INHIBITORY EFFECT OF 6-SHOGAOL ON VIABILITY OF TUMOR CELL LINES

Sue Mungre
Department of Biology, Northeastern Illinois University, Chicago, IL 60625

Cancer remains a leading cause of death in the United States. Although chemotherapy and radiation therapy are being currently used to treat cancer, they have from detrimental side effects. Hence, several studies have focused on natural herbs and compounds as alternate therapies. Zingiber officinale, commonly known as ginger, is a root that has been used for centuries in food and in medicine due to its an anti-diabetic, anti-inflammatory anti-apoptotic, and anti-carcinogenic properties. Two of the nonvolatile compounds present in ginger, 6-gingerol and 6-shogaol, are reported to show protective effect against diabetes, cardiac and hepatic disorders. We tested the effect of both these compounds on two tumor cell lines, HeLa (epithelial tumor cells) and PC12 (adrenal tumor cells). Both cell lines were treated with varying concentrations of the compounds for 24 hours. Cell viability was measured using colorimetric mitochondrial enzyme assay. 6-shogaol, at 50 µM caused 65% cell death in both cell lines. However, 6-gingerol did not show inhibitory effect on either cell line. Maximum effect of 6-shogaol was obtained at 200µM in HeLa cells and at 50µM in PC12 cells. Our studies show that micromolar concentration of naturally occurring 6-shogaol inhibits the growth of tumor cells. It is possible that higher concentrations of 6-gingerol are needed for significant effect. The mechanism by which 6-shogaol causes cell death needs to be investigated.