DNA FRAGMENTATION ON HCT-116 COLON CANCER CELL IN THE PRESENCE OF SHORT CHAIN FATTY ACID (SCFA) EXTRACT

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ABSTRACT

Type 3 resistant starch (RS3) is retrograded starch that resists digestion in the small intestine of healthy people and fermented in the large intestine. The main fermentation products are the short chain fatty acids (SCFA) acetate, propionate, and butyrate. Butyrate is the major energy source for the colonocytes and have anti-carcinogenic effects mainly by affecting proliferation, differentiation, and apoptosis of colonocytes. The aim of this study was to analyze apoptotic DNA fragments of HCT-116 human colon cancer cell incubated with SCFA derived from fermentation of RS3 of sweet potato (Ipomoea batatas) by C. Butyricum BCC B2571 using DNA ladder assay.

The DNA bands detected from attached cells treated with SCFA containing 1.00 and 1.25 mM butyrate were different from the control, appeared as longer smear. There were separate DNA bands in the floating cells in the treated medium (SCFA containing 0.625, 1.00, and 1.25 mM butyrate) at ±100 bp. These bands were not presence in the control. DNA fragmentation was not clear in the attached cells, but was observed as a separate bands in the floating cells in the medium which contained the dead cells. This research still needs optimization of DNA extraction to get the best result of DNA fragmentation assay.

Keywords: apoptosis, colon cancer, DNA fragmentation, DNA Ladder assay