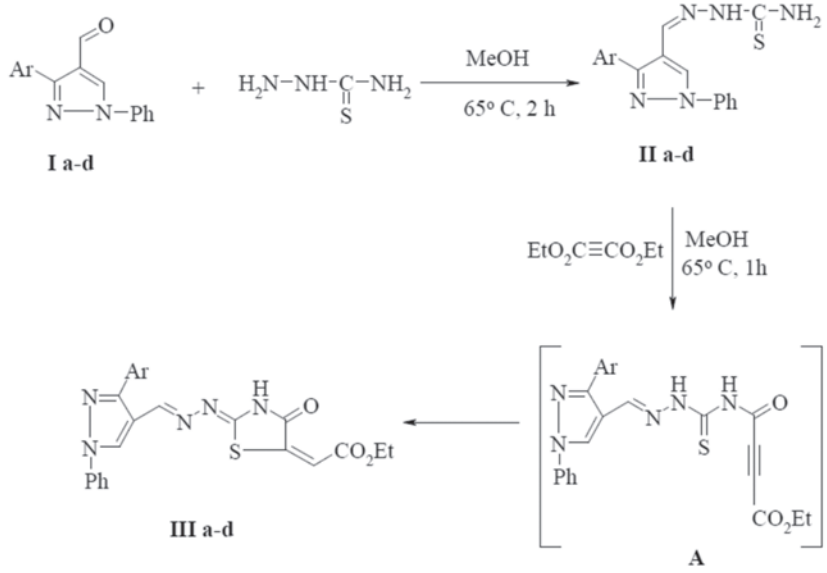
Their further intramolecular 1,5-*exo-trig*-cyclization promotes formation of the key compounds thiazolidine nucleus.



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.

The value of the oxide proteins modification index can show important information related to pathogenesis and histology of kidney tissues.

In general, it can be concluded that only moderate and reversible morphological changes were found in kidney tissues that underwent 5 % water and 3 % salt load while no morphological changes were found in the tissues after 0.75 % salt load. These morphological changes are well coordinated with histochemical data of the oxidative modification of proteins.

A classical necrotic nephrosis has been found in animals after the mercury chloride intoxication. The nephrosis symptoms were more severe at 8 pm comparing to those at 8 am. Besides, the nephrosis symptoms were relieved partially by the water load while 3 % salt load caused worsening of kidney tissues injury especially in case of the 8 pm results. No significant changes in the nephrosis symptoms were found after additional 0.75 % salt load. These results are also well coordinated with the histochemical data related to oxidative modification of proteins. Therefore, it can be concluded that the water load can provide some relieving effect on the mercury chloride nephrosis while the salt load results in further aggravation of its symptoms.

Winkler I. A.

PRELIMINARY SCREENING OF MIXED ORGANIC SOLVENT-DERIVED ALCOHOLS IN HUMAN BLOOD SAMPLES BY A NON-SPECIFIC FORENSIC GAS CHROMATOGRAPHY METHOD

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The determination of alcohol content in live blood, corpse blood, or other bio liquids is a routine part of forensic investigations and a regular traffic police practice worldwide. According to the legislation of Ukraine, gas-chromatography (GC) is recognized in the juridical practice as a method which must be employed in forensic investigations. It was found before, that the alcohols present in some mixed organic solvents (MOS) are forming the well detectable chromatography responses during the regular GC determination of the ethanol presence in human blood. The current study presents a semi-quantitative method that can be used for a preliminary screening of the MOS-derived alcohols present in the human blood samples.

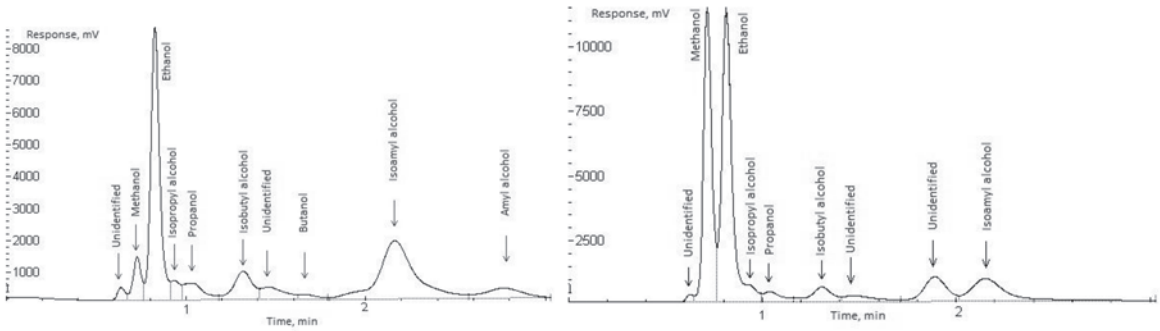

Figure. The GC patterns of the ‘646’ (left) and ‘647’ (right) MOS. The solvents content in the samples was 1 ‰.

As seen from the comparison between the left and right GC patterns shown in the Figure 1 above, there is a clear difference between the ‘646’ and ‘647’ chromatography patterns. Both solvents form a distinct ethanolic peak while the former shows a very small peak of methanol and rather well-noticeable peak of isoamyl alcohol. On the contrary, the methanolic peak of the ‘647’ solvent is comparable with its ethanolic peak while the GC response of isoamyl alcohol is quite weak.

Thus such difference can be used as a distinctive sign between these two MOS. The greater is a response of methanol and, simultaneously, weaker is the peak of isoamyl alcohol, the more likely is the presence of the ‘647’ solvent in the blood sample and vice versa.