

Abstract

Introduction and Goal

Cancer is an important disease that its prevalence has increased in the last century, which even in the province of Ardabil has a high prevalence some of its types, such as gastric cancer, which affects many people every year and has psychological, social and economic consequences. So treatment or control of this disease is priority. Today, various methods for controlling and treating cancer are used, most notably chemotherapy. Chemotherapy uses chemical molecules to control cancer. New studies have shown that enamino amides and dihydropyrimidine derivatives have the potential to develop into anticancer compounds. In this project, new derivatives of these two groups are synthesized and their toxicity measured on gastric and breast cancer cell lines.

Materials and Methods

In this project, first β -ketoamide precursors were synthesized by 2,2,6-Trimethyl-1,3-Dioxin -4-one and aromatic amines, and then, seven derivatives of enamino amide and two derivatives of dihydropyrimidine were synthesized and identified by spectroscopic methods of magnetic resonance of the proton, infrared, mass and further evaluated by cytotoxicity assay (MTT Assay) on AGS and MCF-7 cell lines.

Results

According to the results of NMR, FT-IR and MS identification tests, all of the synthesized structures were confirmed and cytotoxic screening test was conducted to evaluate the growth retardation and proliferation of cancer cells. The result showed that B2 derivatives had best effect on AGS and MCF-7 cell lines.

Discussion and conclusion

This study showed that dihydropyrimidine compounds were able to inhibit cancer cells much better than enamino amides. Heterocycle ring of the compounds is very important, and with the linearization, the strength of the compounds severely reduced, electron-rich rings, such as thiazole, increase the efficacy up to 2-fold.

Key words

Cancer, Chemotherapy, Synthesis, Enamino amide, Dihydropyrimidine, MTT