# CYTOTOXIC ACTIVITY OF DICHLOROMETHANE AND WATER FRACTIONS FROM METHANOL EXTRACT OF RUMPUT GONG (*Eriocaulon cinereum* R. BR.) ON MCF-7 AND VERO CELL LINES.

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## ABSTRACT

In the US in 2018, there will be an estimated 266.120 new cases of invasive breast cancer diagnosed in women and 2.550 cases diagnosed in men. Rumput Gong (*Eriocaulon cinereum* R. Br.) hereditary has been used by the people of Indonesia, especially the community of Bangka Belitung as a cancer treatment. The preliminary study showed that methanol extract of rumput gong has cytotoxic activity against cervical cancer cells. One of the other Eriocaulon, *Eriocaulon australe* reported having cytotoxic activity against MCF-7 cancer cells, HeLa and A549. To be further developed, a cytotoxic agent must be selective toward cancer cells. This research aimed to examine the cytotoxic activity of dichloromethane and water from the methanol extract of rumput gong against breast cancer cells (MCF-7) and normal cells (Vero), as well as to identify the compounds contained in the dichloromethane and water fraction of rumput gong. The extraction process was performed with Ultrasound-Assisted Extraction and fractionation was performed using the liquid-liquid partition method. The cytotoxic activity of the fractions was evaluated by MTT assay method and the absorbance value was measured using ELISA reader at the wavelength of 595 nm. The data were analyzed with PROBIT method. Cytotoxic test results showed the value of Inhibition Concentration ($IC_{50}$) of the dichloromethane fraction of rumput gong against MCF-7 cells was 459,86 µg/ml, whereas the $IC_{50}$ value for water fraction against MCF-7 cells was 5473,58 µg/mL. Selectivity index (SI) of dichloromethane fraction was 0,74. The result of the selectivity analysis indicated that the dichloromethane fraction of rumput gong was less selective toward MCF-7 cells. Furthermore, the $IC_{50}$ value of the dichloromethane fraction against Vero cells was 341.52 µg/mL and the $IC_{50}$ value for water fraction was 5296.78 µg/mL. Phytochemical screening with Thin Layer Chromatography (TLC) method showed the dichloromethane fractions of rumput gong contained the alkaloid, steroid, phenolic, and terpenoid compounds. Whereas the water fractions of rumput gong contained phenolic compounds. Based on $IC_{50}$ values, it can be inferred that the cytotoxic activity of the dichloromethane fractions was weak against MCF-7 cells and Vero cells, whereas the water fractions have no cytotoxic activity.

**Keywords**: Rumput Gong, Sel MCF-7, Sel Vero, *Ultrasound Assisted Extraction*, *liquid-liquid partition*, MTT *assay*.