



Radiosensitivity of human breast cancer cell line MCF-7

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Neoplastic diseases are the second most common cause of death in Poland, right after cardiovascular diseases. The most common cancer and the one with the highest mortality in women is breast cancer. Treatment of breast cancer involves surgical removal of the tumour, combined with chemotherapy and/or radiotherapy, but in addition to neoplastic changes, the margin of normal tissues is also damaged. In order to increase the effectiveness of radiotherapy, compounds are sought that would improve the effectiveness of irradiation. Recently, natural compounds of plant origin – polyphenols – have become very popular.

The aim of the research was to check whether naturally occurring compounds from the group of stilbenes (resveratrol (R), piceatannol (ROH) and piceid (RG)) affect the radiosensitivity of breast cancer cells.

The material used in the research was the oestrogen-dependent breast cancer line MCF-7. The cells were pre-incubated with stilbene derivatives at a concentration of 25 μ M for 3 h, and then exposed to ionizing radiation at a dose of 2 or 6 Gy. The cytotoxicity of the compounds and of the compounds in combination with radiation was tested using the MTT assay after 24 and 72 h of incubation.

After 24 h of incubation, a statistically significant decrease was observed in all the variants used in relation to the control, while for the compound itself, a decrease was observed for ROH in combination with a dose of 2 Gy radiation and for ROH combined with both doses of 2 and 6 Gy. After 72 h of incubation, a statistically significant decrease was observed in all variants used, both for the control and for the compounds themselves.