

# Impact of Biogenic Ag-Containing Nanoparticles on Germination Rate, Growth, Physiological, Biochemical Parameters, and Antioxidants System of Tomato (*Solanum tuberosum* L.) In Vitro

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## Abstract

This research aimed to investigate the interrelationship of carbohydrate metabolism parameters and immunohistochemical characteristics of glial tumors. Tumor tissue, peritumoral area, and adjacent noncancerous tissue fragments of 20 patients with gliomas of varying degrees of anaplasia were analyzed. The greatest differences in the carbohydrate metabolism compared to adjacent noncancerous tissues were identified in the tumor tissue: reduction in the levels of lactate and glycogen synthase kinase-3 $\beta$ . Significant differences with adjacent noncancerous tissues for the peritumoral zone were not found. The activity of the carbohydrate metabolism enzymes was different depending on the immunohistochemical glioma profile, especially from Ki 67 level. Bioinformatic analysis of the interactions of immunohistochemical markers of gliomas and carbohydrate metabolism enzymes using the databases of STRING, BioGrid, and Signor revealed the presence of biologically significant interactions with glycogen synthase kinase 3 $\beta$ , hexokinase, glucose-6-phosphate dehydrogenase, and transketolase. The established interconnection of glycolysis with methylation of the promoter of O-6-methylguanine-DNA-methyltransferase (MGMT) of gliomas can be used to increase chemotherapy efficiency.

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## Biography

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