

Abstract

Evaluation of Anti-Proliferative and Cytotoxic Properties of Chlorogenic Acid against Breast Cancer Cell Lines by Real Time Monitoring [†]

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Abstract: Chlorogenic acid (CGA) is a major polyphenol in primary human diet, which has a wide range of biological activities including anti-oxidant, anti-inflammatory and anti-cancer effects. Several studies showed CGA's chemopreventive roles on different types of cancers including breast cancer which is the most common cancer among women worldwide. However, there is no comprehensive study investigating the effects of pure CGA on the phenotype of breast cancer cell lines. In this study, we determined the anti-proliferative and cytotoxic effects of CGA on several breast cancer cell lines (MCF-7, SKBR-3, MDA-MB-231, MDA-MB-468 and BT-20) with well-defined molecular classification and characteristics, in a time and dose dependent manner by using iCELLigence real-time and label-free cell analysis technology. Cells were plated on iCELLigence system-specific E-plate L8 and treated with CGA for 72 h at concentrations ranging from 250 μ M to 8 mM. Data were analyzed with RTCA data analysis software 1.0 and IC50 values of $952 \pm 32.5 \mu$ M for MCF-7, $940 \pm 21.2 \mu$ M for SKBR-3, $590.5 \pm 10.6 \mu$ M for MDA-MB-231, $882.5 \pm 12.0 \mu$ M for MDA-MB-468 and $1095 \pm 121.6 \mu$ M for BT-20 cell lines were calculated at 72-h time point. Our results demonstrated that CGA displayed no cytotoxic activity and exhibited variable but close anti-proliferative effects on breast cancer cells.

Keywords: chlorogenic acid; breast cancer; anti-proliferative; iCELLigence; chemopreventive; cell death



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