
Abstract
Apple juice, known as a good antioxidant source, may partially protect the body from oxidative stress. In this report, the effect of apple juice reconstituted with alkaline electrolyzed water (EO-apple juice) on HT-29 cells was investigated. Specifically, the total antioxidant capacity (ORAC and TEAC) of EO-apple juice, and the effects this EO-apple juice on cell proliferation (MTT assay), DNA fragmentation, and oxidative DNA damage (comet assay) of HT-29 cells were evaluated. The TEAC value of EO-apple juice was higher (2773 μM TE vs. 1739 μM TE) than apple juice reconstituted with ultra pure water (Water-apple juice). EO-apple juice also had a higher ORAC value (15446 μM TE) than that Water-apple juice (13908 μM TE). After 72 h cell incubation, HT-29 cell proliferation was more effectively reduced by the EO-apple juice than the Water-apple juice. Induction of apoptosis was determined using a DNA fragmentation method, and apoptotic cells increased in a dose-dependent manner after treatment with both reconstituted apple juices. In conclusion, EO-apple juice had a stronger antioxidant effect than water-apple juice and can inhibit HT-29 cell proliferation plus induce apoptosis.