transforming growth factor, beta receptor II) as the oncogene and Beta–Catenin and KRAS as tumour suppressor. According to the results of MTT, the white tea, had the highest inhibitory to the free radical scavenging related to the content of phenolic compounds in extracts. White tea can inhibit free radical molecules up to 71.74±0.42%. The real-time PCR results showed that white tea can significantly up regulate the function of tumour suppressor genes and block the pathway of colorectal cancer come to metastasis.

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