

Cytotoxicity of glyphosate studied in selected human cell lines

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Introduction: Glyphosate is a phosphonate herbicide, which has been used for 35 years and it is still the most widely used herbicide in the world. The development of modern methods of in vitro toxicological analysis and the obvious increase in exposure to glyphosate have made it an increasingly studied xenobiotic. The widespread use of pesticides, especially glyphosate, causes it to be largely released into the environment, where it poses a threat to entire ecosystems.

Methods: In our research, we focused on the best research model from the point of view of toxicology, which are human cell lines, which were used in order to test the cytotoxicity of glyphosate. The tested concentrations of this compound reflected the level of human exposure to this active substance and ranged from 0.01 μ M to 10 μ M. The analyzes were conducted on human cell lines: MCF-7, T98G and DLD-1. In order to estimate cytotoxicity of herbicide MTT assay was used.

Results: A significant increase in cancer cell viability was observed under the influence of studied concentrations of glyphosate. The effect was significant especially under the influence of lower studied concentrations.

Conclusion: The obtained results indicate the carcinogenic and tumor cell-stimulating effects of glyphosate. This indicates the need for prudent use and monitoring of glyphosate in the environment due to its potentially hazardous effects on human health.