TOXICOLOGICAL STUDY OF THE DRY EXTRACT FROM THE *KEN'S FLAME DAHLIA* HERBS ON THE *IN VITRO* MODEL OF RAT RED BONE MARROW CELLS

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Anthocyanins are phenolic substances of a group of flavonoids that color fruits, leaves and petals of plants in colors ranging from pink to black and purple and have a wide range of biological activity. The actual problem of modern pharmacy is the search for promising plants with a high content of anthocyanins to create herbal medicines based on them. Considering the literature data on the presence of anthocyanins in the composition of dahlia herbs, as well as information about the known pharmacological effects of this group of substances, plants of the dahlia variety from the family Asteraceae are of scientific interest. The purpose of the study was to determine the presence and severity of the basic cytotoxic activity of aqueous solutions of extract obtained from the herb of the Ken's Flame dahlia, on the model of rat bone marrow (RBM) cells in vitro.

The dry extract, provided for research, was received at the NuPh Botany Department under the supervision of prof. Gontova T.M. The dry extract was dissolved in a saline solution. An experimental study was performed using native RBM cells. The following concentrations of the extract – 1%; 0,5%; 0,25%; 0,125%; 0,0625% – at exposures of 15, 45, 90 minutes were analized. To determine the viability of cells the method of microscopy after staining with trypan blue was used. Native RBM cells in saline solution were used as a control.

The results obtained indicate that the viability of red bone marrow cells is influenced by the concentration of the test extract and the time of its contact with the cells (exposure). Thus, an aqueous solution of dry extract from dahlia herbs at a concentration of 1% caused an increase in the number of dead cells by 72–84% ($p<0,05$) in all investigated exposures. A concentration of 0,5% solution of the dry extract from dahlia herbs increased cell death by 51–68% ($p<0,05$) as the exposure time increased. Concentrations of 0,125 and 0,25% did not have a basic cytotoxic effect when exposed to cells for 15 minutes, but had toxic properties at exposures of 45 and 90 minutes, causing a decrease in cell viability by 11–23 and 30–55% ($p<0,05$), respectively. Contact 0,063% solution of dry extract of dahlia herbs with RBM cells for 15 minutes had a cytoprotective effect (caused a decrease in the number of dead cells by 5%, $p<0,05$) and had no significant effect at 45 and 90 minutes.

Thus the cytotoxic effect of the dry extract obtained from the herbs of *Ken's Fflame* dahlia variety has a dose and time dependence. Aqueous solutions in concentrations of 0,063% had no significant effect on the viability of RBM cells in all studied exposures and they are potentially non-toxic. The solutions of dry extract from dahlia herb at concentrations of 0,125–1,00% have a basic cytotoxic effect, which significance depends on the exposure.