

## ABSTRACT&amp;REFERENCES

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## THE EFFECT OF MICROELEMENTS ON THE ACTIVITIES OF PEROXIDASE AND POLYPHENOLOXIDASE IN EGGPLANT LEAVES AND FRUIT

p. 4-7

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*The influence of microelements (B, Zn, Cu, Co, Mn) on the peroxidase and polyphenol oxidase activity in eggplant leaves and fruit was studied. Activity of the enzymes under the study varies in different phases of plant vegetation. It can be explained by the fact that eggplant bears the technically, physiologically mature and crude fruit as well as buds and blossoms together. In both the control and microelement group with the increase of the peroxidases activity the polyphenol oxidase activity decreases. Compared to the control group the polyphenol oxidase activity increased the most in the phase of vegetation of 4–5 leaves, after treatment with boron and then with cobalt. Boron and zinc have similar action on the enzyme activity. Under the action of boron the polyphenol oxidases activity especially increases in the phase of vegetation of 4–5 leaves and in the later phase decreases. The peroxidase activity changes accordingly. After pre-sowing treatment of eggplant seeds with zinc the peroxidase activity decreases in leaves (in their early phase of vegetable) and fruit. It reaches its maximum in leaves in the fruit bearing period. Under the influence of copper and cobalt the peroxidase activity in fruit increases. In leaves it increases in the late phase of vegetation. The Mn influence on the activity of polyphenol oxidase is less in the early phase of vegetation than in the late phase. In eggplants with the increase of polyphenol oxidase activity the peroxidase activity decreases*

**Keywords:** eggplant, peroxidase, polyphenol oxidase, microelements, cobalt, zinc, boron, enzyme, activity

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## HEMATOLOGICAL INDICATORS OF RATS FOR ARTIFICIAL HYPOBIOSIS

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*The use of hypobiotic state in the medical practice is rather urgent in the modern world. Three most important conditions of creation of artificial hypobiosis are: hypoxia, hypothermia and hypercapnia. The most important parameters that characterize homeostasis of the organism at artificially created conditions of hypobiosis are hematological indices. White non-pedigreed male rats with the mass 180–200 g, kept in standard vivarium conditions, were used for the experiment. Animals were divided in groups: control (intact animals) and experimental ones – the first group (artificial hypobiosis), the second group in 24 hours after going out from artificial hypobiosis. The number of animals in each group n=5. Experiments were realized according to requirements of the “European convention about protection of vertebral animals, used for experimental and other scientific needs” (Strasbourg, France, 1985),*

*general ethic principles of experiments on animals, accepted by the First national congress of Ukraine on bioethics (2001). As a result of realized studies there was demonstrated the essential increase of erythrocytes and platelets together with the decrease of the leucocytes content. Under conditions of hypoxia and hypercapnia the growth of the erythrocytes level can be explained by the increase of the carbonic acid level, and the platelets level grows because of the decrease of blood fluidity at artificial hypobiosis*

**Keywords:** hypobiosis, hypercapnia, hypoxia, erythrocyte, lymphocyte, platelet, blood, rats, hematology, leucocyte

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## POTENTIOMETRIC DETERMINATION OF ANTIOXIDANT ACTIVITY OF EXTRACTS OF CALENDULA OFFICINALIS L. PLANTS UNDER THE INFLUENCE OF GROWTH BIOSTIMULANTS

p. 10–13

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*There was determined the integral antioxidant activity of water and alcohol extracts of racemes of Calendula officinalis L. plants of the variety "Poliova krasunya". Plants were cultivated in Precarpathian zone of Ukraine at the learning-research plot of Drohobych state pedagogical university, named after Ivan Franko at introduction of growth biostimulants "Vermibiomag", "Vermiiodis" and "Vermistim". The determination of antioxidant activity was realized by the potentiometric method, modified in the authors' research using mediator system, based on the method of Brainina and co-authors and Aronbaev and co-authors. It was elucidated, that alcohol extracts of C. officinalis plants demonstrate antioxidant activity 1,5–1,6 times higher than water ones. Plants, cultivated under the effect of biostimulants have the higher antioxidant activity comparing with the control (without introducing biostimulants). Introduction of "Verbiomag" biostimulator to a greatest extent favored the growth of antioxidant activity of both alcohol (by 22,9 % more than the control) and water extracts (by 24,2 % higher than the control)*

**Keywords:** *Calendula officinalis L., biostimulants of growth, potentiometric method, antioxidant activity, oxidation-reducing potential*

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**DETERMINATION OF BIOCHEMICAL INDICATORS OF THE FUNCTIONAL STATE OF LIVERS OF WHITE RATS FOR ONE-TIME INTERNAL INTRA-ABDOMINAL ADMINISTRATION OF THE MIXTURE OF NANOPARTICLES OF METALS (Ag, Cu, Fe, MnO<sub>2</sub>)**

p. 14-22

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*There was established the hepatotoxic effect of the mixture of colloid dispersions of nanoparticles of metals (mixture NPMe: Ag, Cu, Fe, MnO<sub>2</sub>) compared with the mixture of salts of correspondent metals at the one-time intra-abdominal administration to white rats that has the expressed dose-depending effect. Mechanisms of the hepatotoxic effect of NPMe mixture is doses 1,0, 2,0 and 4,0 mg/kg of a body mass are in formation of the oxidation stress in an animal organism that is accompanied by the increase of enzyme activity of indicative AsAt and HGT and catalase, inhibition of ALAT, AP and general AOA (p≤0,05). The intensification of urea formation along with the increase of the glucose level (p≤0,05) in plasma of rats that received NPMe in increased doses indicates the evident intensification of processes of elimination of nanoparticles that is in the direct proportion to the time of admission and energetic supply of animals. At the absence of prooxidant effect and regulation of indicators of AOS in rats’ organisms it was proved, that NPMe mixture in dose 0,3 mg/kg of a body mass is biocompatible and has the adaptogenic effect compared with salts of correspondent metals that colloid dispersions of nanoparticles of essential metals can be considered as a prospective substance of drugs and components of fodder additives*

**Keywords:** nanoparticles of metals, rats, toxicity, bio-compatibility, liver, peroxide oxidation of lipids, oxidative modification of proteins, enzymes

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## FIBRINOGEN AND PROTHROMBIN BLOOD CONTENT UNDER ISCHEMIC STROKE COMPLICATED BY TYPE 2 DIABETES MELLITUS

p. 23-26

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*The article is dedicated to evaluation of general clinical and some hemostatic parameters (fibrinogen, soluble fibrin monomeric complexes and prothrombin content) of patients with ischemic stroke under presence or absence of type 2 diabetes mellitus. It has been established that diabetes mellitus patients with ischemic stroke are more likely to have hyperlipidemia, peripheral vascular disease and high body mass index. The conducted research has established the statistically significant changes of fibrinogen and soluble fibrin monomer complexes (SFMC) levels under both investigated pathologies (ischemic stroke and ischemic stroke complicated by insulin-independent diabetes mellitus). SFMC, the early marker of thrombophilia, was significantly higher compared to the reference values in case of stroke as well as stroke with diabetes. It was established that fibrinogen indexes were higher under IS with DM, whereas SFMC had more deviated meanings comparing with the control parameters under ischemic stroke alone. The higher SFMC level in acute phase of stroke independently of diabetes present was a statistically confirmed predictor of mortality.*

*Nevertheless statistically significant differences of fibrinogen and SFMC levels in patients with ischemic stroke and IS+DM were not detected and there were no differences of protrombin content neither comparing with the control nor between the studied pathologies. The obtained results have shown that ischemic stroke with and without type 2 diabetes mellitus are characterized by similar changes of the investigated hemostasis parameters*

**Keywords:** ischemic stroke, type 2 diabetes mellitus, fibrinogen, prothrombin

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#### EXPERIMENTAL STUDY OF THE EFFECTS OF SPORTS TOURISM ON THE LEVEL OF THE DEVELOPMENT OF PHYSICAL TRAINING OF TEENAGERS

p. 27-30

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*Sports tourism in Ukraine is an important component of the general state system of physical culture and sport.*

*The problem of physical training of teenagers, who practice tourism remains for today the most urgent among foreign and native scientists, who study this subject of attention specially and within the research of sports training of young tourists.*

*The study included 46 pupils of 5–6 classes of the following educational institutions: Ss 40 and Ss 170 of the city Kyiv with the deep studying of German, the ascertaining experiment took place in 2016.*

*For determining the development level of school children's physical training there were used valid and reliable methods, which results gave a possibility to collect qualitative and quantitative materials.*

*The criteria of formation of teenagers' physical culture are: force features; flexibility, endurance; adroitness; ability to jump; speed, – expressed by indicators, which manifestation measure characterizes more or less degree of a criterion expression that, in its turn, helps to determine levels of formation of young teenagers' physical culture.*

*The authors separated three levels of formation of teenager's physical culture: high, middle, low.*

*The analysis of the level of physical training of teenagers of I group revealed that 50 % of studied persons have the high level, 36,4 % of interrogated persons have the middle level, 13,6 % of respondents relate to the low one.*

*The diagnostic results of the health level of teenagers of I group demonstrated that 59,1 % of studied persons have the high level, 36,4 % - the middle level, 4,5 % of interrogated persons – the low level.*

*The analysis of the level of physical training of teenagers of II group revealed that 16,7 % of studied persons have the high level, 45,8 % of interrogated persons have the middle level, 37,5 % of respondents relate to the low one*

**Keywords:** sports tourism, teenagers, health, physical training, sport, musculoskeletal system

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**DISTRIBUTION, BIOLOGY AND STATUS OF POPULATION OF NEOGOBIUS MELANOSTOMUS LEGS AND THRIVER (ZOSTERISSESSOR OPHIOCEPHALUS) IN SHABOLATSKY LIMAN**

p. 31-36

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*There was studied the modern condition of populations of main industrial species of goby fish in Shabolatsky liman. The ecological catastrophe took place in 1992. As a result of the global suffocation, mass death of bottom fish (especially, gobies) was observed in the Southern-Western part of the water body. In the further period the ecological condition of Shabolatsky liman worsened because of the limited link with the sea. Several physical-chemical parameters of the water environment changed: salinity increased, organic content in water and bottom sediments grew, transparency decreased. The oxygen content in the near-bottom horizon decreased, hydrogen sulfide emissions were observed.*

*The anthropogenic transformation of the liman ecosystem influenced qualitative and quantitative indicators of main groups of hydrobionts. The biological diversity and biomass of animal plankton and zoobenthos decreased, associations of macrophytes disappeared, the bloom of liman was observed the whole year round as a result of the progressing eutrophication.*

*The renewal of the liman ecosystem took place only in 1997-2003. The reconstruction and continuous work of channels that connect Shabolatsky and Dnestrovsky limans and the regular work of a maritime channel provided normalization of the hydrologic-hydrochemical regime, restoration of biocenoses and forage reserve.*

*The anthropogenic transformation of the ecosystem of Shabolatsky liman was reflected on population characteristics of melanostomus legs and thriver – the most mass species of neogobius in the liman. Their distribution in the liman water area, age and size-mass structure of populations, fatness, reproduction effectiveness and nutrition features changed. Most of these indicators differ from the previous period today. Along with it the received characteristics of neogobius melanostomus legs and thriver testify to the fact that their population in Shabolatsky liman is gradually renewed last years and its condition essentially improves*

**Keywords:** water body transformation, neogobius, melanostomus legs, thriver; population structure, age, size-mass

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