ABSTRACT

SYNTHESIS AND CYTOTOXIC ACTIVITY ASSAY AGAINST HeLa CELL 10-N-(2-CHLOROBENZOYL)FOLIC ACID

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This study aims to development the new drug of 10-N-(2-chlorobenzoyl)folic acid which have activity as anticancer. This study have done with synthesis method of lead compound folic acid. Methotrexate which used clinically as anticancer, used as standard comparison of cytotoxic activity of the new drug. In order to examined properness of synthesis, in silico study was conducted using dihydrofolate reductase reseptor (1DDS) which gave lower rerank score energy (-129,959) than methotrexate (-112,80). Based on in silico study, more low of rerank score, showed bond strength of drug-receptor more stable and would be prediction gave higher activity as anticancer. Synthesis of 10-N-(2-chlorobenzoyl)folic acid have done through acylation reaction principle with 2-chlorobenzoyl chloride at folic acid. Purity test was analyzed by using thin layer chromatography. The structure of the compound was confirmed by using nuclear magnetic resonance spectrometer. Cytotoxic activity was determined by using MTT assay method against HeLa cell culture. From the result of the cytotoxic activity with methotrexate as reference drug was not gives significance result, because of cytotoxic method does not show the good barriers against 10-N-(2-chlorobenzoyl)folic acid and methotrexate. So, did not indicate fatality of cell.

Keywords : folic acid, in silico study, 10-*N*-(2-chlorobenzoyl)folic acid, synthesis, acylation, cytotoxic activity.