

## **Phenolics-saponins rich fraction of defatted kenaf seed meal exhibits cytotoxicity towards cancer cell lines**

### **ABSTRACT**

Objectives: To determine the cytotoxicity of crude ethanolic extract, *n*-butanol fraction and aqueous fraction on selected cancer cell lines, and to observe the morphological changes of the cancer cells treated with *n*-butanol fraction. Methods: The cytotoxic effect of *n*-butanol fraction, crude ethanolic extract and aqueous fraction on breast cancer (MCF-7 and MDA-MB-231), colon cancer (HT29), lung cancer (A549), cervical cancer (HeLa) and normal mouse fibroblast (3T3) cell lines was determined using MTT assay. The morphological changes of the treated cells were observed under an inverted light microscope. Results: *n*-Butanol fraction was the most cytotoxic towards HT29 and MCF-7 cells in a dose-dependent manner compared to crude ethanolic extract and aqueous fraction ( $P < 0.05$ ). The  $IC_{50}$  of *n*-butanol fraction for HT29 and MCF-7 was  $(780.00 \pm 28.28)$  and  $(895.00 \pm 7.07)$   $\mu\text{g/mL}$ , respectively. Cell shrinkage, membrane blebbing and formation of apoptotic bodies were noted following treatment of HT29 cells with *n*-butanol fraction. Conclusions: In conclusion, *n*-butanol fraction was more cytotoxic than crude ethanolic extract and aqueous fraction towards the selected cancerous cell lines and induced apoptosis in HT29 cells.

**Keyword:** Defatted kenaf seed meal; Phenolic-saponin rich fraction; Cytotoxic; Apoptosis