IN VITRO CYTOTOXIC EFFECT OF DRY EXTRACT OBTAINED FROM THE FLOWERS OF KEN'S FLAME DAHLIA VARIETY

Shakina L. O., Maloshtan L. M.
National University of Pharmacy, Kharkiv, Ukraine
Department of Human Physiology and Anatomy
LyubovZ2003@gmail.com

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 epy flowers of *Ken's Flame* dahlia variety containing a sum of anthocyanins may exhibit antioxidant, cytotoxic, antimicrobial, anti-inflammatory activity. According to the methodological recommendations, before the pharmacological study of a new perspective drug substance, it is obligatory to study its toxicity, which allows to evaluate the degree of its safety.

The purpose of the study. The purpose of this study was to determine the presence and degree of manifestation of the cytotoxic activity of aqueous solutions of an extract obtained from *Ken's Flame* dahlia variety flowers on an *in vitro* model of rat bone marrow (RBM) cells.

Materials and methods. 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. The experimental study was performed using native RBM cells suspension to which an equal volume of test solutions were added. The concentrations 1; 0.5; 0.25; 0.125; 0.0625% of the extract at the exposures of 15, 45, 90 min. were investigated. Native RBM cells in saline solution were used as a control. To determine the viability of cells the method of microscopy was used after staining with 0.1% solution of the Trypan Blue. Differences were considered significant at $p<0.05$.

Results obtained. Solutions of dry dahlia flower extract at concentrations of 0.063% and 0.125% did not have a significant effect on the RBM cells viability throughout the study period; the percentage of cell death did not exceed 10%. The concentration of 0.25% led to an increase of the dead cells number to 27.00–56.67% ($p<0.05$) with an increase of cytotoxic effect proportionally to the exposure time. Under the influence the concentration of 0.5% the number of dead cells in all studied exposures exceeded the threshold of 60% ($p<0.05$). The 1% aqueous solution of dry extract increased the number of dead cells to 78,00–83,00% ($p<0,05$) at the exposure of 15 - 90 minute.

Conclusions. The cytotoxic effect of the dry extract obtained from the flowers of *Ken's Fflame* dahlia variety has a dose and time dependence. Aqueous solutions in concentrations of 0.063% and 0.125% don't have a damaging effect on the RBM cells in all the studied exposures and are potentially non-toxic.