

**INDUCTION OF APOPTOSIS *IN VITRO* USING  
EPIGALLOCATECHIN-3-GALLATE (EGCG) IN SELECTED TUMOUR  
CELLS**

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(-)-Epigallocatechin-3-gallate (EGCG), one of the best recognised polyphenols of plant origin, is present both in green tea and in grapes. Numerous studies performed *in vivo* and *in vitro* demonstrated a highly probable anti-neoplastic potential of the compound, due to its capacity to induce programmed cell death. The aim of our study was to evaluate the extent of apoptosis in the cells of three selected tumour cell lines exposed to the activity of EGCG at various concentrations.

The experiment was performed on cultured lung carcinoma cells (A-549), mammary carcinoma cells (MCF-7) and melanoma cells (BM). The tumour cells were subjected to the action of EGCG at 12.5, 25, 50 or 100 µg/ml in the case of breast carcinoma and melanoma and 25, 50, 100 or 200 µg/ml in the case of lung cancer cells. After 72 h, the DNA damage was assessed and its type was determined using the comet technique.

EGCG was found to induce apoptosis in mammary carcinoma cells at the concentration of 25 µg/ml, while in cells of melanoma or lung carcinoma, no such changes could be detected at EGCG concentrations lower than 50 µg/ml. This suggested that the latter cells were more resistant to polyphenol action. Comparing results obtained for the various tumour cell lines, MCF-7 cells were found to be the most sensitive to the tested damaging compound. The percentage of DNA damage was directly related to the applied concentration of the compound.

The preliminary conclusions confirmed that EGCG is capable of inducing apoptosis in the cells of all the studied tumour cells lines but the intensity of the process is related to the tumour type and the concentration of EGCG.