between particles. That is proven by the fact, that the crystals grown from the diluted solution do not demonstrate this shift.

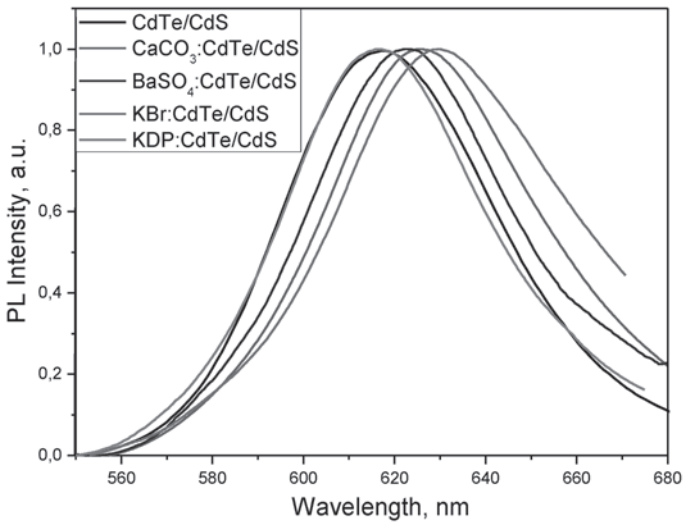

Figure. Normalized PL spectra of starting CdTe/CdS solution and composite crystals.

Encapsulation of nanoparticles by other solid matrices caused a bathochromic shift in the luminescence peak. Interband quantum transition theory was used to explain influence of the matrix on the luminescence properties of the capsulated CdTe QDs.

Panasenko N.V.

SYNTHESIS AND EVALUATION OF HYPOGLYCEMIC ACTIVITY OF NEW PYRAZOLOTHIAZOLIDINE HYBRID STRUCTURES

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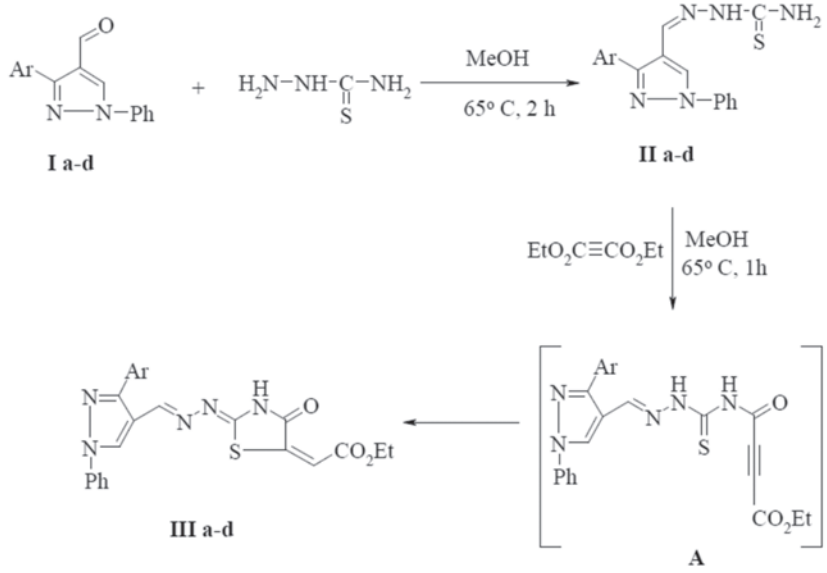
In recent years the search for new effective and safe antidiabetic (hypoglycemic) medicinal products for therapy of type 2 diabetes mellitus (DM-II) has become especially important. The key leading compounds for creating antidiabetic agents were found to be synthesized on the basis of pyrazole and thiazolidine scaffolds.

In this context the recently obtained results showing high hypoglycemic activity of hybrid platforms formed from pyrazole and 1,3-thiazolidine cyclical fragments seem especially interesting. Taking into account the fact that inclusion of two molecular chemotypes in one hybrid molecule is quite productive for constructing bioactive compounds, the subject of this study is related to the synthesis, evaluation of hypoglycemic activity and probable action mechanism of new pyrazole-thiazolidine structures connected by hydrazone bridge.

3-Aryl-4-formylpyrazoles I a-d with pharmacophoric aryl and pyridine substituents in the position 3 of the heterocycle were chosen as basic substrates for synthesis of the target hybrid compounds. Structural modification of their formyl group with thiosemicarbazide in boiling methanol in the presence of catalytic agent, acetic acid, was successfully used to synthesize (with yields of 73-83 %) the corresponding thiosemicarbazones II a-d – ambident bicenter reagents for further formation of thiazolidine nucleus. It was shown that their 1-hour cyclocondensation with acetylenedicarboxylic acid diethyl ester, a reagent that is highly electrophilic and widely used in heterocyclic synthesis [36], is highly regioselective and leads to previously undescribed (1,3-thiazolidine-5-ylidene)hydrazones of 3-arylpyrazole-4-carbaldehydes III a-d with yields of 82-93 % (Diagram). Taking into account results of the studies, it can be soundly assumed that this interaction is carried out through a stage of primary acylation of compounds II a-d thiourea group with formation of intermediates A.

Their further intramolecular 1,5-*exo-trig*-cyclization promotes formation of the key compounds thiazolidine nucleus.



Ar = 3-ClC_6H_4 (a), 3-$MeOC_6H_4$ (в), 3-$F_2CHOC_6H_4$ (c), 3-Pyridyl (d)

The structure of synthesized compounds III a-d corresponds to the results of their IR, ^1H (^{13}C) NMR and chromato-mass-spectra analysis.

Velyka A.Ya.

BIOCHEMICAL CHANGES OCCURRING IN KIDNEY TISSUES DURING EXPERIMENTAL NEPHROPATHY

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The kidney is an organ capable of changing excretion intensity of water and ions as well as ensuring the composition stability of internal fluids in a wide range and with high selectivity. Various issues related to the heavy metal nephropathy alone or in combination with the water or salt load are of great interest in the context of nephrology, toxicology and/or kidney tissues histology. The aim of this study was to provide biochemical evaluation of the water and salt load influencing the content of the oxidate modified proteins and lipids in the rat kidney under experimental nephropathy followed by additional histological analysis of kidney tissues.

The study was conducted on the white nonlinear adult male rats with weight 180±10 g. The animals were subdivided into eight different groups and were kept in the vivarium at stable temperature and lighting. The water and salt loads were injected by the metal probe 2 hours before euthanasia. The kidneys were taken out of the decapitated rats as soon as possible, dried by the filter paper and separated into three layers: cortex, medulla and papilla. Then the free-radical oxidation conditions of lipids and proteins were determined in the post-nuclear supernatants by the content of TBA-RP and the oxide-modified proteins products (OMP-P). A Mikel Calvo bromphenol blue staining method was used for histochemical evaluation of the OMP-P samples and “ColorPic” software was employed for computer spectrometry of the histological microsections. The R/B coefficient representing a ratio between red (R, acidic proteins) and blue (B, basic proteins) staining of the cytoplasm was used to characterize a degree of the oxidative modification of proteins.

The study has found that the content of TBA-RP in the morning samples of kidney tissues changes under both water and salt loads while contents of the OMP-P remain almost unchanged. Regardless of the sampling time, both types of the loads cause moderate changes in the oxidative modification of proteins.

Injection of mercury chloride followed by water and/or salt load results in activation of the free-radical oxidation of proteins due to the damaging of cell membranes.