NIKEN DHARMAYANTI. Isolation and Identification of Topoisomerase I Inhibitor Contained by Solanum sp. Supervised by LINAWATI HARDJITO and TATI NURHAYATI.

Topoisomerase I is an enzyme that relaxes supercoiled DNA during DNA replication. The enzyme is found in enormous amount in cancer cell compared to normal cell. Topoisomerase I inhibitor is one of the target in anticancer screening. The aim of this study is to investigate topoisomerase I inhibitor isolated from Solanum sp. extracts. Solanum leaf was extracted using hexane, ethyl acetate and methanol. The extracts were assayed as Topoisomerase I inhibitor applying Topoisomerase I Drug Screening Kit from TopoGen. The active extracts then were tested their genotoxicity and phytochemically. The results showed the yields of hexane, ethyl acetate and methanol were 1.04%, 2.59% and 7.78% respectively. The ethyl acetate and methanol extracts described inhibitor topoisomerase I activity at concentration of 50 μg/ml. Methanol extract was chosen for further study as it resulted highest yield. Minimum inhibitory concentration (MIC) of methanol extract as inhibitor topoisomerase I was 5 μg/ml with camptothecin at concentration of 100 μM (34.84 μg/ml) as positive control. The genotoxicity test showed that methanol extract was not genotoxic. The phytochemical study described that methanol extract of Solanum sp. contained steroid, tannin, and alkaloid. Separation of active extract by thin layer chromatography resulted seven fractions. Further separation of active extract by chromatography column resulted five fractions. Five fractions were detected as inhibitor topoisomerase I and the results showed that M3, M6 and M7 fractions contained inhibitor topoisomerase I activities with minimum inhibitory concentration (MIC) of 5 μg/ml, 5 μg/ml, and 5 μg/ml respectively, with camptothecin at concentration of 100 μM (34.84 μg/ml) as positive control. M3 fraction was chosen for identification of active compound as it resulted highest yield. The phytochemical study described that M3 fraction contained steroid. In addition, GC-MS analysis indicated that the compound of M3 fraction resembles in structure with Cholest-2-en-3-amine,N,N-diethyl-(5 alpha).