Abstract:

Background: Cancer affects a large number of people annually, and is one of the leading causes of death worldwide.**Objective:** In this study, the aim was to design and synthesis novel series of Amide-Isoxazole derivatives and evaluate their anticancer activity. **Methods:** Coupling reaction of aniline derivatives and Isoxazole carboxylic acid have been done to synthesis Chloro-fluorophenyl-Isoxazole carboxamide TYH17,19,22. The characteristics of the compounds were studied using ^{1}H, ^{13}C-NMR, IR. Anticancer activities of the novel compounds were evaluated by MTS assay against 4 cancer cell lines: liver (Hep3B, HepG2), cervical (HeLa), breast (MCF-7) and normal cell line (Hek293T).**Results:** All synthesized compounds have moderate to potent activities against the cervical (Hela), breast (MCF-7), and liver (Hep3) cancer cell lines. While, the compounds have weak activity against normal cell line (HeK293T), for example IC_{50} µg/ml of TYH19 is 548 times more than IC_{50} µg/ml of DOX to inhibit normal cell lines. Compound TYH-19 was the most potent compound against Hep3B and Hela cancer cell lines with IC_{50} values of 3.621 ±1.56 and 0.107±1.47 µg/ml, respectively. Moreover, compounds TYH- 17 showed potent inhibitory activity against Hep3B with an IC_{50} value of 2.774±053 µg/ml. while, TYH22 was very active against breast cancer cell line (MCF-7). In contrast, very weak or negligible activities were observed against liver cell lines (HepG2). **Conclusion:** compounds TYH17,19,22 is selective for cancer cell line more than DOX and 5-FU, so they are candidate as anticancer drugs in the future.