

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
ВИЩИЙ ДЕРЖАВНИЙ НАВЧАЛЬНИЙ ЗАКЛАД УКРАЇНИ  
«БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



## **МАТЕРІАЛИ**

**101 – ї**

**підсумкової наукової конференції**

**професорсько-викладацького персоналу**

**Вищого державного навчального закладу України**

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У збірнику представлені матеріали 101 – ї підсумкової наукової конференції професорсько-викладацького персоналу вищого державного навчального закладу України «Буковинський державний медичний університет» (м.Чернівці, 10, 12, 17 лютого 2020 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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compounds **3a-f** can be used with a 2.5-fold rather than 8-fold excess of  $\text{POCl}_3$  and reaction time is shortened from 4 to 2 h.

Since a carboxyl function is more acceptable than an ester for subsequent modification the esters **4a-f** were converted using basic hydrolysis to the acids **5a-f** in close to quantitative yields. Moreover, in the case of compound **4e** the aryl substituent ester group is also hydrolyzed to form the diacid **5e**.

**Bratenko M.K.**

**MODERN ORGANIC SYNTHESIS OF  
 PYRAZOLO[3,4-*e*][1,2,3]TRIAZOLO[1,5-*a*]DIAZEPINE-3-CARBOXAMIDES**

*Department of Medical and Pharmaceutical Chemistry*

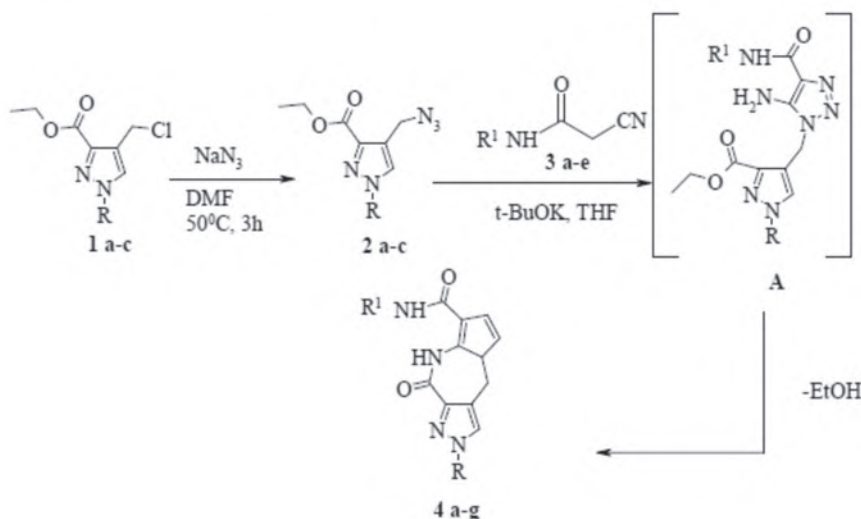
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Tandem reactions are an effective tool in modern organic synthesis that has been successfully used to construct a variety of acyclic, carbo- and heterocyclic systems. In the field of heterocyclic compound chemistry, for instance, tandem condensation of alkyl 2-azidobenzoates with activated acetonitriles is a basis for efficient synthesis of [1,2,3]triazolo[1,5-*a*]quinazoline derivatives, such as the known selective serotonin 5-HT<sub>6</sub> receptor antagonists and inhibitors of the biosynthesis of teichoic acid, a component of a cell wall of many gram-positive bacteria. Among the azidobenzoate pyrazole analogs such transformations are described only for ethyl 5-azido-1-methyl-4-pyrazolecarboxylate, reaction of which with activated nitriles gave 3-substituted pyrazolo-[4,3-*e*][1,2,3]triazolo[1,5-*a*]pyrimidines. To us it seemed worthwhile to exploit the synthetic potential of tandem reactions of other pyrazole functional derivatives with cyanoacetic acid amides to obtain new condensed heterocyclic compounds.

In this work, 4-(azidomethyl) pyrazole-3-carboxylic acid esters **2a-c**, formed in essentially quantitative yields by reacting 4-chloromethylpyrazole-3-carboxylic acid ethyl ester **1a-c** with sodium azide in DMF solution at 50°C, were studied as potential substrates for tandem condensation reactions.

Scheme



1a, 2a, 4a,b R = Me; 1b, 2b, 4c-e R = Ph; 1c, 2c, 4f,g R = 4-BrC<sub>6</sub>H<sub>4</sub>; 3a, 4c R<sub>1</sub> = H;  
 3b, 4d R<sub>1</sub> = Ph; 3c, 4a R<sub>1</sub> = 4-ClC<sub>6</sub>H<sub>4</sub>; 3d, 4b,e,f R<sub>1</sub> = 4-MeC<sub>6</sub>H<sub>4</sub>; 3e, 4g R<sub>1</sub> = 4-MeOC<sub>6</sub>H<sub>4</sub>

A characteristic of compounds **2a-c** is the location of the azide group in the  $\gamma$ -position relative to the ester group, which is an important prerequisite for the formation of a seven-membered heterocyclic system. Of the compounds with this placement of substituents, only 2-azidobenzylacetate have been previously used in cyclocondensation with cyanoacetamide.



We have found that 4-(azidomethyl)pyrazole-3-carboxylic acid esters 2a-c react with cyanoacetamides 3a-e in refluxing THF in the presence of *t*-BuOK, forming pyrazolo-[3,4-*e*][1,2,3]triazolo[1,5-*a*]diazepine-3-carboxamides 4a-g in 53-67% yields. This transformation is presumably an example of a tandem reaction that begins with the cycloaddition to the azido group of a carbanion, generated from cyanoacetamide, and the formation of an intermediate polyfunctional triazole A, susceptible to the formation of the diazepine cycle due to the intramolecular attack of the triazole amino group on the ethoxycarbonyl group of the pyrazole ring.

**Chernyukh O.G.**

**ESTIMATION OF THE RENAL CONDITION BY GLOMERULAR FILTRATION RATE  
IN THE PREGNANT WITH PREECLAMPSY**

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The majority of experimentally reliable examinations of glomerular filtration rate (GFR) is based on intravenous infusion of such exogenous markers as inulin, iotalamate, iohexol. However, the main method to estimate GFR used in clinical practice is detection of creatinine clearance (CC) considering its availability and low cost.

We divided the patients into four groups depending on the volume of diuresis (*V<sub>n</sub>*): I group – *V<sub>n</sub>* up to 1000ml (6 examinations); II group – *V<sub>n</sub>* from 1100 to 2000 ml (23 examinations); III – *V<sub>n</sub>* from 2100 to 3000 ml (24 examinations); IV – *V<sub>n</sub>* more than 3100 ml (8 examinations).

Average values of GFR, tubular reabsorption, minute diuresis, daily proteinuria, creatinine concentration in the blood serum and urine and their mean-quadratic variations in these groups were detected.

Proteinuria (more than 2,0 g per day) is indicative of renal failure developed against the ground of preeclampsia of various degree. Two diametrically opposite by the volume of diuresis groups - I and IV ones –were in the risk group according to this sign. The value of daily diuresis was taken as a criterion of distribution into the groups. It was II group with the optimal value of diuresis without the signs of poly- and initial oliguria which became the control one. Considering the fact that the majority in the distribution of medical signs, especially in small samplings, is not normal, non-parametric methods of variation statistics were applied in statistical processing: Wilkinson-Mann-Whitney and Craskell-Wallis criteria.

The comparison of all the groups found a reliable difference ( $p < 0.05$ ) in the indices of minute diuresis, urine creatinine, GFR and tubular reabsorption. The value of proteinuria and concentration of blood creatinine are only individual characteristics for every patient.

**Davydova N.V.**

**INFLUENCE OF MELATONIN ON THE LEVEL OF CERULOPLASMIN IN RATS'  
BLOOD UNDER ALCOHOLIC INTOXICATION AGAINST THE GROUND OF  
PERMANENT LIGHT EXPOSURE**

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The vast majority of the adult population of most societies consume alcohol to some degree. Ukraine ranks fifth in the world in alcohol consumption per capita. Numerous experimental and clinical studies have found out that activation of free radical oxidation of biomolecules is at the basis of ethanol toxic effects on the organism.

In modern life, the use of ethanol is often combined with the influence of other harmful factors, such as the violation of light regime. A modern person is exposed to light almost all the time. Night shifts, flights, jet lag and active nightlife contribute to the disturbance of circadian rhythms. Normally, the biological rhythms are regulated by melatonin, which is known to be