

Original Paper

## Anticancer activity of two novel quinoline compounds on human gastric cancer cells

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### Abstract

**Background and Objective:** Increasing interest has been devoted to the design and discovery of more effective anticancer agents in current medicinal chemistry because of the high prevalence of cancer in different societies and resistance occurrence to existing anticancer drugs. The aim of this study was to evaluate the anticancer activity of two novel quinoline compounds (RQ1 and RQ2) on human gastric cancer cells.

**Methods:** In this descriptive - analytic study, the anticancer effects of the compounds were evaluated by MTT assay. This test was performed on two categories of gastric cancer cells sensitive to Danorubicin (EPG85-257P) and resistant to Danorubicin (EPG85-257RDB). The arresting mechanism in the G2 / M phase of the cell cycle and the induction of apoptosis by the compounds was investigated using the PI test and flow cytometric analysis.

**Results:** Novel quinoline derivatives RQ1 and RQ2 showed good anticancer effects on both sensitive and resistant human gastric cancer cells (IC<sub>50</sub>=25-38μM). Compound RQ2 showed the most cytotoxic activity on the Danorubicin-sensitive cancer cell line with IC<sub>50</sub>=25μM. The percentage of Danorubicin resistant gastric cancer cells (EPG85-257RDB) in the G2 / M phase at 25μM concentration of RQ1 and RQ2 was 35.95 and 34.88, respectively, and 41.1% and 42.89% of these cells, after treatment with 50μM concentration of RQ1 and RQ2 arrested at the G2 / M phase respectively.

**Conclusion:** The two novel quinoline compounds, RQ1 and RQ2 showed strong anticancer effect on both sensitive and resistant human gastric cancer cell lines.

**Keywords:** Cancer, Stomach, Quinoline, Cytotoxicity

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