CHARACTERIZATION AND DEVELOPMENT OF LOCAL WHITE GARLIC AND IT'S FERMENTATION RESULTS AS ANTIOXIDANT, ANALGETIC, AND ANTICANCER

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ABSTRACT

The purpose of this study is to characterize and develop the potential of local garlic and its fermentation results as antioxidants, analgesics, and anticancer. The subjects of this study were local white garlic and which had been fermented into black onions. Characterization that will be carried out includes total phenol content, flavonoid content, and its components by GC-MS from ethanol extract, fractionation of ethanol extract with n-hexane, chloroform, and ethyl acetate, and water extract. Analysis of total phenolic and flavonoid levels was carried out by spectroscopic methods. Component analysis was carried out by chromatography and GC-MS. Antioxidant activity test using DPPH (2,2-diphenylpicrilhydrazyl) method. This analgesic test uses stretching methods from mice which are divided into 5 groups, each group consisting of 5 mice. Anticancer tests were carried out through cytotoxicity tests on several T47D breast cancer cells. The cytotoxicity test method carried out with MTT Cell Proliferation Kit using colorimetric method was measured based on color formation at λ 570 nm from the control cell and due to the treatment of adding samples to various concentrations. The results showed that garlic extract and fermentation results had high phenolic and flavonoid levels. Chromatographic separation from black onion ethyl acetate extract obtained a compound with a purity of 67%. The results of identification of these compounds using IR and GC-MS showed that the isolated compounds were thought to be 5-hydroxymethylfurfural. The antioxidant activity test of each extract and fraction of garlic and black onion were classified as low, except the onion ethanol extract showed high antioxidant activity with IC50 38.609 ± 0.11µg / mL. Ethanol extract of garlic and black has analgesic activity. The black onion chloroform fraction showed low activity in several types of cancer cells T47D, 4T1; MCF7 / Her2; HeLa; and WiDr.

Kata Kunci: *Allium sativum; garlic; black garlic; antioxidant, analgesic, anticancer; phenolic*