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název: Vliv sloučenin selenu na proliferaci buněčných linií izolovaných z kolorektálního karcinomu - srovnání vhodnosti použitých metod

(Influence of selenium compounds on proliferation of cell lines derived from colorectal carcinoma - comparison of used assays)

Diplomová práce

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studijní obor: farmacie

Abstract

Selenium has been shown to have anti-cancer properties in both *in vivo* and *in vitro* models including colorectal cancer cells. The effect is dependent on the chemical nature and concentration of the selenium compound used in the study. This work compared the anti-proliferative effects of three selenium compounds, sodium selenite, seleno-L-methionine (SeMet) and Se-(Methyl)selenocysteine (SeMCys) on the colorectal cancer cell lines HT-29, SW480 and SW620, measured by WST, XTT, MTT, Brilliant blue (BB) and Neutral red (NR) assays. Cells were exposed to the selected selenium compounds in the concentration range of 0 – 256 μ M during 48 hours. In all model cell lines, WST and XTT failed to detect cytotoxic effect, with the exception of the highest concentration of selenium compounds tested. Conversely, the metabolic activity of selenium treated cells measured by WST and XTT significantly increased in comparison to untreated controls. MTT, Neutral red and Brilliant blue assays were more sensitive and yielded mutually comparable results, with significant decrease of measured parameters in a concentration-dependent manner. The highest cytotoxic effect was associated with Se-(Methyl)selenocysteine, the lowest with seleno-L-methionine.