

ANTICANCER ACTIVITY AND INHIBITION CELLULAR NITRIC OXIDE PRODUCTION OF SPONGE EXTRACT *Liosina paradoxa*

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ABSTRACT

Sponge is a marine invertebrate that produces secondary metabolites as a chemical defense which show biological activities on drug discovery and development. In this research, the inhibition activity of the marine sponge *Liosina paradoxa*'s extract from Biak waters, Indonesia, was evaluated against MDA-MB-231 breast cancer cell line and cellular nitric oxide production. Using methanol:dichloromethane (1:1) (v/v), the obtained solids were then partitioned into n-hexane, ethyl acetate, and n-butanol with a 1:1 (v/v) proportion for each solvent. The partitioned solvent was then vaporized, and the obtained extracts were then subjected to an MTT assay against MDA-MB-231. The most potent partitioned extract was found to decrease MDA-MB-231's cell viability of 3.20%; 22.39%; and 48.59% for 100, 10, dan 1 µg/mL sample concentration respectively. Further separation by using reverse-phase high performance liquid chromatography (RP-HPLC) gave eight fractions from different retention time with fractions 1, 4, and 8 are subjected to further separation through RP-HPLC and provided 5, 24, and 6 subfractions, respectively. Each fraction and subfraction was subjected to assess their potential activity on inhibiting cellular nitric oxide production utilizing RAW264.7 cell line resulting fraction 8.4 as the most potent cellular nitric oxide production inhibition with 43.69% inhibition. LC-MS/MS analysis showed the presence of 16β-Hydroxycrambescidin 359 and eponemycin as the responsible compounds for the obtained bioactivities.

Keywords: anticancer compound, breast cancer, marine sponge, *Liosina paradoxa*, nitric oxide