ANTIPROLIFERATIVE ACTIVITY OF XANTHOTOXIN: POTENTIAL USE ON GLIOMA THERAPY

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The cancer is an important cause of mortality in Brazil. Gliomas are the most common and lethal primary malignant brain tumors, and have been studied for a long time; nevertheless the impact of technological advances on clinical outcome has not been satisfactory. The usual drugs are not able to provide significant increase on the survival of patients, mainly because of drug resistance. Then, researches to find new drugs are necessary. Plant-derived substances have been considered important sources of prototypes of drugs, including antineoplasic agents, and furanocoumarin-derived molecules have been pointed as having antiproliferative activity. Hence, a simple, but useful model was developed to study this property on Xanthotoxin, a second metabolite of *Zantoxylum tingoassuiba*, and its possible future application on therapy. Murine glioma C6 cells and normal astroglial cells from rats were exposed to the substance (for 48 hours), and MTT assay was performed to measure cell viability. Human glioblastoma GL-15 cells were also submitted to the same test for comparison. There were decreases of 17% and 40% on cell viability on C6 and GL-15 cells (respectively) at 400 µM Xanthotoxin. Normal cells were not affected. Phase contrast microscopy showed no changes in morphology of cells, but confluence was reduced. Proliferation curves were plotted for each cell type by using Trypan blue exclusion test. The results suggested an antiproliferative effect, notable and significant in the tumor cells (> 90% of proliferation inhibition 400 µM), but discrete in normal cells (< 20%). In conclusion, Xanthotoxin is a good candidate as a prototype for new chemoterapic agent, especially for glioma therapy, and it is indicated for *in vivo* tests with this target.

Key words: Glioma, Xanthotoxin, Antiproliferative