Selective cytotoxic activity of methyl-3,4,5-trihydroxybenzoate isolated from kernel of bambangan (mangifera pajang)

ABSTRACT

Bambangan (Mangifera pajang) has been shown to exhibit anticancer activity. One of the major bioactive compounds present in the methanol extract of kernel of *M. pajang* is methyl 3,4,5- trihydroxybenzoate (methyl gallate). The present study was conducted to evaluate the cytotoxic activity of this compound against selected cancer cell lines such as hormone dependent breast cancer (MCF-7), non-hormone dependent breast cancer (MDA-MB-231), prostate cancer (PC-3), pancreatic cancer cell (CP-2) and colon cancer (HCT-116) cell lines. Methyl gallate was isolated from methanol extract by using column chromatography and the compound was further confirmed by using NMR, GC-MS analysis and comparison of spectral data of the isolated data with published report. The cytotoxicity of the compound was evaluated using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay at concentrations ranging from 0 to 100 μ M. The results showed that the compound only induced cytotoxicity in MCF-7 and PC-3 cell lines with IC₅₀ values of 54.7 \pm 4.73 and 97.6 \pm 4.04 µM, respectively. Furthermore, Capan 2, MDA-MB-231 and HCT-116 showed no inhibition towards the cell proliferation after the treatment with compound (IC₅₀ values more than100 µM). Thus, the compound isolated from kernel of *M. pajang* exhibited selective cytotoxic activity against selected cancer cell lines.

Keyword: Methyl gallate; Mangifera pajang; Cytotoxicity; MTT assay; Cancer cells