ABSTRACT&REFERENCES

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RESEARCH OF INFLUENCE OF CONTRASTING TROPHIC CONDITIONS OF VERNALIZATION ON THE MITOTIC ACTIVITY OF MERISTEMS, GROWTH AND DEVELOPMENT OF WINTER WHEAT

p. 4-9

Olga Avksentiieva, PhD, Associate professor, Department of Plant and Microorganisms, Physiology and Biochemistry, V. N. Karazin Kharkiv National University, Svobody sq., 4, Kharkiv, Ukraine, 61022
E-mail: avksentyeva@karazin.ua
ORCID: *http://orcid.org/0000-0002-3274-3410*

Shulik Victoria, Department of Plant and Microorganisms Physiology and Biochemistry, V. N. Karazin Kharkiv National University, Svobody sq., 4, Kharkiv, Ukraine, 61022
E-mail: viktoria.shulik@karazin.ua
ORCID: *http://orcid.org/0000-0003-2172-7279*

The work is devoted to the most important physiological and selective sign of winter soft wheat Triticum aestivum L. – vernalization.

Aim. *The main aim of the work was the study of trophic factor influence on the effectiveness of vernalization process.*

Methods. *In experiments were used the varieties of winter wheat – Statna and Doridna. The contrasting conditions of trophic support were created by vernalization on integral seeds (control) and isolated buds (experiment) adding water and 3-% solution of saccharose during 45 days at temperature 3±1 °C. In experiments there was studied the influence of contrasting trophic conditions of vernalization on the mitotic activity of root meristems of vernalized sprouts, their growth reaction and rates of ontogenetic development of plants, cultivated from vernalized sprouts. All experiments were carried out under conditions of vegetative experiment in factorostatic chamber of the department of physiology and biochemistry of plants and microorganisms of Kharkiv national university, named after V. N. Karazin.*

Results. *According to the results of researches, it was established that the growth reaction of sprouts at vernalization depends on their variety specific characteristics and on trophic factors presence. It was demonstrated that 3 % solution of saccharose at vernalization stimulates proliferative activity of root meristems of both winter wheat varieties but doesn't influences the parameter – duration of mitosis phases. The presence of trophic factors in sprouts at vernalization conditions the speed of phenophases passage and transfer to generative development of both winter wheat varieties. The vernalized sprouts of Doridna variety are characterized with higher parameters of mitotic activity of root apical meristems, accumulation of biomass of sprouts at vernalization influence and longer vegetative period comparing with Statna.*

Conclusion. *The trophic conditions of vernalization process cause proliferative activity of meristems, growth reaction of sprouts and speed of transfer to generative development that is effectiveness of vernalization*

Keywords: *Triticum aestivum L., vernalization, trophic factors, proliferative activity, growth reaction, development rates*

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ANALYSIS OF MORPHOLOGICAL CHANGEABILITY OF SARDELLE (CLUPEONELLA CULTRIVENTRIS, NORDMANN, 1840) OF DNIPRO-BUGH MOUTH SYSTEM

p. 9-13

Konstantin Geina, PhD, Senior Researcher, Department of study of bioresources of reservoirs, Institute of Fisheries of the National Academy of Agrarian Sciences of Ukraine, Obukhivs'ka str., 135, Kyiv, Ukraine, 03164
E-mail: Geina_k@mail.ru
ORCID: *http://orcid.org/0000-0003-3010-775X*

Svetlana Shashlykova, Postgraduate student, Department of Aquatic Bioresources and Aquaculture, Kherson State Agrarian University, Rozy Lyuksemburh str., 23, Kherson, Ukraine, 73006
E-mail: lana.shashlykova@mail.ru
ORCID: *http://orcid.org/0000-0002-1710-4565*

The regulation of the natural channel of Dnipro, which beginning took place in the first half of fifties of previous century, caused the cardinal worsening of hydrobiocenosis condition of Dnipro-Bugh mouth system. The transformational processes that last till today are attended with the changes of main biological characteristics of ichthyocenosis, where sardelle - Clupeonella cultriventris (Nordmann, 1840) was always the most numerous representative of herring.

In this connection the aim of research was formed – to analyze the main morphological features of sardelle from Dnipro-Bugh mouth system under modern conditions, to compare them with the literary data of previous century and to trace the possible changes of body proportions in time. At that the certain attention was paid to detection of sex dimorphism in herd.

For attaining the set aim, the correspondent volume of scientific-research works was carried out using the methods and instructions, generally recognized in ichthyological practice. The morphological changeability was determined by Student t-criterion (t_d) taking into account the actual volume of sampling (n)and significance level ($p<0,05$).

The analysis of meristic signs of sardelle demonstrated that the fin formulas are the following: D – III–IV (M=3,46±0,06) 7–12 (M=9,67±0,18); A – III-IV (M=3,44±0,06) 10–18 (M=13,06±0,22); P – 11–17 (M=13,17±0,16); V – 6–11 (M=8,60±0,15); C II (IV) (M=2,09±0,05) 19–26 (M=21,93±0,16), and the number of abdominal spinules is 24–28 (M=25,94±0,16).

It was established, that the most essential changes of body proportions in sardelle in the process of Dnipro channel transformation take place by the indices of anteventral distance ($t_d=10,06$; $p<0,05$) and breast fins length($t_d=10,99$; $p<0,05$). The existence of sex dimorphism in herd was proved. Among 20 analyzed plastic signs the reliable difference was revealed by 12 indices, but it was more significant by the most body height, antepectral distance and abdominal fins length – $t_d=4,5–6,8$ ($p<0,05$)

Keywords*: Dnipro-Bugh mouth system, sardelle, meristic, plastic signs, morphological changeability*

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INVESTIGATION OF THE INFLUENCE OF SALICYLIC ACID ON THE CAUSES OF BACTERIAL DIAGNOSTICS OF TOMATOES

p. 14-18

Yulia Kolomiets, PhD, Associate Professor, Department of environmental biotechnology and biodiversity, National University of Life and Environmental Sciences of Ukraine, Geroyiv Oborony str., 15, Kyiv, Ukraine, 03041
E-mail: julyja@i.ua
ORCID: *http://orcid.org/0000-0002-1919-6336*

The aim *of this work was to investigate the ability of the SA to inhibit the growth of strains of Xanthomonas vesicatoria, Pseudomonas syringae pv. tomato and Clavibacter michiganensis subsp. michiganensis in nutrient media and suppress the development of bacterial*

black spot, bacterial spotting and bacterial cancer in tomato plants in terms of artificial infection.

Methods. *Virulence of strains of X. vesicatoria, P. syringae pv. tomato and C. michiganensis subsp. michiganensis in laboratory environment was determined by artificial infection of stalks and leaves of tomato plants by injection. Accounting of strains aggression was carried out using the 10-point scale. SA on bacteria was studied by perforation method.*

Result. *The author has established antibacterial effect of salicylic acid on the pathogens of tomato bacterial cancer, black bacterial spot and bacterial spotting in the medium, and its potential possibilities of disease inhibition in terms of artificial inoculation. It is established an authoritative increase in areas of stunted growth of pathogen strains with salicylic acid in proportion with the increase of its concentration. SA application has reduced the degree of development of tomato bacterial diseases by 8–65 % in terms of the artificial inoculation. Spraying tomato plants with SA solution was more effective than root soaking.*

Conclusions. *SA solutions showed high antibacterial activity against pathogens of bacterial cancer C. michiganensis subsp. michiganensis and bacterial black spot X. vesicatoria with no growth zone of 70–80 mm. Increased SA concentrations caused the increased effectiveness of inhibition of tomato plants bacterial diseases*

Keywords*: tomatoes, agents of bacterial diseases, salicylic acid, antibacterial activity, plant protection*

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RESEARCH OF INFLUENCE OF TRIGONELLA FOENUM GRAECUM L. ON ANTIOXIDANT ENZYMES ACTIVITY IN HIGH CALORIE DIET-INDUCED OBESE RATS

p. 18-24

Victoria Konopelniuk, PhD, Senior researcher, SRL "Physico-Chemical Biology", department of Experimental Biology, ESC "Institute of Biology and Medicine", Taras Shevchenko Kyiv National University, Volodymyrska str., 64/13, Kyiv, Ukraine, 01601
E-mail: konopelnyuk@rambler.ru
ORCID: *http://orcid.org/0000-0002-5945-9719*

Aim *The present study was undertaken with an objective to examine the effects of powder seeds Trigonella foenum graecum L on adipose tissue weight gain and disfunction antioxidant enzymes induced by high calorie diet and its reduction by adding 2 % of fenugreek seed*

Methods *The activity of superoxide dismutase and catalase were determined according to Sirota and Korolyuk methods. The activities of glutathione peroxidase was estimated according to methods described by Razygraev.*

Result *It was shown increase fat mass and dysfunction of antioxidant system in animals with obese. Addition to HCD 2 % fine powder seeds fenugreek led to normalization of the studied parameters.*

Conclusions *As in the present study beneficial decrease in adipose tissue weight is seen, fenugreek can be accepted as one of the herbal preparation for treating obesity. Further study is needed for exploring the other mechanism of anti-obesity by fenugreek.*

Keywords: *fenugreek, obesity, high calorie diet, rats, adipose tissue, superoxide dismutase, catalase, glutathione peroxidase*

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FLORISTIC RICHNESS AND TAXONOMIC ANALYSIS OF THE FLORA OF THE NATIONAL PARK «BILOBEREZHZHYA SVYATOSLAVA»

p. 24-29

Ganna Trochymenko, PhD, Associate Professor, Department of environmental and occupational safety, Admiral Makarov National University of Shipbuilding, Geroyiv Stalingrada ave., 9, Mykolayiv, Ukraine, 54025
E-mail: antr@ukr.net
ORCID: *http://orcid.org/0000-0002-0835-3551*

Svetlana Melnychuk, Postgraduate student, Department of environmental and occupational safety, Admiral Makarov National University of Shipbuilding, Geroyiv Stalingrada ave., 9, Mykolayiv, Ukraine, 54025
E-mail: SVETA_mel1987@mail.ru
ORCID: *http://orcid.org/0000-0001-7732-8002*

The aim of *the work was to study the floristic richness and systematic structure of the National park "Biloberezhzhya Svyatoslava". The following tasks were set for attaining this aim: to carry out inventorying of the specific composition of flora of the National park "Biloberezhzhya Svyatoslava"; to assess β-diversity and richness of flora the National park "Biloberezhzhya Svyatoslava"; to reveal the*

features of its flora by systematic analysis; to compare the allochtonic and autochtonal factions of flora of the National natural park "Biloberezhzhya Svyatoslava".

Methods: *The material was the list of varieties of the plants of flora of NNP "Biloberezhzhya Svyatoslava", revealed at detail-route studies. The cameral methods were used – processing of herbarium samples, and also the methods of mathematical statistics. The taxon names were given according to Mosyakin S. L & Fedoronchuk M. M.*

Results. *It was revealed that floristic list of flora of the National natural park "Biloberezhzhya Svyatoslava" consists of 595 varieties from 318 genera, 83 families and 4 divisions of vascular plants.*

The studied flora is characterized by most specific richness among the low Dnipro arenas by the level of floristic richness. It is conditioned by geological youth of arena, most diverse soil-hydrological conditions and correspondingly the different types of vegetable covering, unessential anthropogenic influence and most β-diversity.

Autochtonal element of the flora includes 479 varieties from 227 genera, 50 families. Adventive fraction includes 116 varieties from 91 genera, 33 families. Aginosperms play the most important role in flora of the National natural park "Biloberezhzhya Svyatoslava" (98,8 %), vascular sporophytes and gymnospermous plants are only 1,2 % of the general number of varieties. The floristic proportions are: (variety/genus) – 1 (variety/genus) – 3,8 (variety/genus.) – 7,2. Only 19 families of 83 ones of flora of the national park have the high level of specific diversity (7,2), one family has the middle level of specific diversity. 75 % of all flora varieties are concentrated in them. In generic spectrum prevail the monotype genera that are more than a half of the general number of flora varieties, namely 62,9 %, that is caused by the fact that the large number of endemic genera are monotype, and there are many endemic varieties in the composition of studied flora. There are 200 (62,9 %) genera, which specific richness level is low(1,9). Other 118 genera, which specific richness level is high, include 37,2 %. Flora is characterized with significant specific and generic richness and equally tends to both floras of Ancient Mediterranean and to Boreal ones, at that there is observed the strengthening of systematic structure as a result of anthropogenic influence.

Conclusion: For today the studied flora of the National natural park "Biloberezhzhya Svyatoslava" is at the stage of formation at the expanse of invasion of adventives varieties, caused by urbanization of the territory in last decade. However most advents have the wide ecological amplitude, there are eurytopic and indifferent to the different environmental factors.

As a result of the analysis of systematic structure of flora of the National natural park "Biloberezhzhya Svyatoslava" there was revealed, that the combination of ecotypes, different by microclimatic and phytocenotic conditions, on the studied territory mainly causes the formation of essential β-diversity and original rich specific composition on this rather small territory

Keywords: *floristic richness, β-diversity, systematic structure, floristic proportions, aboriginal and adventive fractions*

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THE STUDY OF *ALLIUM URSINUM*. L. POPULATION IN WEST PODILLIA (UKRAINE)

p. 29-33

Nataliia Rubanovska, Assistant, Department of biology and methodology of her teaching, Kamyanets-Podilsky Ivan Ohienko National University, Ohiyenka str., 61, Kamyanets-Podilsky, Ukraine, 32300

E-mail: natalka rubanovs@mail.ru

ORCID: *http://orcid.org/0000-0002-1301-9881*

Allium ursinum L. – Caucasian-European forest variety with disjunctive area, late-spring ephemeroid was studied. It is registered in the Red Book of Ukraine (2009).

The aim of research is the study of A. ursinum L. Variety and the condition of its population under conditions of West Podillia.

The study of A. ursinum L. Cenopopulation was carried out in natural conditions on three model populations.

It was established, that under conditions of West Polillia A. ursinum L. is a typical variety of broad-leaved forests. It grows in the groups of Fagetalia sylvatica order, Isopyro thalictroidis-Carpinetum associations of Carpinion betuli union (corydaletosum cavae and brachypodietosum sylvatici sub-associations) and Asperulo odoratae-Fagetum Sougnez et Thill 1959, Asperulo-Fagion Tüxen 1955, Stellario holosteae-Fagetum Onyshchenko 2009 associations of Fagion sylvaticae R.Tx.et Diem. 1936 union. On the territory of NR "Medobory" this variety occurs also in the groups of Tilio platyphylli-Acerion pseudoplatani union (Aceri platanoidis-Fraxinetum excelsioris and Anthrisco nitidi-Aceretum pseudoplatani associations), it grows on friable generous forest soils with the strong layer of bedding under the fresh conditions of moistening.

The populations of this variety are full-member, ecologically stable. They have the left-side spectrum of age conditions.

The seed productivity of variety has the mean indices: PSP – 55,0±6,9 un., ASP – 44,9±7,2, CSP – 81,2 %.
The territory of studied region was remarkable for significant fragmentation and developing, that is why the changes of natural biocenoses took place. There is observed the degradation of flora complex at the expanse of anthropogenic load: deforestation, littering with industrial and everyday waists; cutting of plants for sale; disturbance and destruction of places of growth as a result of open pits activity; recreational use of forests. So the population, appeared in West Podillia needs permanent control and protection
***Keywords**: Allium ursinum L., systematic, geographical, ecological characteristics, population, protection, West Podillia*

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RESEARCH THE EFFECTIVENESS MICRO-1 BIOPREPARATION AGAINST THE SPRING BARLEY DISEASES UNDER POLISSYA CONDITIONS

p. 34-37

Alexander Chaika, PhD, Associate Professor, Department of Plant Protection, Zhytomyr National Agroecological University, Staryi blvd., 7, Zhytomyr, Ukraine, 10008
E-mail: al_chaika@mail.ru
ORCID: *http://orcid.org/0000-0001-6498-123X*

Svetlana Lapa, PhD, Senior Researcher, Zabolotnogo Institute of Microbiology and Virology of NAS of Ukraine, Akademika Zabolotnogo str., 154, Kyiv, Ukraine, 03143
E-mail: slapa@ukr.net

Tatiana Tymoshchuk, PhD, Associate Professor, Department of Plant Protection, Zhytomyr National Agroecological University, Staryi blvd., 7, Zhytomyr, Ukraine, 10008
E-mail: tat-niktim@ukr.net
ORCID: *http://orcid.org/0000-0001-8980-7334*

Natalia Gritsyuk, PhD, Senior Lecturer, Department of Plant Protection, Zhytomyr National Agroecological University, Staryi blvd., 7, Zhytomyr, Ukraine, 10008
E-mail: tat-niktim@ukr.net
ORCID: *http://orcid.org/0000-0002-4185-7495*

The antagonistic activity of strain B. amyloliquefaciens subsp. plantarum IMB B-7404 (Micro-1) with the titer of 1–3×10^7 CFU/ml in relation to the spring barley leaf spot and root rot has been studied in the field and laboratory conditions. It has been found that the treatment of seeds with biopreparation Micro-1 reduces the development of the ordinary root rot by 51,3 %.
It has been determined that a single spraying of crops with the biopreparation during the tillering phase reduces the development of barley Helminthosporium by 42,5 % and double application during the phase of tillering and earing – by 55,0 % respectively.
A single spraying of spring barley with preparation Micro-1 with the titer of 1–3×10^7 CFU/ml during the tillering phase provides the technical effectiveness against Helminthosporium at 43,8 % and double application during the tillering and earing phase – at 46,8 % respectively.
The application of biopreparation Micro-1 on plantings increases the yield of spring barley grain by 0,35–0,45 t/ha as compared to the control
***Keywords:** Micro-1, spring barley, stableness, disease development, biopreparation, fungicide, rotten stuff, leaf spot, fruitfulness, effectiveness*

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STUDY OF VARIETY COMPOSITION OF MICROORGANISMS IN THE BIOFILM ON THE VASCULAR AND URINARY CATHETERS IN MUITI-FIELD HOSPITAL

p. 38-42

Janna Sobkova, Doctor-bacteriologist of highest category, Microbiological department, Clinic for laboratory diagnostics, National Military Medical Clinical Center "Main Military Clinical Hospital", Gospitalna str., 18, Kyiv, Ukraine, 01133
E-mail: jannasobkova@ukr.net
ORCID: *http://orcid.org/0000-0002-7751-9148*

Galina Filonenko, Postgraduete student, Department of microbiology and epidemiology, Shupyk National Medical Academy of Postgraduate Education, Dorogozhyczka str., 9, Kyiv, Ukraine, 04112; Bacteriologist, State Institution "Scientific and Practical Medical Center for Pediatric Cardiology and Cardiac Surgery of the Ministry of Health of Ukraine", Melnikova str., 24, Kyiv, Ukraine, 04050
E-mail: baklabccc@ukr.net
ORCID: *http://orcid.org/0000-0002-6601-4857*

Olena Surmasheva, MD, Head of laboratory, Laboratory of sanitary microbiology and disinfectology, State Institution "O. M. Marzeyev Institute of public health of NAMS of Ukraine", Popudrenka str., 50, Kyiv, Ukraine, 02094
E-mail: surmasheva_elena@ukr.net

Michailo **Rosada**, PhD, Director, Municipal enterprise "Profdezinfekcia", Degtyarivska str., 25/1, Kyiv, Ukraine, 04119
E-mail: kpddd@ukr.net

Aim. *To analyze the variety composition of microorganisms which colonize the vascular and urinary catheters in patients, who stayed in reanimation and intensive care departments of multi-field hospital.*

Materials and methods: *The study was carried out on the base of multi-field hospital of National military-medical clinical center of ME of Ukraine in 2013-2015. There was determined the frequency of microbial biofilms formation on vascular and urinary catheters. The analysis of colonization of vascular and urinary catheters by causal organisms of infectious complications was realized.*

Results: *The frequency of microbial biofilms creation on vascular catheters was 55,6 %, on urinary ones – 97,7 %. It was established, that in the spectrum of causal organisms of catheter-associated infection in vascular catheters prevailed coagulozonegative staphylococci (29,3 %), whereas in urinary ones - Enterococcus faecalis (31,8 %) of all conventionally pathogenic microorganisms (CPM). The infection, conditioned by Candida fungi was revealed in 11,5 % of cases.*

Conclusions: *At the study of material from vascular catheters, microorganisms were separated mainly in microbial associations, whereas biofilms on uninary catheters were formed by several varieties of microorganisms in most cases. Creation of biofilms on implanted biomaterials gives them the clinical importance, because the infected device acts as a reservoir of pathogenic microorganisms, resistant to the components of immune system and antimicrobial agents*

Keywords: *vascular catheters, urinary catheters, Candida fungi, biofilm, infectious complications*

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THE ANALYSIS OF COGNITIVE PROCESSING SPEED OF PURE TONES DURING THEIR BI- AND MONAURAL PRESENTATION IN MUSICIANS AND NON-MUSICIANS

p. 42-48

Artem Okhrei, Postgraduate student, Department of Physiology and Anatomy, ESC «Institute of Biology and Medicine», Taras Shevchenko National University of Kyiv, Volodymyrska str., 64/13, Kyiv, Ukraine, 01601
E-mail: ochrei.artem@gmail.com
ORCID: *http://orcid.org/0000-0002-4596-1492*

Tetiana Kutsenko, PhD, Associate Professor, Department of Physiology and Anatomy, ESC «Institute of Biology and Medicine», Taras Shevchenko National University of Kyiv, Volodymyrska str., 64/13, Kyiv, Ukraine, 01601
E-mail: kutsenko@univ.kiev.ua

Mykola Makarchuk, Doctor of Biological Sciences, Professor, Department of Physiology and Anatomy, ESC «Institute of Biology and Medicine», Taras Shevchenko National University of Kyiv, Volodymyrska str., 64/13, Kyiv, Ukraine, 01601
E-mail: nikmak@univ.kiev.ua

Aim of research. *The analysis of the tones processing speed of at their bi- and monaural presentation by the parameters of latent periods of auricular cognitive evoked potentials in musicians and non-musicians.*
Methods. *The method of registration of cognitive evoked potentials of auricular modality was used.*
Results of research. *Musicians have shorter latent periods of the components N2 and P3 of cognitive evoked potentials at bi- and monaural presentation of tones. At left-side presentation of tones there were not revealed any differences between musicians and non-musicians as to the latent periods N2, P3, N3. There were not revealed any differences between musicians and non-musicians as to the inter-peak interval N2-P3; the interval N2-N3 is longer in musicians in the right hemisphere at binaural presentation of tones. The amplitude of the component P3 did not differ between groups.*
Conclusions. *At binaural and right-side presentation of tones, musicians process them faster than non-musicians, because the process of stimulus recognition starts earlier in musicians. At the left-side presentation of tones, the differences in their processing speed in musician and non-musicians are not revealed*
Keywords*: cognitive evoked potentials, binaural stimulation, monaural stimulation, musicians, non-musicians*

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COMPARATIVE ANALYSIS OF THE NEMATODE FAUNA OF EPIPHYTIC MOSSES IN RECREATIONAL PARKS OF CHERNIHIV CITY

p. 48-51

Zhylina Tetiana, PhD, Associate professor, Department of Ecology and Nature Conservation, Chernihiv T. G. Shevchenko National Pedagogical University, Get'mana Polubtka str., 53, Chernihiv, Ukraine, 14013
E-mail: zhylinat@mail.ru
ORCID: *http://orcid.org/0000-0001-6614-6684*

Shevchenko Valentyna, PhD, Associate professor, Department of Ecology and Nature Conservation, Chernihiv T. G. Shevchenko National Pedagogical University, Get'mana Polubtka str., 53, Chernihiv, Ukraine, 14013
E-mail: valeosh@rambler.ru
ORCID: *http://orcid.org/0000-0003-2030-1268*

The taxonomic features of the groups of nematode epiphytic mosses of three recreational parks of Chernigov city were studied.
The mosses were collected from the trunks of trees at the height 100–120 cm, and the mean sample was formed. The separation of nematodes was carried out by the funnel method of Baermann, exposition was 48 hours. The separated nematodes were fixed by TAP, and the temporal water-glycerine micropreparations were made. For the analysis of nematode fauna, the share of participation of each variety in fauna composition, frequency of occurrence, taxonomic richness (ST), Menhinik index of specific richness (D_{Mn}), Berger-Parker index (d), Jakkard index(J), Sorencen index (C), Bongers maturity index of nematode groups – MI were calculated.
There were revealed 40 varieties of nematodes that belong to 30 genera, 20 families and 8 orders. 12 (30 %) varieties of nematodes were found to be common for epiphytic mosses of all park zones. The value of Jakkard index between nematode complexes of studied parks didn't exceed 0,48. In nematode groups the most numerous were representatives of Plectidae family.
It was established, that the condition of environment of nematodes of epiphytic mosses is the best at natural boundary "Kordivka" that is testified by the indices of richness (D_{Mn} was 1,80 against 0,71 and 0,62 in other parks) and fauna diversityA (ST was 79 against 58 and 55), low level of dominance (d was 0,26 against 0,42 and 0,39), maturity of groups (MI was 3,18 against 2,27 and 2,58)
Keywords: *epiphytic mosses, nematode fauna, Chernihiv, dominance, similarity indices, maturity index*

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MORPHOLOGY – ANATOMICAL CHARACTERISTIC OF MURRAYA EXOTICA L. PLANT LEAVES OF DIFFERENT AGE CONDITIONS

p. 51-54

Lyudmyla Boyko, PhD, Senior Researcher, Head of Department, Department of Introduction andAcclimatization of Plant, Krivoy Rog Botanical Garden of NAS of Ukraine, Marshaka str., 50, Krivoy Rog, Ukraine, 50089
E-mail: ludmilaboyko@meta.ua
ORCID: *http://orcid.org/0000-0003-3699-6906*

The aim *of research was to reveal the morphology-anatomical features of leaf blade structure of the different age conditions of Murraya exotica.*

The study of morphology-anatomical signs of plants of the different age conditions is important at determination of effectiveness of the variety introduction in new ecological conditions and favors the spread of assortment of resistant plants for the use in greenery planting. Most tropical and subtropical plants have not been studied yet, although they are a source of greenery planting and useful properties.

The object of research *is Murraya exotica L. from Rutaceae Lindl family.*

Morphology-anatomical, comparative and ontogenetic ***methods*** *were used in this research.*

According to the ***results of research****, the differences of leaf blade of juvenile and adult plants were established in both morphological and anatomical structure. Leaves in juvenile plants of the studied variety differ by form and sizes. Micromorphological studies revealed that leaves of the studied variety are anisostomatic in all age conditions, the number of stomas changes with leaf age. At ontogenesis the changes take place in the anatomical structure of leaf blade (epidermis and parenchyma thickness).*

Conclusions*. According to the results of researches, it was established, that Murraya exotica plants in juvenile condition differ from adult ones by leaf form and sizes. The number of stomas in sight, leaf and epidermis thickness at ontogenesis grows from the sprout stage to generative plants. The thickness of columnar parenchyma considerably grows. The gardening coefficient grows in correspondence with age that indicates the more resistance of generative plants to cultivation conditions*

Keywords: *ontogenesis, leaf blade, Murraya exotica, morphological, anatomical structure, stoma, adaptation, introduction*

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