doi: 10.4172/1948-5956.10000S12

OMICS Group Conferences
Accelerating Scientific Discovery

International Conference & Exhibition on
Cancer Science & Therapy
15-17 August 2011 Las Vegas, USA

GUC as potential DNA topoisomerase inhibitors to reduce the growth of cervical cancer cells

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Many topoisomerase inhibitors are recently being identified as anticancer agents, capable of interrupt the normal functions of type I and type II topoisomerases needed for the progression of cell division; hence, uncontrolled proliferation of cancerous cells can be hindered. In view of this, we investigated the inhibitory effects of five new synthesized compounds on the activities of topoisomrases I and II , and on the growth of HeLa and Hs27 cells. The growth of HeLa cells was significantly inhibited when the cells were treated with 500 ng/ml and 1000 ng/ml of the compound (PYMBV) for 48 h, resulting to 62.5% ($p<0.05$) and 58.2% cell viability, respectively. This was similar to the growth inhibition of the HeLa cells when treated with different concentrations of the compound (26PANM) for 48 h. The inhibitory effect of the compound (26PANM) on the growth of HeLa cells incubated for 24 h. was significant ($p \leq 0.05$) at all the tested concentrations. For the compound (GUC), inhibition of the growth of HeLa cells treated with 500 and 1000 ng/ml concentrations of this compound for 48 h. was significantly different from control. The compound (MP5NO) significantly inhibited HeLa cells' growth when treated with 500 ng/ml concentration. However, inhibition of the growth of HeLa cells by the compound (26PAN) was not significant for 24 h and 48 h treatments. None of the synthesized compounds was able to inhibit the growth of Hs27 cells incubated for 24 h and 48 h. The observed antiproliferative activity of these compounds against HeLa cells could not be unconnected with their chemical structures. These results suggest that the compound (26PANM), among the synthesized compounds, stands promising as an anticancer drug.

Biography

Hassan Hadi Abdallah has completed his Ph.D at the age of 29 years from Baghdad University and postdoctoral studies from Universiti Sains Malaysia (USM). He is senior lecturer at the school of chemical sciences, USM, Malaysia. He has published more than 20 papers in reputed journals.