

## ABSTRACT

Breast cancer is a lethal disease due to the uncontrolled growth of breast cells. This disease is accounted for as the leading cause of death among women worldwide. Certain treatments that are commonly prescribed by professional healthcare generates adverse effects on the breast cancer patient. Hence, certain researchers are attempt to discover alternative medication for breast cancer, and the research has broadened to the sphere of natural remedy by utilizing herbal plant and spices as the drug candidate. In this study, hexane and methanolic extracts of *Amomum compactum* were used. The cytotoxicity of both extracts were performed using MTT assay. In a dose-dependent manner, the hexane extract generated toxicity towards T47D cell line with 483.13  $\mu\text{g/mL}$  of IC50 and 1057.58  $\mu\text{g/mL}$  IC50 of methanolic extract. Despite of their toxicity, both of the extracts did not generate toxicity towards Vero normal cell line with 1616.73  $\mu\text{g/mL}$  and 1696.834  $\mu\text{g/mL}$  IC50 of hexane and methanolic extracts. Furthermore, cell cycle distribution and apoptosis evaluation were performed by using flow cytometry methodology. The cell cycle evaluation indicated that the extract of *Amomum compactum* induced cell cycle arrest in S phase and cell death by increased in the subG1 population. Furthermore, the outcome of apoptosis evaluation exhibited that, the IC50 of *Amomum compactum* extract induced cell death by apoptosis mechanism. In addition, phytochemical evaluation of *Amomum compactum* extracts were evaluated by using Thin Layer Chromatography methodology. The results showed that the extracts of *Amomum compactum* contain terpenoid, tannin, flavonoid, and anthraquinone.

*Keywords:* *Amomum compactum* extract, T47D, Vero, cytotoxic, flow cytometry, phytochemical analysis