

Cytotoxic activity of anredera cordifolia leaf extract on hela cells

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Abstrak

Cervical cancer is the second most frequently occurring cancer among females all over the world. Since the best strategy against cancer is to kill the cancer cells without endangering the normal cells, discovering a potentially selective anticancer agent from plants has become very challenging for researchers worldwide. A previous study on *Anredera cordifolia*, known as binahong in Indonesia, revealed its cytotoxic activity on HeLa cervical cancer cells with IC₅₀ 75 µg/mL. However, the selectivity of the chemical agent and its molecular target was not investigated. Thus, this study was aimed at determining the selectivity of ethanolic extract of *Anredera cordifolia* leaf (EAC) on Vero cells and its molecular target on HeLa cells. The extracts were prepared by macerating *A. cordifolia* leaf powder in 70% ethanol. The viability of Vero cells was assessed using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. While the cell cycle of HeLa cells was analyzed using the flow cytometry, the molecular target of the extract was investigated by using the immunocytochemical staining. The results exhibited the selective cytotoxicity of EAC on HeLa cells compared to Vero cells with a Selectivity Index (SI) of 17.36. It arrested the G1/S phase of the cell cycle and suppressed the Bcl-2 expression, the anti-apoptotic protein, which also regulates the cell cycle. These findings confirmed the use of *A. cordifolia* leaf extract as a promising anticancer agent against cervical cancer, particularly the HeLa cells.