МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

М А Т Е Р І А Л И

105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ
присвяченої 80-річчю БДМУ
05, 07, 12 лютого 2024 року

Конференція внесена до Реєстру заходів безперервного професійного розвитку, які проводитимуться у 2024 році № 3700679

Чернівці – 2024

УДК 001:378.12(477.85)
ББК 72:74.58
М 34

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.

ББК 72:74.58

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.

ISBN 978-617-519-077-7

eliminate the effects of peroxide damage to biomolecules, which is accompanied by a violation of biochemical and physiological processes and the development of pathology.

The aim of the study. To determine the effect of melatonin on catalase activity in the blood of rats with toxic hepatitis under the conditions of different functional activity of the pineal gland.

Material and methods. Experimental studies were carried out on white non-linear male rats weighing 180±10 g. For 14 days before the beginning and throughout the experiment, the animals were kept under different lighting conditions (corresponding to the various functional activity of the pineal gland): group A - normal function - (12 hours of light: 12 hours of darkness); group B – hypofunction - (24 hours of light: 0 hours of darkness); group C - hyperfunction - (0 hours of light: 24 hours of darkness). Daylight lamps with an intensity of 1500 lux were used in the experiment.

On the 15th day from the beginning of the experiment, subgroups were formed in each group of animals: I - control - continued to be kept under the appropriate conditions of the light regime; II – animals were injected intragastrically twice (every other day) with a 50% oily solution of tetrachloromethane at a dose of 0.25 ml/100 g of mass; III – against the background of tetrachloromethane intoxication (see subgroup II), during the next 7 days, the animals received melatonin (daily at 8 a.m. a solution (3 mg/100 g of body weight) was administered intragastrically). Animals were euthanized by decapitation under light ether anesthesia at 8 a.m. Blood catalase activity was determined by the amount of hydrogen peroxide used in the reaction and expressed in μmol/h ·mg of protein. Statistical processing of the obtained results was carried out using the Student's parametric t-test. The difference in results at $p<0.05$ was considered statistically significant.

Results. After analyzing the obtained results, it was established that the activity of catalase in the blood of rats changes under conditions of different duration of the photoperiod, namely, in comparison with animals of the AI group, the activity was 14.6% lower in the BI group and 6% higher in the CI group. Under the conditions of intoxication of rats with hepatotoxin, a tendency to a decrease in enzyme activity was observed in all groups of animals: by 10% in group AII, by 14.6% in group BII and by 9% in group CII compared to the respective control groups. When exogenous melatonin was administered, the activity of the enzyme increased by 17% in animals of group AIII (which was 6% higher than that of group AI), by 14% in animals of group BIII, and by 13% in animals of group CIII. In general, it should be noted the negative effect of 24-hour, two-week light exposure on blood catalase activity. However, keeping animals in 24-hour darkness contributed to an increase in enzyme activity, especially under the conditions of exogenous melatonin administration.

Conclusions. The toxic effect of tetrachloromethane combines a direct effect on the functioning of hepatocytes and the activation of oxidation processes in the body as a whole. This effect increases against the background of insufficient synthesis of melatonin by the pineal gland (round-the-clock experimental exposure to light). Against the background of such changes, exogenously administered melatonin helps to restore the activity of the enzyme in the blood. Probable mechanisms of realization of this effect of the hormone are its action as a direct scavenger of reactive oxygen species, protection of the enzyme from oxidation and reduction of the total oxidant load on the body with activation of the glutathione antioxidant system.

Panasenko N.V.

SYNTHESIS AND ANTIMICROBIAL ACTIVITY OF PYRAZULUM-CONTAINING SEMICARBAZONES

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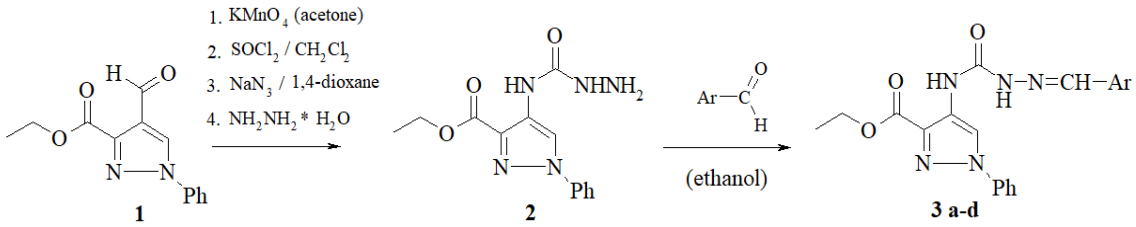
Introduction . Semicarbazones are important intermediates for the creation of drugs, as well as effective organocatalysts. In addition, such synthetic drugs as Dantrolen, Etoperidon, Glisoxepid, Nitrofurantoin contain both exo- and endocyclic fragments of the semicarbazide system.

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, ^{1}H 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-ClC$_6$H$_4$ (a), 3-MeOC$_6$H$_4$ (в), 3-F$_2$CHOC$_6$H$_4$ (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