ABSTRACT

IN VITRO ANTICANCER ACTIVITY OF ACETONE EXTRACT OF *Solanum mammosum* CGS CALLUS CULTURE AGAINST HeLa AND T47D CANCER CELLS

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Breast cancer and cervical cancer are ranked first and fourth of the most commonly diagnosed cancers and are the leading cause of death in women in the world. Cancer is generally treated with the use of drugs to inhibit the growth of cancer cells (chemotherapy). However, most anticancer drugs have a narrow safety limit because they can also target the body's normal cells with a high proliferation rate. Betulinic acid, a pentacyclic triterpene compound, was reported as a compound of natural ingredients that has cytotoxic activity against various cancer cells with high selectivity. Betulinic acid can be found in various plant species, including the Betulaceae and Solanaceae family. *Solanum mammosum* CGS callus culture acetone extracts contain sterols, and triterpenoids, which of them is betulinic acid. CGS is one type of callus culture from *S. mammosum* plant which is bred at Biotechnology Laboratory of Faculty of Pharmacy, Universitas Airlangga. The presence of betulinic acid in the acetone extract was tested qualitatively by TLC method using hexane, ethyl acetate, and acetic acid at 7:3:0,3 ratio as mobile phase. In this study, the activity and selectivity of acetone extract of *S. mammosum* CGS callus culture, along with betulinic acid as standard, is tested on HeLa and T47D cancer cells and Vero normal cells in vitro using MTT assay. IC_{50} of the acetone extract towards HeLa and T47D cells is 120.51±4.67 µg/mL and 2357.79±379.04 µg/mL respectively, and IC_{50} of betulinic acid against HeLa and T47D cells is 19.31±3.59 µg/mL and 38.87±4.30 µg/mL respectively. The acetone extract and betulinic acid were also proved as a selective anticancer agent that is only targeting cancer cells and is not active towards Vero cells.

Keywords: *Solanum mammosum* CGS acetone extract, callus culture, anticancer, HeLa, T47D, MTT assay.