THE CYTOTOXIC ACTIVITY OF DRY EXTRACT FROM FLOWERS OF KEN'S FLAME DAHLIA VARIETY STUDIED ON AN IN VITRO MODEL OF HUMAN LIVER CELL CULTURE

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Introduction. Considering the literature data on the presence of anthocyanins in the composition of dahlia flowers, as well as information about the known pharmacological effects of this group of substances, it can be assumed that extracts obtained from flowers of *Ken's Flame* dahlia variety containing a sum of anthocyanins can show both cytotoxic activity and increase cell proliferation in culture.

The purpose of the study. The purpose of this study was to determine the presence and degree of manifestation of the cytotoxic / pro-proliferative activity of aqueous solutions of an extract obtained from Ken's Flame variety dahlia flowers on an *in vitro* model of human liver cell culture.

Materials and methods. The dry extract, provided for research, was received at the NuPh Botany Department under the supervision of prof. Gontova T.M. An experimental study was performed using a culture of human liver cells by means of the Nitro Blue Tetrazolium (NBT) Reduction test. Cells were incubated with test aqueous solutions of dahlia extract for 48 and 72 hours. The 0.5; 0.25; 0.125; 0.063; 0.03; 0.015% concentrations of the extract were investigated. Simultaneously, control samples of cells were incubated with buffer solution instead of the test solutions. Cell survival upon contact with the test solutions was determined spectrophotometrically and calculated using the formula: (OD of the experimental well / OD of the control well)*100%.

Results obtained. Solutions of dry dahlia flower extract at concentrations of 0.015 – 0.03%, when they contacted with cells for 48 hours, stimulated cell proliferation in culture, increasing the viability index to 127.99 and 138.78% ($p<0.05$), respectively. An aqueous solution of the extract at a concentration of 0.063% did not have a significant effect on the viability of human liver cells at an exposure of 48 hours. Solutions of the extract in concentrations of 0.125 – 0.5%, with an exposure for 48 hours, reduced the viability of cells in culture. The most significant cytostatic effect was established for a concentration of 0.25% – 64.06% ($p<0.05$). An increase of the contact time of dahlia flower extract solutions with cells up to 72 hours resulted in a significant decrease in the number of viable cells.

Conclusions. Thus, the estimation of the viability of human liver cells in a culture cells by means of the NBT test showed that the ability of a cell culture to restore tetrazolium in the presence of aqueous extracts from dahlia flowers of *Ken's Flame* variety has dose and time dependence. Solutions of dry extract from dahlia flowers in concentrations of 0.015; 0.03; 0.063% do not have a cytotoxic effect on the viability of human liver cells in all the studied exposures and are potentially non-toxic.