

Comparative study on *in vitro* anti-proliferative and apoptotic effects of organic and non-organic tea extracts

Abstract

This study compared the anti-proliferative and apoptotic effects of organic and non-organic Sabah tea on cancer cell lines. Anti-proliferative assays showed that the tea extracts were capable of inhibiting the growth of MCF-7 and HeLa cells. The IC_{50} values for MCF-7 and HeLa were 20.9 ± 2.6 to 39.3 ± 0.8 and 38.5 ± 3.8 to 42.0 ± 2.3 $\mu\text{g/mL}$, respectively. Statistical differences were observed in MCF-7 cells treated with organic and non-organic tea extracts. However, no differences were found in HeLa cells. Morphological changes were observed in both treated cell lines when compared with the untreated cells. However, the formation of DNA laddering was only observed in the treated MCF-7 cells. Reduction of *BCL-2* expression was found in the treated MCF-7 cells but *BAX* expression was unaltered. In conclusion, the effect of different farming systems on the proliferation of cancer cells could be cell-type-dependent but they showed no obvious differences in their effects on preventing cancer cell growth and inducing apoptosis.