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### The relative balance between acetylcholine and dopamine systems in the nucleus accumbens shell mediates morphine-induced behavioral sensitization in rat

This study investigate the in vitro effects of newly synthesized hydrazones of N-piroylcarboxylic acid on isolated rat brain synaptosomes. The main parameters, characterized the functional status of synaptosomes: synaptosomal viability and depletion of reduced glutathione (GSH), were measured. Administered alone, all the compounds (at concentration 50  $\mu$ M) revealed statistically significant neurotoxic effects on the synaptosomes, compared to the control (non-treated synaptosomes). With lower toxic effects were compound DI5a and DI5g. These compounds (DI5a and DI5g) were examined for possible neuroprotective effects in a model of 6-hydroxydopamine (6-OHDA)-induced oxidative stress. The treatment of isolated rat brain synaptosomes with 6-OHDA is a reliable and commonly used in vitro model for the investigation of processes, which play role in the neurodegenerative disease, including Parkinson's and Alzheimer's disease. The mechanism of 6-OHDA neurotoxicity includes the formation of ROS and reactive metabolites, as a result of its metabolism in mitochondria of the neuronal cells. In conditions of 6-OH-dopamine-induced oxidative stress (at concentration 150  $\mu$ M) on isolated rat synaptosomes, DI5a and DI5g (at concentration 50  $\mu$ M) revealed statistically significant neuroprotective effects by preservation the synaptosomal viability (measured by MTT-test), and GSH deletion, compared to the toxic agent.

#### Biography

Yoanna Koedzhikova is currently pursuing her Pharmacy at Faculty of Pharmacy of Medical University of Sofia. She has a long standing interest in Pharmacology and Toxicology and has worked over this scientific project to establish a scientifically important results over the influence of these new chemical compounds on the rat synaptosomes. She also has a deep knowledge in the sphere of preclinical and clinical studies of toxicity.

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