Can Tender Coconut Water Inhibit the Growth of HepG2 Liver Cancer Cells?

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Tender Coconut Water (TCW), the liquid endosperm of young coconut fruit is not only rich in nutrients but also has bioactive phytohormones such as zeatin, kinetin and their derivatives. Naturally occurring phytohoromes have antiproliferative properties and are effective in inhibiting growth of selected cancer cell lines. According to the Center for disease Control and Prevention, in the United States of America about 29,000 persons are diagnosed with liver cancer every year, and approximately 19,000 people die of the disease each year. Furthermore, the percentage of Americans diagnosed with liver cancer is on the rise. Since TCW has potential anti-cancer compounds, it was evaluated for its ability to prevent the growth and viability of HepG2, a human liver cancer cell line. HepG2 cells were incubated with increasing concentrations of TCW in MEM media with 5% fetal bovine serum for 3-5 days and assessed for cell viability and proliferation. TCW significantly decreased HepG2 cell viability as demonstrated by the MTT assay (49.2% viable cells with 10%TCW). In the presence of TCW, the proliferation of the HepG2 cells was significantly reduced as measured by BrdU incorporation assay (53.4% BrdU incorporation vs control with 10% TCW). TCW also severely impaired the anchorage-independent growth ability of HepG2 cells TCW as measured by soft-agar colony forming assay (50% less number of colonies vs control with just 2.5% TCW). Thus, TCW decreased the tumorigenicity of HepG2 liver cancer cell line. Our results suggest that TCW may have anti-tumor effects in the treatment of human liver cancer.

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