ABSTRACT

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Title of diploma thesis: The effect of nerolidol nad valencene on the efficacy of 5-fluorouracil in colon cancer cells

The cancer diseases belong among the most serious diseases on the world. Cytostatics, which are used for treatment, have many side effects and there is a high occurrence of resistance. Therefore scientists are looking for appropriate substances for the combination therapy. Sesquiterpenes, secondary metabolites of plants, could be one of the options.

The aims of this work were to study the influence of cytostatic 5-fluorouracil and two sesquiterpenes, nerolidol and valencene on the proliferation of intestinal cancer cells and to find out the influence of sesquiterpenes on antiproliferative effect of 5-fluorouracil.

Cancer cell line SW-620 derived from the colorectal metastatic carcinoma was used for our experiments. Neutral red uptake tests were used to measure the number of viable cells.

The obtained results showed, that the inhibition of proliferation of cells SW-620 by 5-fluorouracil was concentration and time dependent. *Trans*-nerolidol showed antiproliferative effect even in low concentrations, while valencene inhibited the proliferation of cells only in high concentrations. Combinations of sesquiterpenes with 5-fluorouracil did not increase the antiproliferative effect of cytostatic. *Trans*-nerolidol or valencene with 5-fluorouracil in combination therapy is not suitable for colorectal cancer treatment, probably.