

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



МАТЕРІАЛИ

**105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ
присвяченої 80-річчю БДМУ
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Матеріали підсумкової 105-ї науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) – Чернівці: Медуніверситет, 2024. – 477 с. іл.

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У збірнику представлені матеріали 105-ї підсумкової науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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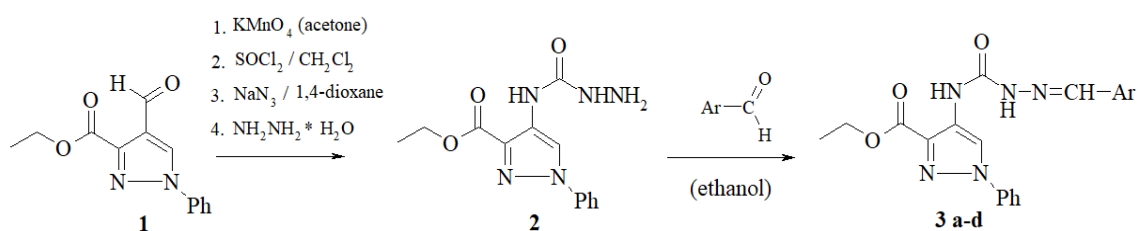
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The aim of the study. To develop conditions for the synthesis of previously undescribed 4-pyrazolylsemicarbazides. To study the conditions of condensation of the latter with aromatic and heterocyclic aldehydes and to study the antimicrobial activity of the synthesized semicarbazides.

Materials and Methods. All the reagents were of "reagent" purity and were used in the experiments without further purification. All the solvents used in this work were purified according to standard methods. Initial 4-pyrazolecarbaldehydes were synthesized by experimental methods.

Results. The synthetic aspect of the problem was solved by a five-stage transformation of the available basic substrate - 4-pyrazolecarbaldehydes **1** into semicarbazones **3a-d**, which were isolated with yields of 67-92%. The composition and structure of the intermediate and target compounds were confirmed by elemental analysis data and chromato-mass, ¹H NMR spectra. The antimicrobial activity of synthesized semicarbazones was screened against a number of test strains of gram-positive and gram-negative bacteria and fungi.



Ar = 3-ClC₆H₄ (a), 3-MeOC₆H₄ (b), 3-F₂CHOC₆H₄ (c), 3-Pyridyl (d)

Conclusions. The initial microbiological screening of the synthesized compounds found the presence of a pronounced antimicrobial and antifungal effect among them and showed the prospects of their further comprehensive study.

Velyka A.Ya.

CHANGES IN THE EXCRETORY FUNCTION OF THE RAT KIDNEYS UNDER WATER AND SALT LOADING

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Introduction. The stability of water-salt metabolism is a prerequisite for normal vital activity of the body. After drinking water or when there is an excess of water in the body, the concentration of soluble osmotically active substances in the blood decreases, and its osmolality decreases. It reduces the activity of central osmoreceptors located within the supraoptic nucleus of the hypothalamus, as well as peripheral osmoreceptors found in the liver, kidney, and other organs, which contribute to a decrease in the secretion of ADH (antidiuretic hormone) by the neurohypophysis and an increase in water excretion by the kidney. When the body is dehydrated, and a hypertonic sodium chloride solution is injected into the vascular bed, the concentration of osmotically active substances in the blood plasma increases, osmoreceptors are excited, ADH secretion and water absorption in the tubules increases, urine output decreases, and osmotically concentrated urine is excreted. Changes in kidney function are realized at the level of tubular reabsorption and activation of secretion and do not depend on kidney damage. Therefore, it is crucial to study the excretory function of the rat kidneys under water and salt loading.

The aim of the study. This study is aimed to determine the effect of water and salt loading on the excretory function of rat kidneys.

Material and Methods. The study was conducted on white nonlinear sexually mature male rats weighing 180 ± 10 g. Water-salt loading was performed 2 hours before euthanasia, intragastrically through a metal probe. Urine was collected within 2 hours after loading, and the diuresis rate was determined (ml / 2 h / 100 g of body weight). The functional state of the kidneys was studied under conditions of spontaneous diuresis and water loading. The glomerular filtration

rate (GFR) was estimated by the clearance of endogenous creatinine, which was calculated according to the formula: $C_{cr} = U_{cr} \cdot V/P_{cr}$, where U_{cr} and P_{cr} are the concentrations of creatinine in urine and plasma, respectively.

Results. The studies showed that under conditions of spontaneous diuresis and water loading, there was 13% increase in the value of diuresis itself compared to the control. There was observed 50% increase in the rate of glomerular filtration in rats against the background of water loading compared to the control. With salt loading, there was 26% increase in GFR relative to control by 30%, respectively. At the same time, with water loading, the index of water reabsorption remained within the normal range, and the concentration of creatinine in urine slightly decreased. No changes were observed in the excretion of potassium ions with urine compared with the control against the background of water loading. There were no significant changes in protein concentration, which indicated that water loading didn't cause significant disturbances in the function of the renal glomerular apparatus. Under salt loading, changes in the excretory function of the kidneys were somewhat pronounced, which manifested itself in an increase in diuresis by about 1.1 times compared to the control. Diuresis increased due to an increase in the rate of glomerular filtration, which increased by 1.2 times, due to an increase in the clearance of endogenous creatinine during salt loading. The concentration and excretion of potassium ions increased significantly compared to the control only at salt loading by 1.4 times. Salt loading also increased protein concentration by 2.5 times.

Conclusions. Water loading was found to lead to an increase in diuresis as a result of an increase in GFR. The increase in the concentration and excretion of sodium was primarily a consequence of a decrease in its tubular reabsorption. Although at the same time, considering the changes in creatinine excretion and in the calculations of tubular filtration in animals administered with sodium chloride, there was also an increase in tubular filtration with a simultaneous increase in filtration charge of sodium.

Winkler I.A.

COAL-BASED MINERAL MIXTURES AS DECONTAMINATION AGENTS FOR LOW-TONNAGE WASTEWATER DISCHARGES

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Introduction. A significant part of the total water contamination comes from various low-capacity sources such as isolated local drainage systems, car filling, washing and service stations, and other objects not connected to the centralized sewage system. The impact of each such facility may not be serious as it does not produce a significant amount of pollution, but when several of them discharge their waste/drainage water into the same small river or stream, the cumulative effect can be devastating. Small rivers bring pollutions to the larger rivers they merge with and, as the transport network develops, this problem becomes more and more acute.

The aim of the study. To check the efficiency of a 4:1 mixture of coal sludge and technical pyrocarbon to be used as an adsorbent in the decontamination of low-scale wastewater discharges from small car filling/washing/service facilities.

Materials and methods. The investigation was done with the surface water samples taken from a small river of Kalichanka near its confluence with a larger river of Prut and from the Prut within the city limits of Chernivtsi, Ukraine. All the samples were taken in the dry weather from the surface water in such a way as to avoid their additional pollution with the river mud and other similar materials. The sludge with an ash content of 43.1 % and a moisture content of 15.3 % obtained after refining the "T" brand coal was used as a mosaic surface (hydrophilic/hydrophobic areas) component, and technical pyrocarbon with an ash content of 28 % and a moisture content of 1.6 % obtained after pyrolysis of mixed polymer waste was used as a hydrophobic component of the adsorption composition. The component's (sludge/pyrocarbon) mass content in the mixture was 4:1.