Abstract

*Acartia suberitoides* is a sponge that showed potential chemopreventive activity. Secondary metabolites come from *A. suberitoides* is Alkaloids. Alkaloids have important biological activity for health as an anticancer agent. The main purpose of this research is to determine the effect of *A. suberitoides* extract on cervical cancer cell line HeLa in vitro, that using cytotoxicity test.

The activity of *A. suberitoides* extract to inhibit the growth of cancer cell was determined by MTT assay. After the LC$_{50}$ calculated, the cell proliferation kinetic profiles were observed by doubling time test at 24$^{th}$, 48$^{th}$, and 72$^{th}$ hours and the IC$_{50}$ calculated. Apoptosis studies were done by double staining test using acridine orange and ethidium bromide.

The study was used Completely Randomized Design with 5 treatment group, there are group I (treatment), II (control cell), III (positive control), IV (medium control) and V (cosolvent control), with three times duplication. The concentration of extract that use 7.5; 15; 30; 60; 120; 240; 480; 960 and 1920 µg/mL. The concentration of cisplatin, medicine cancer that use 2, 4, 8 dan 16 µg/mL. The data was analyzed with ANOVA and be continued by LSD test.

The result of this research shows that *A. suberitoides* extract have not cytotoxic activity on cervical cancer cell line HeLa with LC$_{50} = 133,968$ µg/mL at cytotoxicity test with MTT.
assay based NCI (National Cancer Institute) criterion, that a compound was said to have sitotoksisisatas's effect that poten if that compound have point $LC_{50} \leq 20 \mu g/mL$. At doubling time test, A. suberitoides extract are not able to inhibit proliferation of cervical cancer cell line HELA with $IC_{50} = 194.487 \mu g/mL$ based criterion of Kamuhabwa et al. (2000), that extract has to assess $IC_{50} = 153,007 \mu g/ml$ can say to have antiproliferasi's potencies. And A.suberitoides can induction apoptotic on cervical cancer cell line HELA with activity as big as 16,650 %.

Key Words: A.suberitoides, HELA cervical cancer cell, Cytotoxicity test, doubling time, apoptosis