

ABSTRACT

Cancer is one of the leading causes of death in 2018. Two of the most common cancers are breast cancer and colorectal cancer with the incidence of 11.6% and 10.2%, respectively. The current treatments of cancers are limited to surgery, chemotherapy, radiotherapy, and targeted therapy. However, these treatments could induce cell resistance and some of them, notably chemotherapy and radiotherapy are not target specific. Hence, a better approach is necessary to have more therapeutic options with reduced negative effects. One of the propitious candidates is naturally derived compounds from plants. It has drawn attention because they are considered to possess fewer negative effects. *Syzygium polyanthum* (Wight) Walp. or bay leaf is a spice that is cytotoxic towards non-human colon 26 adenocarcinoma and human hybridoma cell, HB4C5 cell. However, extensive studies of this spice towards human cell are limited. Thus, the objective of this study is to investigate the cytotoxicity of hexane and methanolic *Syzygium polyanthum* leaves extracts toward human tumorigenic (WiDr and T47D) and non-human non-tumorigenic (Vero) cell lines by MTT assay and to investigate the extracts involvement in cell cycle and death mechanism of tumorigenic cells by flow cytometry. The result showed both extracts exhibit cytotoxicity towards WiDr and T47D cell, while methanolic extract does not exhibit cytotoxicity towards Vero cells. In addition, the extracts induced necrosis in WiDr and T47D cells.

Keywords: *Syzygium polyanthum* (Wight) Walp., Natural Product, Cytotoxicity, Apoptosis, Cell Cycle