OMICS Group Conferences
Accelerating Scientific Discovery

2nd World Congress on
Cancer Science & Therapy

September 10-12, 2012 Hilton San Antonio Airport, USA

Anticancer activity of 1,4-dihydropyridine derivatives

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Small molecules Cancer drugs are powerful medicines that used to treat patients with cancer to destroy cancer cells or from spreading to other areas of the body. The present investigation involved synthesis of a series of 1,4-dihydropyridine derivatives and their anti-cancer activity on Hep G2 (Liver), Hela (Cervical) and MCF-7 (Breast) cancer cells. The 1,4-dihydropyridine derivatives from 4-substituted aromatic aldehyde, ethylacetoacetate and ammonium hydroxide were synthesized according to the method of Hantzsch. The structures of these newly synthesized compounds namely 1a-c, 2a-c and 3a-c are confirmed by IR, ^{1}H and ^{13}C NMR, mass spectrometry and elemental analyses. Compounds 1a-c, 2a-c and 3a-c were found to have anti-cancer activities on HepG2 (Liver), Hela (Cervical), (Breast) cancer cell lines. Their GI50, TGI and Lc50 values were determined. The result of the screening was expressed in terms of GI50 growth inhibitor concentration. Compound 2a is relatively more active than the other compounds on HepG2 (Liver) and MCF7 (Breast). Likewise compound 3a is relatively more active than the other compounds on Hela (Cervical) cancer cells. Our results demonstrate that these compounds have anticancer activities on Hep G2 (Liver), Hela (Cervical) and MCF-7 (Breast) cancer cells.

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