THIOAMIDE DERIVATIVE-INDUCED CYTOTOXIC EFFECT IN HUMAN LIVER CARCINOMA (HEPG₂) CELLS

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Abstract: Thioamide is an antithyroid drug that has been shown to cross the placental barrier. Use of antithyroid medications in pregnancy may result in fetal hypothyroidism, goiter, and cretinism. The literature review indicated that about 10% of patients taking thioamide drug have skin eruptions, maculespapules, urticaria, dermatitis, fever, and arthralgia. However, the precise mechanisms involved in thioamide toxicity are not well elucidated. In the present study, we use human liver carcinoma (HepG₂) cells as a test model to evaluate the cytotoxicity of three thioamide derivatives. To achieve this goal, cell survival was determined by the means of MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide, a tetrazole) assay. Human liver carcinoma (HepG₂) cells were treated with different doses of thioamide derivative for 48 hours. Results from MTT assay indicate that thioamide derivative gradually reduce the viability of HepG₂ cells in a dose-dependent manner, showing LD₅₀ value of about 13.58, 32, and 38µM, upon 48 h of exposure, respectively. Based on this in vitro, our thioamide derivative appears to be highly cytotoxic to HepG₂ cells.

Keywords: Thioamide derivative, HepG₂ cells; MTT assay, cell viability

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