

December 2023

NEWSLETTER

2023

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INSTITUTE FOR BIOLOGICAL RESEARCH "SINIŠA STANKOVIĆ"
NATIONAL INSTITUTE OF THE REPUBLIC OF SERBIA
UNIVERSITY OF BELGRADE



WELCOME WORD

Mirjana Mihailović, Ph.D.

Institute Director

As 2023 draws to a close, I am delighted to reflect on a year of remarkable success and transformation at our Institute. Positioned at the intersection of tradition and innovation, we celebrate 76 years of unwavering commitment to advancing knowledge and contributing to the scientific community. This is a testament to the collective efforts of every member who has played a crucial role in shaping our institute's rich legacy.

This year seven researchers have recently defended their Ph.D. theses, symbolising both individual brilliance and a collective triumph for the Institute. Our researchers remain at the forefront of research, actively engaging in 79 research projects that exemplify our commitment to addressing research and knowledge, but also to tackle real-world challenges. A special commitment is directed towards the SAIGE project, a cornerstone in our transformation journey, dedicated to driving innovation and fostering entrepreneurship.

The exchange of ideas and collaboration continue to be pillars of our success. This year saw the organisation of seminars, lectures by visiting researchers, and active participation in congresses, creating invaluable opportunities to enhance collaborations, share insights, and catalyse new ideas. Understanding the dynamic nature of knowledge, we maintain an unwavering commitment to continual training and education. This ensures our researchers stay at the cutting edge of their fields, contributing meaningfully to the ever-evolving landscape of science. Science popularisation remains very important for us, and the annual Researchers' Night stands as a testament to our commitment to making science accessible to all. By engaging with the community, we aim to inspire curiosity, foster a love for learning, and showcase the incredible work our researchers do.

I extend my gratitude to every member, partner, and advisor for their contributions, dedication, and passion. Together, we will build on our legacy, push the boundaries of knowledge, and shape a future where science thrives.

Welcome to an exciting year ahead!



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OUR YEAR IN NUMBERS

335 EMPLOYEES



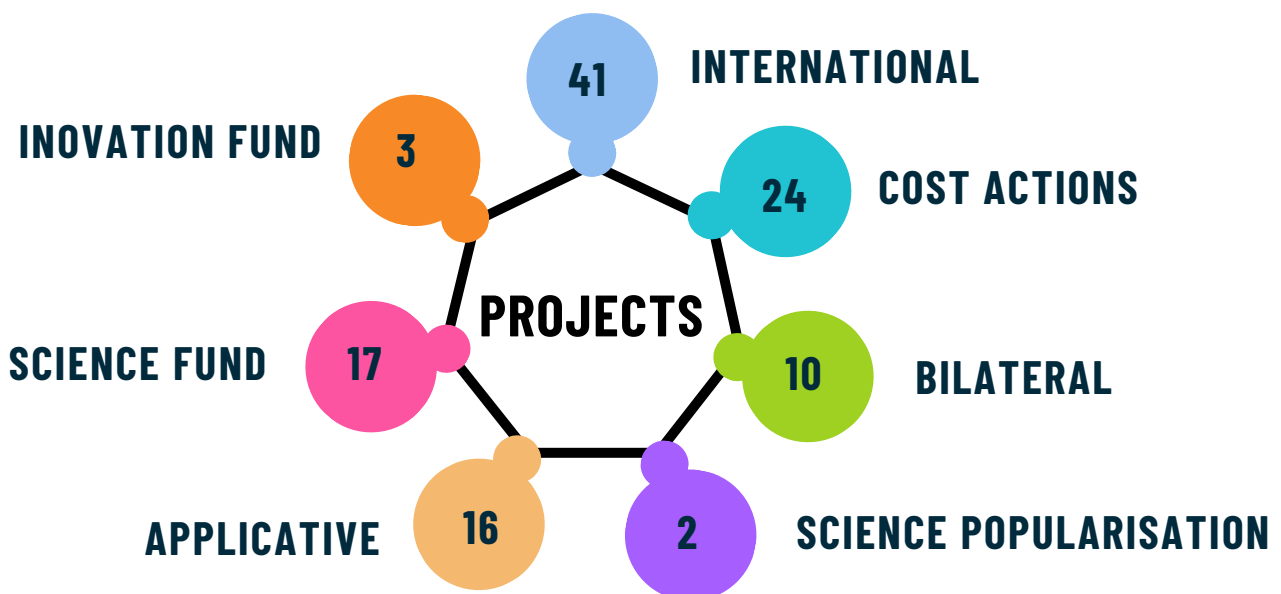
62 Ph.D. STUDENTS

236 Ph.D.

37 ADMINISTRATIVE AND TECHNICAL SUPPORT



219 RESEARCH PAPERS



IBISS DAY

76. YEARS OF DEDICATED RESEARCH IN BIOLOGY

»»» CELEBRATION

On Wednesday, May 31st 2023, the Institute for Biological Research "Siniša Stanković" celebrated 76 years of dedicated work and existence. The institute organised a traditional celebration comprising both scientific and festive elements



»»» CEREMONIAL PART

During the ceremonial part, esteemed guests, including Dr. Jelena Begović, the Minister of Science, Technological Development and Innovation, Academician Zoran Popović, the Vice-President of the Serbian Academy of Sciences and Arts, Prof. Dr. Zorica Vujić, the Vice-Rector for Finance of the University of Belgrade, and Dr. Mirjana Mihailović, the Director of the Institute, addressed the audience.

IBISS DAY SCIENCE TALKS

- Dr. Vladimir Ćirković
Institute for Medical Research
National Institute of the Republic of Serbia,
University of Belgrade
- Dr. Aleksandra Nikolić
Institute of Molecular Genetics and Genetic Engineering of the University of Belgrade
- Dr. Maja Bubić
Institute of Nuclear Sciences "Vinča",
National Institute of the Republic of Serbia,
University of Belgrade
- Dr. Zorana Dobrijević
Institute for the Application of Nuclear Energy

IBISS DAY

IBISS DAY SCIENCE TALKS

- Dr. Milorad Dragić
Faculty of Biology
University of Belgrade
- Dr. Danijela Paunović
Institute for Biological
Research "Siniša
Stanković", National
Institute of the
Republic of Serbia,
University of Belgrade
- Dr. Zorana Miletić
Institute for Biological
Research "Siniša
Stanković", National
Institute of the
Republic of Serbia,
University of Belgrade



➤➤➤ CERTIFICATES OF APPRECIATION

Dr. Mihailović provided a comprehensive overview of the Institute's activities from the previous year. She outlined guidelines for ensuring the continuity and quality of scientific work. Certificates of appreciation were presented to new doctors of biological sciences who had earned this esteemed title during the past year at the Institute.



Ph.D. DEFENCES

DRAGICA MIĆANOVIĆ

from the Department of Immunology defended her doctoral dissertation "Effects of chokeberry fruit water extract on the immune system in mouse models of infection and melanoma"

Mentors: Dr. Tamara Saksida
and Dr. Biljana Božić
Nedeljković



JELENA ĐUKNIĆ

from the Department of Hydroecology and Water Protection defended her doctoral dissertation "Diversity and genetic variability of the *Simuliidae* family (Insecta: Diptera) in the area of the Balkan Peninsula"

Mentors: Prof. Dr. Ivana Živić and
Dr. Nataša Popović

Ph.D. DEFENCES

JELENA RUDIĆ

from the Department of Plant
Physiology defended her
doctoral dissertation
"Superoxide dismutases in
potato (*Solanum tuberosum* L.):
characterisation of isoforms and
expression under high
temperature"

Mentors: Dr. Ivana Momčilović
and Dr. Dušica Janošević



MARIJA ĐORĐEVIĆ

from the Department of Molecular
Biology defended her doctoral
dissertation "Transdifferentiation
of mouse pancreatic alpha to
insulin-producing cells using
EpiCRISPRs directed DNA
methylation"

Mentors: Dr. Jelena Arambašić
Jovanović and Dr Melita Vidaković

PH.D. DEFENCES

BRANKA BAJIĆ

from the Department of Genetic Research "Genetic diversity and population structure of bat flies of the family *Nycteribiidae* and mites of the family *Spinturnicidae*, ectoparasites of the two cavernicolous bat species in Serbia"
Mentors: Dr. Jelena Blagojević and Dr. Milan Paunović



BOJANA MIČIĆ

from the Department of Biochemistry "Contribution of early postnatal overfeeding to metabolic disorders in animal model of polycystic ovary"
Mentors: Dr. Danijela Vojnović Milutinović and Dr. Tanja Jevđović

Ph.D. DEFENCES

KATARINA ĆUKOVIĆ

from the Department of Plant
Physiology defended her doctoral
dissertation "Identification and
expression analysis of genes
involved in somatic
embryogenesis of centaury
(*Centaureum erythraea* Rafn)"

Mentors: Prof. Dr. Svetlana
Radović and Dr. Milica
Bogdanović



NEW PROJECT GRANTS

➤➤➤ APPROVED PROJECTS WITHIN THE PRISMA PROGRAM

The Science Fund of the Republic of Serbia has published the final ranking list of projects for funding under the PRISMA program. IBISS participates in six projects, of which it is the leader in four projects.

Approved projects within the PRISMA program in which IBISS is the leader:

“Employing modern aeroponic technology and stress-protective nanoparticles for improved seed potato production under elevated temperature”, PI: Dr. Ivana Momčilović, Department of Plant Physiology

“Genetic diversity maintenance and population dynamics in natural populations of endangered plant species: Flower color polymorphism in *Iris pumila* L.”, PI: Dr. Danijela Miljković, Department of Evolutionary Biology

“Inflammation-driven cancer repopulation: seeds of progression and platform for therapy”, PI: Dr. Danijela Maksimović-Ivanić, Department of Immunology

“Targeting ferroptosis in diabetes and diabetic complications by hydrogen (per)sulfide”, PI: Dr. Vesna Otašević, Department of Molecular Biology

On two projects, researchers from the Department of Neurobiology, participate in the following projects:

“Development of nature-inspired photoresponsive anticancer agents - sclareol and artemisinin derivatives in cancer multidrugresistance models: a foundation for the theranostic approach”, PI: Prof. Dr. Igor Opsenica, Faculty of Chemistry, University of Belgrade

“Biomimetic tumor engineering to enhance drug discovery”, PI: Prof. Dr. Bojana Obradović, Faculty of Technology and Metallurgy, University of Belgrade

NEW PROJECT GRANTS

»»» ALEXANDER VON HUMBOLDT FOUNDATION PROJECT GRANT

Researchers from the Department of Molecular Biology Dr. Melita Vidaković, Dr. Anja Tolić and Ana Sarić have gained funding for the project "Targeted rewriting of epigenetic marks as a new therapeutic approach in triple negative breast cancers" from Alexander von Humboldt Foundation, German Ministry of Education and Research Foreign Office and German Federal.

»»» SCIENCE POPULARISATION PROJECTS

The Center for the Promotion of Science has announced a public call for applications for financial support for science promotion and popularisation projects. The "BARAmetar" project (PI: Dr. Tanja Vukov, Department of Evolutionary Biology) will promote the preservation of small stagnant waters and the environment, and the "Bean Watchers" project (PI Dr. Mirko Đorđević, Department of Evolutionary Biology) will popularise evolutionary principles, using a modern citizen science approach.

»»» APPROVED PROJECT WITHIN THE PROMIS 2023 PROGRAM

Approved project within the PROMIS 2023 program
The Science Fund of the Republic of Serbia has published the final ranking list of projects for funding under the PROMIS 2023 program. IBISS participates in one project as the leader: "Development under artificial light at night. Biological impact of light pollution on amphibians - ENLIGHT", PI: Dr. Marko Prokić, Department of Physiology.

NEW PROJECT GRANTS

➤➤➤ INNOVATION FUND VOUCHER

"Antitumor potential of the second generation of fullerene derivatives 3HFWC alone and in combination with gold nanoparticles" PI: Dr. Danijela Maksimović-Ivanić, Department of Immunology

➤➤➤ EU FUNDED PROJECT

"Support for further implementation of the River Basin Management Planning in Bosnia and Herzegovina in line with the Water Framework Directive" PI: Dr. Momir Paunović, Department of Hydroecology and Water Protection

➤➤➤ EU FOR GREEN AGENDA IN SERBIA

"Biomass for Energy and Biodiversity (B4EB)" PI: Dr. Maja Raković, Department of Hydroecology and Water Protection and Dr. Uroš Živković, Department of Evolutionary Biology

➤➤➤ WWF ADRIA

AquaμPlaS "Microplastics in aquatic ecosystems of Serbia - monitoring and legal frameworks" PI: Aleksandar Vlajić, Group for the Development of Environmental Awareness and Dr. Maja Raković, Department of Hydroecology and Water Protection

➤➤➤ INNOVATION FUND VOUCHER

"Commercial application of ddPCR in wastewater-based epidemiology" PI: Dr. Stojimir Kolarević, Department of Hydroecology and Water Protection

NEW PROJECT GRANTS

➤➤➤ EU FUNDED PROJECT

“Support to Implementation and Monitoring of Water Management, Montenegro” PI: Dr. Momir Paunović, Department of Hydroecology and Water Protection

➤➤➤ EU FOR GREEN AGENDA IN SERBIA

“Path to successful decarbonization through green cassette roofs” PI: Dr. Ljiljana Tubić, Department of Plant Physiology

➤➤➤ SECRETARIAT FOR CONVENTION ON BIOLOGICAL DIVERSITY

“Enhancing Collaboration between the CEE and Central Asia's Centres of Excellence to Address the Key Drivers of Biodiversity Loss and Maintain Human, Crop and Livestock Health” PI: Dr. Galina Mozgova, team member from IBISS: Dr. Aleksej Tarasjev, Department of Evolutionary Biology

➤➤➤ UNDP PROJECT

“Biodegradation of Plastic – Establishing an Incubator Center (Phase I)” PI: Biljana Vasiljev, Belinda animals team members from IBISS: Dr. Dajana Todorović, Dr. Larisa Ilijin and Dr. Vesna Perić Mataruga from the Department of Insect Physiology and Biochemistry.

➤➤➤ GREEN PROGRAM OF COOPERATION BETWEEN SCIENCE AND INDUSTRY

“Advanced BioPhysical Methods for Soil Targeted Fungi-Based Biocontrol agents”, PI: Dr. Aleksandra Krmpot, team member from IBISS: Dr. Nataša Todorović, Department of Neurophysiology

SAIGE PROJECT

»»» STRENGTHENING TIES BETWEEN THE ACADEMIC AND ECONOMIC SECTORS

IBISS signed a Memorandum of Understanding with the Ministry of Science, Technological Development and Innovation of the Republic of Serbia to support institutional transformation through the SAIGE project. This initiative aims to strengthen ties between the academic and economic sectors, foster innovation, and encourage the growth of entrepreneurship in Serbia.

»»» KEY PROJECT PARTICIPANTS

The SAIGE project brings together 18 scientific institutes, including IBISS, to drive the reform of the scientific and research sector. With international and national collaboration, the project focuses on enhancing the quality of scientific research, improving competitiveness on international projects, and advancing knowledge and technology transfer.

»»» ACKNOWLEDGING OUR EXPERTS

We extend our gratitude to international and national experts who have played a crucial role in the transformation of IBISS. Special thanks to:

International Institutional Consultant: Dr. Richard Adams

National Institutional Consultant: Dr. Aleksandar Belic

International Advisory Board: A distinguished panel of experts including Dr. Teresa Lettieri, Prof. Marianne Rots, Prof. Gordana Vunjak-Novaković, Dr. Matjaž Polak, Dr. Efstathios Gonos, Prof. Damid Barcelo Cullerds, and Dr. Thomas Mohr

Project Implementation Unit of the SAIGE Project

Consultant for knowledge and technology transfer: Davorica Moslavac Forjan

Consultant for intellectual property and legislation: Andra Radonjanin

Consultant for managing human resources: Ivona Simić

European Training Academy - EUTA

**SAIGE PROJECT -
SERBIA
ACCELERATING
INNOVATION AND
GROWTH
ENTREPRENEURSHIP
PROJECT**

SAIGE PROJECT

**IBISS IS
COMMITTED TO
ELEVATE
STANDING IN
INTERNATIONAL
RESEARCH AND
INNOVATION**

»»» PROJECT ACTIVITIES

67 Training Sessions: Covering areas such as knowledge and technology transfer, intellectual property protection, project writing, data management, open science, and human resource management.

34 Additional Trainings: Focused on project preparation and management, market analysis, commercialization, financial management, electronic archiving, gender equality, and more.

73 Meetings: Including discussions with the World Bank administration, international and national consultants, IBISS Scientific Council and Board of Directors, department heads, transformation team, knowledge and technology transfer team, and the digital communication team.

»»» PROJECT ACHIEVEMENTS

- Transformation Plan adopted
- Establishment of Transformation Team and delegated responsibilities
- Finalisation of Communication Plan
- Establishment of Digital Transformation Team
- Establishment of Project Preparation and Implementation Unit
- Establishment of Technology Transfer Unit
- Establishment of Advisory Board
- Drafting of the Rulebook of Protection of Intellectual Property
- Establishment of IT Group
- Launch of IBISS Internal Proof of Concept and support for 5 projects
- Adoption of IBISS Strategy and Action Plan

INSTITUTE SEMINARS

➤➤➤ CITIZENS ET AL. - THE ROLE OF CITIZEN SCIENCE IN BIOLOGY

Dr. Mirko Đorđević from the Department of Evolutionary Biology discussed how citizen science has been used in biological research over the past decade. His talk was focused on gaining experiences with the citizen science project "Obtectus Finders". A particular focus of this talk was on the opportunities that citizen science can provide to researchers working at IBISS and the opportunity for our institute to be recognized as a center of development in this field.

➤➤➤ CITIZEN SCIENCE PROJECTS

In the citizen science projects citizens collaborate with professional scientists in gathering, analyzing and interpreting the data. Active participation of volunteers in citizen science projects improves their science literacy by helping them better understand scientific methodology (how science is done) and contributes to democratization of science and decentralization of science promotion. For scientists, citizen science provides an opportunity to gather information that would be impossible to collect because of limitations of time and financial resources. Moreover, it can often operate at greater geographic scales than conventional science.

CITIZEN SCIENCE

Citizen science actively involves the public in scientific research that generates new knowledge.



INSTITUTE SEMINARS

BIODEGRADATION OF PLASTIC - CONTRIBUTION TO THE CIRCULAR ECONOMY

Dr. Larisa Ilijin from the Department of Insect Physiology and Biochemistry presented the project "Biodegradation of plastics - contribution to the circular economy" from the program "EU for the Green Agenda in Serbia". The project is implemented by UNDP, with the financial support of the EU and in partnership with the Ministry of Environmental Protection.

TENEBRIO MOLITOR

Several insect species, such as the larvae of the mealworm, *Tenebrio molitor*, have the ability to biodegrade different types of plastic. Different symbiotic strains of bacteria in their midgut participate in the biodegradation of plastic materials.

SOLUTION TO POLLUTION

Plastic materials are an important part of the global economy, and people's daily lives, while plastic waste has been one of the biggest environmental pollutants for decades. The level of accumulation of this waste in the environment is high and constant, while the degree of its degradation is very low. This is especially true for polystyrene, which is massively used in the food industry for food packaging, so it is necessary to develop a sustainable system for its biodegradation. The main focus of this talk was the development of a circulatory system in which *T. molitor* larvae would be fed wheat bran (the usual substrate) with the addition of polystyrene. Multiple advantages of this innovation were discussed: reducing the amount of plastic waste, reducing the level of greenhouse gas emissions, as well as reducing the level of soil and water pollution and a healthier environment.



INSTITUTE SEMINARS

➤➤➤ ZEBRAFISH (*DANIO RERIO*) AS A MODEL IN BIOLOGICAL RESEARCH

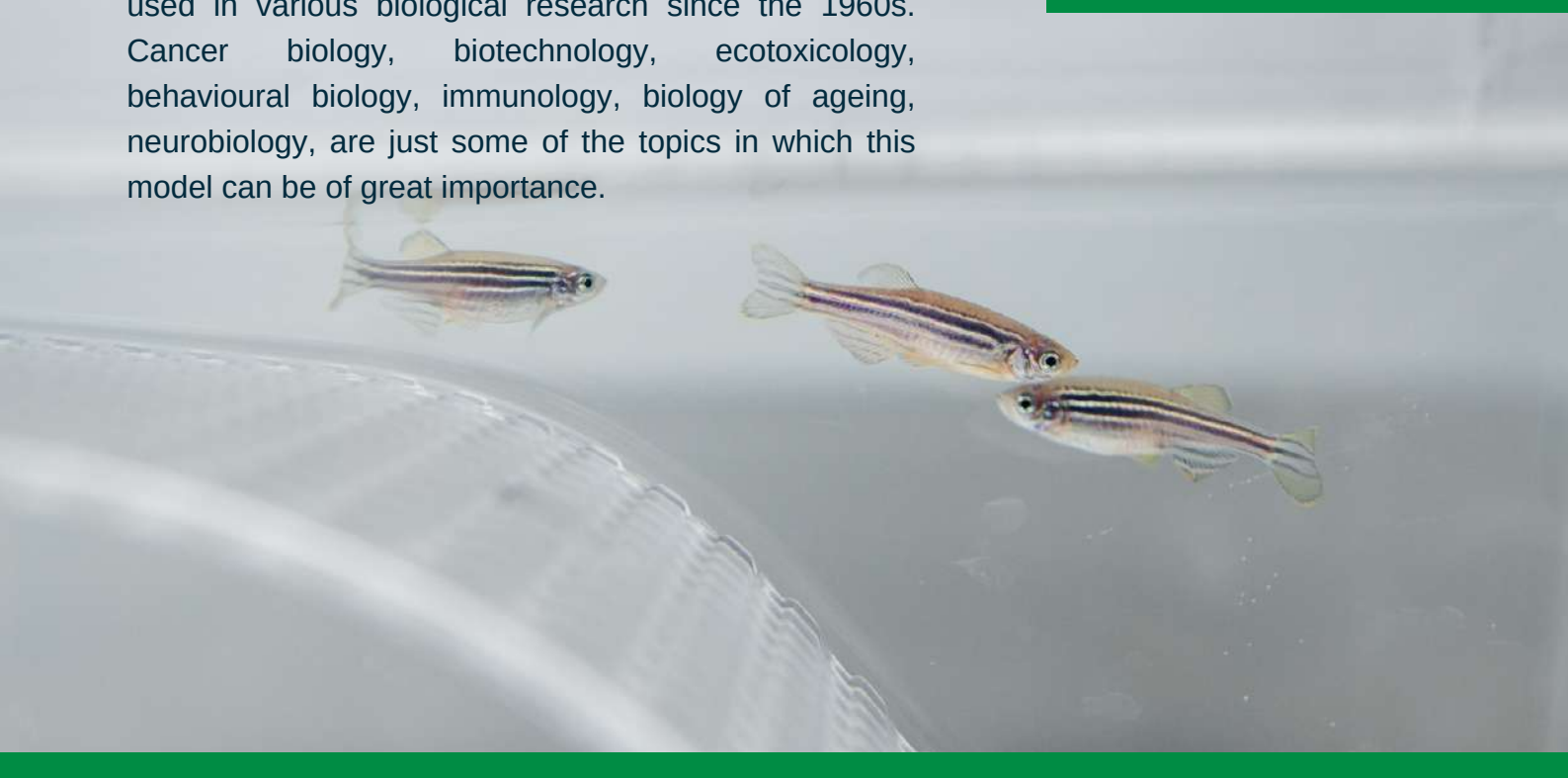
Dr. Margareta Kračun-Kolarević and Dr. Stoimir Kolarević from the Department of Hydroecology and Water Protection presented the work of the newly formed zebra hatchery to IBISS researchers. In Serbia, there are currently several institutions that use zebrafish in research. In 2021, our Institute was approved for entry into the Register for animal experiments for the keeping, reproduction and trade of zebrafish. In the same year, the Institute launched a project to create a breeding facility. Within the lecture the zebrafish model was introduced to the interested colleagues within the framework of current research topics. Fruitful discussion was opened to discuss the possibilities for expanding both basic and applied research that newly formed hatchery may provide, as well as plans for further development and improvement of the hatchery.

➤➤➤ USE OF ZEBRAFISH

Zebrafish have been recognized as a reliable model used in various biological research since the 1960s. Cancer biology, biotechnology, ecotoxicology, behavioural biology, immunology, biology of ageing, neurobiology, are just some of the topics in which this model can be of great importance.

ZEBRAFISH

Zebrafish is simple and economical to cultivate, it has a rapid reproduction, relatively short development period and high regenerative potential. This makes it particularly popular in laboratories around the world.



INSTITUTE SEMINARS

➤➤➤ TARGETED REWRITING OF EPIGENETIC MARKS AS A NEW THERAPEUTIC APPROACH IN TRIPLE NEGATIVE BREAST CANCERS

Ana Sarić from the Department of Molecular Biology talked about how BRCA1 methylation (BRCAness) can be used as a predictor for therapeutic response to PARPi and other therapeutics and how it can allow direct triple-negative breast cancers TNBC treatment without previous screening for BRCA1 mutations. This methodological setup can be helpful in future apoptosis and cancer cell diminishment.

DNA METHYLATION

DNA methylation is a crucial epigenetic modification that involves the addition of a methyl group to the DNA molecule. It plays a fundamental role in regulating gene expression and maintaining genomic stability.

➤➤➤ NEW APPROACH IN CANCER RESEARCH

During the talk the potential use of epigenetic editing tools for BRCAness phenotype induction as a pre-therapeutic approach in TNBCs with unknown mutational signature of BRCA1 was addressed. Main target of the research is to induce BRCAness by suppressing BRCA1 gene expression in TNBC cells via targeted DNA methylation of the BRCA1 promoter using the synthetic epigenetic editing tool (Epi-CRISPR/dCas9/KRAB/DNMT3a3l).



INSTITUTE SEMINARS



CLINICAL RESEARCH EDUCATION, OFFICE OF CLINICAL RESEARCH, NIH, MD, USA

Dr. Srđan Sokanović from the Department of Neurobiology had a seminar in order to promote the Clinical Research Education Program provided by the Office of Clinical Research, NIH, MD, USA. In his talk Dr. Sokanović presented and described several courses including Ethical and Regulatory Aspects of Clinical Research, The Introduction to the Principles and Practice of Clinical Research (IPPCR), Principles of Clinical Pharmacology. Useful advice related to registration, learning and the certificate receiving were provided.

NIH CLINICAL CENTER

The NIH Clinical Center is a hospital solely dedicated to clinical research at the National Institutes of Health campus in Bethesda, Maryland.



INSTITUTE SEMINARS

➤➤➤ BORN TO BEE WILD

Dr. Slobodan Davidović from the Department of Genetics of populations and ecogenotoxicology presented the results of the SERBHIWE project implemented in the period from 2020-2022, and financed by the Science Fund of the Republic of Serbia as part of the first PROMIS call for young and promising researchers.

GENETIC DIVERSITY

Genetic diversity refers to the variety of genetic information within a population of individuals of the same species. It encompasses the range of different alleles, genes, and genetic characteristics present in a population.

➤➤➤ UNDERSTANDING GENETIC DIVERSITY

Dr. Davidović talked about the implementation of the project, the genetic diversity of different free-living honey bee (*Apis mellifera*) populations from nature as well as those from beehives. The importance of better understanding the genetic diversity of this important species for the purpose of preserving natural populations and better management of managed ones was indicated. Genetic diversity was analyzed at the level of two types of genetic markers: mitochondrial DNA and microsatellites from autosomal loci.



INSTITUTE SEMINARS

➤➤➤ DANUBEST - RESEARCH AWARDED WITH THE DANUBIUS YOUNG SCIENTIST AWARD 2022

Dr. Zorana Miletić from the Department of Ecology received the award for her doctoral dissertation "Content of potentially toxic elements in selected woody species as bioindicators of pollution in the coastal zone of the Sava River". She presented information about the Danubius Awards, the criteria, and how to apply for the awards, as well as the research that was awarded the Danubius Young Scientist Award 2022.

➤➤➤ BIOINDICATION AND PHYTOREMEDIATION

In the seminar Dr. Miletić indicated the capacity for bioindication and phytoremediation of 14 chemical elements in several indigenous species including *Salix alba* (white willow), *Populus alba* (white poplar), *P. nigra* (black poplar), *Ulmus glabra* (mountain elm) and *Juglans regia* (walnut).

DANUBIUS YOUNG SCIENTIST AWARD

highlights the scientific work and talent of young researchers who cover research issues and topics that are specifically related to the Danube region.



INSTITUTE SEMINARS

➤➤➤ FROM FIELDWORK TO IUCN RED LIST CATEGORIES

Dr. Ivana Budinski from the Department of Genetic Research highlighted the value of data collected in the field for establishing effective conservation strategies for bats. The lecture outlined how the IUCN Red List process to assess the extinction risk of a species works and showcased an example of how this data was directly used in the first IUCN Red List assessment of *Pseudoromicia nyanza*.

BIODIVERSITY HOTSPOT

is a biogeographic region that is characterised by a significant level of biodiversity and is usually under threat from human activities.

➤➤➤ BAT DIVERSITY ASSESSMENT

The Afrotropics are recognised as a biodiversity hotspot, but significant knowledge gaps remain for many taxa, including bats. More comprehensive studies are needed to assess bat species' distributions, population trends and conservation status. An expedition conducting a rapid bat diversity assessment at eight privately-owned sites across Uganda at the beginning of 2023 was described. Using a combination of ground mist nets, a triple high mist net system, and a harp trap to survey bats, there were 664 captured bats (44 species from 8 families). Each method revealed unique captures emphasising the importance of using a combination of methods to assess the bat community. Collected data was included in the evaluation of IUCN categories of bats of Africa at the workshop that was held in Namibia in September this year.



INSTITUTE SEMINARS

»»» DOES THE AGEING PROCESS CONTRIBUTE TO THE RELATIVITY OF TIME?

Dr. Vladimir Ajdžanović from the Department of cytology introduced physical relativity into the mind/thought context and elaborated changed perception of the time flow (the impression of the time acceleration) with ageing.

TIME DILATION

In the theory of relativity, Einstein determined that the time is relative to the reference frame of the observer. Under specific conditions, there is a difference in the elapsed time between two clocks. This is known as time dilation.

»»» PHYSICAL RELATIVITY AND THE MIND/THOUGHT CONTEXT

The phenomenology of time is observed in the context of physical and biological clocks, as well as by introducing the category of 'mind time'. Mental processing impairment is crucial for the "ageing-caused relativity of time". A brief overview of the perception of time flow in some disease states that coincide with ageing was presented. This approach has a perspective for future development in the interdisciplinary synergy of philosophy, physical-mathematical elaboration, experimental biology and clinical investigations.



GUEST LECTURES & VISITS

DR. MARKUS SCHOSSERER

Medical University of Vienna

➤➤➤ **"RIBOSOMAL RNA MODIFICATIONS
IN CELLULAR AND ORGANISMAL
AGING"**

DR. MARIJA KUNDAKOVIĆ

Fordham University

➤➤➤ **"Epigenomic programming of
brain plasticity and disease risk
by ovarian hormones"**

DR. NADICA MILJKOVIĆ

University of Belgrade – School of Electrical Engineering

➤➤➤ **"A LECTURE ON RESEARCH DATA
FROM THE RESEARCHER'S
PERSPECTIVE"**

DR. VARVARA TRACHANA

Faculty of Medicine, Larisa

➤➤➤ **"SELECTIVE AUTOPHAGY-DRIVEN
SENESCENCE AS A BARRIER TO
TUMORIGENESIS"**

GUEST LECTURES

are invaluable for
fostering a rich
academic environment.

GUEST LECTURES & VISITS

DOC. DR. EVA KAMERER

Faculty of Philosophy, University of Belgrade

**>>> "A MICROCOSM OF EVOLUTION:
WILL DARWIN HELP US CURE
SERIOUS DISEASES?"**

PROF. JANKO NIKOLIĆ, MD

University of Arizona, Tucson

**>>> "SARS-COV-2, CYTOMEGALOVIRUS
AND THEIR IMPACTS ON IMMUNITY
AND HEALTH OVER THE LIFESPAN"**

PROF. BOGOLJUB ĆIRIĆ

Thomas Jefferson University, Philadelphia

**>>> "GATA1 CONTROLS NUMBERS OF
HEMATOPOIETIC PROGENITORS AND
THEIR RESPONSE TO AUTOIMMUNE
NEUROINFLAMMATION"**

PROF. DIETER LÜTJOHANN

Institute of Clinical Chemistry and
Pharmacology, University of Bonn, Germany

**>>> "CHOLESTEROL MANAGEMENT 2023
- CHANCES AND LIMITATIONS"**

GUEST LECTURES

bring diverse perspectives,
networking opportunities,
collaborations.

GUEST LECTURES & VISITS

PETR BARANOV, MD, PHD

Schepens Eye Research Institute; Massachusetts Eye and Ear, Department of Ophthalmology, Harvard Medical School

»»» **“TRANSPLANTATION OF RETINAL GANGLION CELLS: GUIDING DONOR NEURONS TO THEIR FATE”**

DR. PANAYIOTA XYLIA

The Group of Hydro-Aromatic Plants, Cyprus University of Technology, Lemessos

»»» **“HYDRO-AROMATIC PLANTS GROUP, RESEARCH ACTIVITIES AND CASE STUDIES”**

DR. IVAN MILENKOVIĆ

Oldenburg University

»»» **“WHAT DRIVES OUR BEHAVIOR AND MOTIVATES US FOR ACTION: FUNCTION OF THE REWARD SYSTEM IN THE BRAIN”**

DR. DRAGANA ROGULJA

Harvard Medical School

»»» **“SLEEP AND THE GUT”**

GUEST LECTURES

contribute to a culture of continual learning.

GUEST LECTURES & VISITS

➤➤➤ SIGNED AGREEMENT WITH WUHAN INSTITUTIONS

A Memorandum of understanding was signed between the IBISS and the Wuhan Institute of Industrial Innovation and Development (WHIID), as well as Nano Body Life Science and Technology Co., Ltd (NBLST). After two delegations from Wuhan, China, presented their institutions to IBISS researchers, the memorandum was signed by Dr. Mirjana Mihailović, director of IBISS, and Mrs. Yao Yuen, Chief Risk Officer of WHIID, and Mr. Ali Vari, Marketing Director of NBLST.



➤➤➤ RESEARCH VISIT

Reciprocal research visits between Dr. Sandra Belij-Rammerstorfer, Oxford Vaccine Group, and Dr. Tamara Saksida, Department of Immunology, were realised as part of the project "Laboratory exchange to facilitate testing for nairovirus reactivity in Serbian livestock"



VISIT OF BIOTECHNOLOGY INCUBATORS AND BASES IN CHINA

The Director and Assistant Director of IBISS, Dr. Mirjana Mihailović and Dr. Momir Paunović, together with the assistant minister of science, technological development and innovation, Dr. Marina Soković, accompanied by the technical secretary of PANDA, Nađa Hadžimurtović, visited the Shanghai Institute of Materia Medica (SIMM) and visited several biotechnology incubators and bases in China. During the visit, the further development of cooperation between Serbia and China was negotiated, as well as the further work of the "One Belt and One Road" Joint Laboratory.

GUEST LECTURES & VISITS

DR. ANDREA BÁBELOVÁ VISITS IBISS

The Department of Plant Physiology IBISS and the Institute of Oncology and Radiology of Serbia hosted Dr. Andrea Bábelová, the head of the Department of Nanobiology at the Cancer Research Institute of the Biomedical Research Center of the Slovak Academy of Sciences in Bratislava, Slovak Republic.

RESEARCH VISIT

Dr. Anja Tolić from the Department of Molecular Biology, had the opportunity to visit a bioinformatics group led by Dr. Francesco Ferrari at IFOM ETS - The AIRC Institute of Molecular Oncology in Milan. The visit was funded by a STSM grant from COST action International Nucleome Consortium CA18127.

»»» DELEGATION FROM WUHAN AND SHANGHAI VISITS SERBIA

Delegations from Whiiid Wuhan Institute of Industrial Innovation and Development (WHIID), Nano Body Life Science and Technology Co., and Shanghai Institute of Materia Medica visited IBISS. Delegations also participated in the Biotech Future Forum held in Belgrade.

»»» VISIT OF THE AMBASSADOR OF THE REPUBLIC OF CUBA

The Institute had the honour of hosting His Excellency Leyda Ernesto Rodríguez Hernández, Ambassador of the Republic of Cuba to Serbia. This visit was organised in order to establish cooperation between IBISS and scientific institutions in Cuba.

»»» DELEGATION FROM FUZHOU (FUJIAN MEDICAL UNIVERSITY) VISITS SERBIA

Ana Despotović from the Department of Neurophysiology hosted participants of the project of bilateral cooperation between the Republic of Serbia and the People's Republic of China visited IBISS (project: "Investigation of additions of strontium carbonate and strontium fluoride to calcium silicate dental cements: physico-chemical and biological characterization STROCE).



AWARDS AND ACCOMPLISHMENTS

»»» BIO4 CAMPUS

In the Government of the Republic of Serbia, in the presence of the Minister of Science, Technological Development and Innovation (NITRA), Dr. Jelena Begović, representatives of seven faculties and nine institutes, including IBISS, signed the architectural foundations for the premises of the BIO4 Campus. BIO4 Campus is considered one of the largest investments in the field of science in Serbia.

»»» CONTRIBUTIONS TO BIOLOGY

Dr. Mirjana Mihailović, the director of IBISS, has been honoured in recognition of significant milestones in the field of biology. This acknowledgment highlights Dr. Mihailović's substantial and enduring contributions to biology, molecular biology and ecology. This award marks Dr. Mirjana Mihailović role in the institute's commitment to excellence.

»»» 6th CONGRESS OF SDIR

The Serbian Association for Cancer Research awarded a certificate of appreciation to the Institute for Biological Research "Siniša Stanković" for successful cooperation and financial support in the realisation of the 6th Congress of SDIR with international participation.

»»» CENTER FOR THE PROMOTION OF SCIENCE - CERTIFICATE OF APPRECIATION

IBISS received the certificate of appreciation for support and remarkable contribution of Center for the Promotion of Science work.

THE MOST CITED SCIENTISTS

Researchers from Stanford University have recently revised the standardised citation indicators author database and released the findings for 2022. Among the most cited scientists across academia, this year's list proudly features three of our colleagues from the Institute of Biological Research "Siniša Stanković" – Dr. Marina Soković, Dr. Jasmina Glamočlija, and Dr. Marija Ivanov, all affiliated with the Department of Plant Physiology.

AWARDS AND ACCOMPLISHMENTS

»»» GORAN LJUBIJANKIĆ FOUNDATION AWARD

Dr. Danijela Paunović, Department of Plant Physiology, is one of the winners of the Goran Ljubijankić Foundation Award for the best PhD thesis in Molecular Biology in 2022. Dr. Paunović received the award for her thesis entitled "Identification of AGP genes in centaury (*Centaureum erythraea*, *Gentianaceae*) and monitoring of their expression in response to tissue mechanical wounding in vitro"

»»» "AKADEMIK MILUTIN RADOVANOVIĆ" AWARD

Dr. Jelena Đuknić, Department of Hydroecology and Water Protection, has been honoured for her outstanding dissertation titled "Diversity and genetic variability of the *Simuliidae* family (Insecta: Diptera) in the area of the Balkan Peninsula." Her dissertation was recognized as the best in the public competition "Akademik Milutin Radovanović" within the field of zoology at the University of Belgrade for the 2022/2023 academic year.

»»» CoMBoS2

The Serbian Society for Molecular Biology awarded the Institute for Biological Research "Siniša Stanković" a certificate of appreciation for its contribution to the realisation of the Second Congress of Molecular Biologists of Serbia (CoMBoS2).

»»» "Communities Together"

In the "Communities Together" competition organised by the NIS company this year, the Institute for Biological Research "Siniša Stanković" secured funds totaling 1,107,852.00 dinars. These funds are earmarked for the acquisition of an automated biochemical analyzer.

"GOLDEN BEE" AWARD

Dr. Slobodan Davidović, Department of Genetics of Populations and Ccogenotoxicology, with the SERBHIWE project was unanimously declared this year's winner of the "Golden Bee" award. The award is the highest national recognition for the contribution to the preservation, protection and promotion of bees and other pollinators given by the Republic of Slovenia. The award was presented by the President of the Republic of Slovenia, Dr. Nataša Pirc Musar.

RESEARCHERS' NIGHT

»»» IBISS OPEN DOOR

Institute warmly welcomed and hosted 35 highly motivated high school students with a special interest for biological sciences. Among them were students from several Belgrade high schools. After hearing the most important facts about the Institute, students had the chance to explore our Institutes' laboratories and hear about our current research.

»»» 14. EUROPEAN RESEARCHERS' NIGHT

Since 2011, this event has been hosted in Serbia, with active participation from IBISS researchers who are dedicated to science popularisation. This year, video materials showcased the activities of the Institute's four departments. Additionally, a novel format, "We asked the scientists?", was introduced, featuring entertaining answers to scientific questions posed by visitors from last year's event. For the Night itself, various programs and exhibits were designed and presented.

EUROPEAN RESEARCHERS' NIGHT

40 colleagues representing 10 different departments of the Institute actively participated in this year's program. They organised the event and engaged directly with visitors through scientific installations.



PUBLISHING

ARCHIVES OF BIOLOGICAL SCIENCE

The Institute for Biological Research "Siniša Stanković" is co-publisher of the Archives of Biological Sciences, the official journal of the Serbian Biological Society.



TWO ISSUES OF ARCHIVES OF BIOLOGICAL SCIENCES

Archives of Biological Sciences: ABS 75(1)2023.
Archives of Biological Sciences: ABS 75(2)2023.
Archives of Biological Sciences: ABS 75(3)2023.
Archives of Biological Sciences: ABS 75(4)2023.



THE FIRST CATALOGUE OF MOTH AND BUTTERFLY FAUNA OF SERBIA (LEPIDOPTERA LINNAEUS, 1758)

This publication represents a significant contribution to the knowledge of the biodiversity of the Lepidoptera of Serbia. This well-studied group of organisms has many species that are endangered and protected at the national and/or international level.



IBISS BIBLIOGRAPHY

"Institut za biološka istraživanja "Siniša Stanković" - Institut od nacionalnog značaja za Republiku Srbiju, Univerzitet u Beogradu : bibliografija : 2022"



TRAINING AND EDUCATION

»»» SEPSANIMA WORKSHOP

This workshop is part of the project "Novel sepsis animal models", collaboration with diaspora funded by the Science Fund of the Republic of Serbia. The workshop assembled researchers from the Department of Immunology IBISS and Department of Pathology, University of Iowa. The workshop included several lectures from Dr. Đordje Miljković, Dr. Suzana Stanisavljević, Prof. Dr. Vladimir Badovinac, Roger Berton and Prof. Dr. Thomas Griffith.

COURSE "BIOCHEMISTRY FOR HEALTH - MODERN

»»» METHODOLOGICAL APPROACHES IN BIOMEDICAL RESEARCH"

The Biochemical Society of Serbia organised the course "Biochemistry for health - modern methodological approaches in biomedical research" for undergraduate and graduate students. This year IBISS was a host for the theoretical and practical parts of the course. Participants listened to lectures in the IBISS library and had a practical segment of the course: "Working on a flow cytometer and processing the results of flow cytometry". The knowledge was transferred by colleagues from the Department of Immunology.

DROPLET DIGITAL PCR

IBISS is one of the first institutions in the Republic of Serbia to install a droplet digital PCR system. Researchers attended a two-day ddPCR on-site training held by experts of Labena and Biorad companies.

TRAINING AND EDUCATION

LIQUID-MASS SPECTROMETER

A new liquid-mass spectrometer (UHPLC-Orbitrap Exploris 120) arrived at IBISS. The training for working on the device was held by the company Analysis. The first round of training was attended by 7 associates from the Department of Plant Physiology.

»»» "STAKEHOLDER ENGAGEMENT AND PROJECT MANAGEMENT" WORKSHOP

Dr. Branka Bajić from the Department of Genetic Research participated in the training "Conservation Management & Leadership Reunion: Stakeholder Engagement & Project Management"

»»» "GIVE GENES A CHANCE" WORKSHOP

Dr. Milica Bogdanović, from the Department of Plant Physiology, participated in a conference and workshop "Give Genes A Chance"

»»» COPYTREE TRAINING SCHOOL

Dr. Slađana Jevremović, from the Department for Plant Physiology participated in the training school "Temporary Immersion Bioreactors, Opportunities and Pitfalls for Mass Production" was organised under the framework of the COST action COPYTREE CA21157.

»»» EUTA TRAINING

Series of workshops on preparation, writing and management of Horizon projects and on research data management were held in the organisation of EUTA.

»»» INTELLECTUAL PROPERTY OFFICE TRAINING

IBISS researchers were at the Intellectual Property Office for a search workshop in the Espacenet patent documentation database.

CONFERENCES & MEETINGS

➤➤➤ "GROWING THE FUTURE"

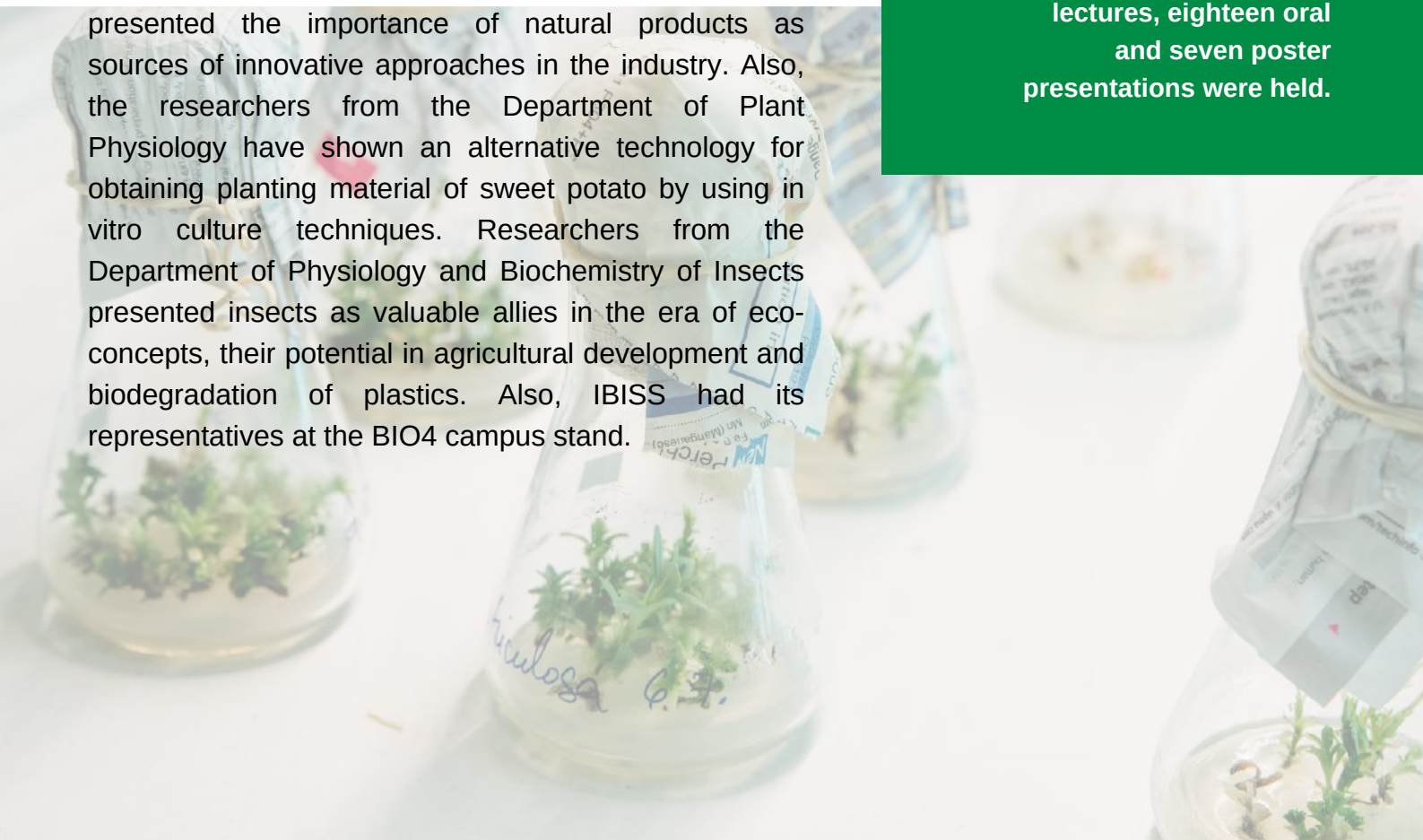
Researchers from the Department of Plant Physiology Dr. Slađana Todorović, Dr. Marijana Skorić, Dr. Jelena Savić and Dr. Nina Devrnja attended the 10. Seed Days of the Region "Growing the Future – Bringing together the players of the Agri-Food Chain" organised by the Seed Association of Serbia.

➤➤➤ "PLAY FOR HUMANITY!" SCIENCE FOR ALL"

IBISS was present at the 65th International Fair of Techniques and Technical Achievements held at Belgrade Fair. Researchers from the Department of Plant Physiology together with colleagues from the Department of Hydroecology and Water Protection presented the importance of natural products as sources of innovative approaches in the industry. Also, the researchers from the Department of Plant Physiology have shown an alternative technology for obtaining planting material of sweet potato by using in vitro culture techniques. Researchers from the Department of Physiology and Biochemistry of Insects presented insects as valuable allies in the era of eco-concepts, their potential in agricultural development and biodegradation of plastics. Also, IBISS had its representatives at the BIO4 campus stand.

THE 5TH B CHROMOSOME CONFERENCE

was held in Petnica organised by the IBISS and the Serbian Genetic Society. Eight plenary lectures, eighteen oral and seven poster presentations were held.



CONFERENCES & MEETINGS

THE SECOND CHINA-CEEC CONFERENCE

Dr. Marijana Skorić from the Department of Plant Physiology participated at „The Second China-CEEC Conference on Technology Cooperation and Exchange“ in Nanjing, China.

➤➤➤ IMMUNOPHARMACOLOGY MEETING

Dr. Đorđe Miljković visited Cuba and gave a lecture at the Immunopharmacology 2023 congress, which lasted from June 12 to 16, 2023. The session was dedicated to neuroimmunology, neuroimmunopharmacology and neuroimmunomodulation.

➤➤➤ EXHIBITION: HOW DO MEALWORMS BIODEGRADE PLASTICS?

Exhibition: How do mealworms biodegrade plastics?

In the Microgallery of the Center for the Promotion of Science passers-by can experience a part of the research project conducted by researchers from the Department of Insect Physiology and Biochemistry about about the mealworm that feeds on styrofoam and polyethylene film and provides opportunities to reduce plastic waste.

➤➤➤ VISIT TO THE HUBEI UNIVERSITY OF TECHNOLOGY

At the invitation of the Hubei University of Technology (HUT), Wuhan, China, Dr. Danijela Maksimović Ivanić, Dr. Sanja Mijatović and Dr. Tamara Saksida from the Department of Immunology held several lectures and were appointed as visiting professors of this university. An agreement on cooperation between HUT and IBISS was signed, thus ensuring that the cooperation between IBISS and the Hubei University of Technology will continue in the future. They also gave lectures at Zhongnan Hospital of Wuhan University and presented the work of IBISS as well as the work of the Department of Immunology. They also participated in the Brain Health and Human Disease Conference and the 2023 International Conference on the Cooperation and Integration of Industry, Education, Research and Application.



CONFERENCES & MEETINGS

➤➤➤ "8TH CONGRESS OF THE SERBIAN NEUROSCIENCE SOCIETY"

The event took place in Belgrade and was organised by the Serbian Neuroscience Society and IBISS, with Dr. Selma Kanazir as Chair of the Scientific Committee and Dr. Ivana Bjelobaba as Chair of the Organising Committee. IBISS colleagues Dr. Ana Podolski-Renić, Dr. Smilja Todorović and Dr. Milica Lazarević were invited as speakers.

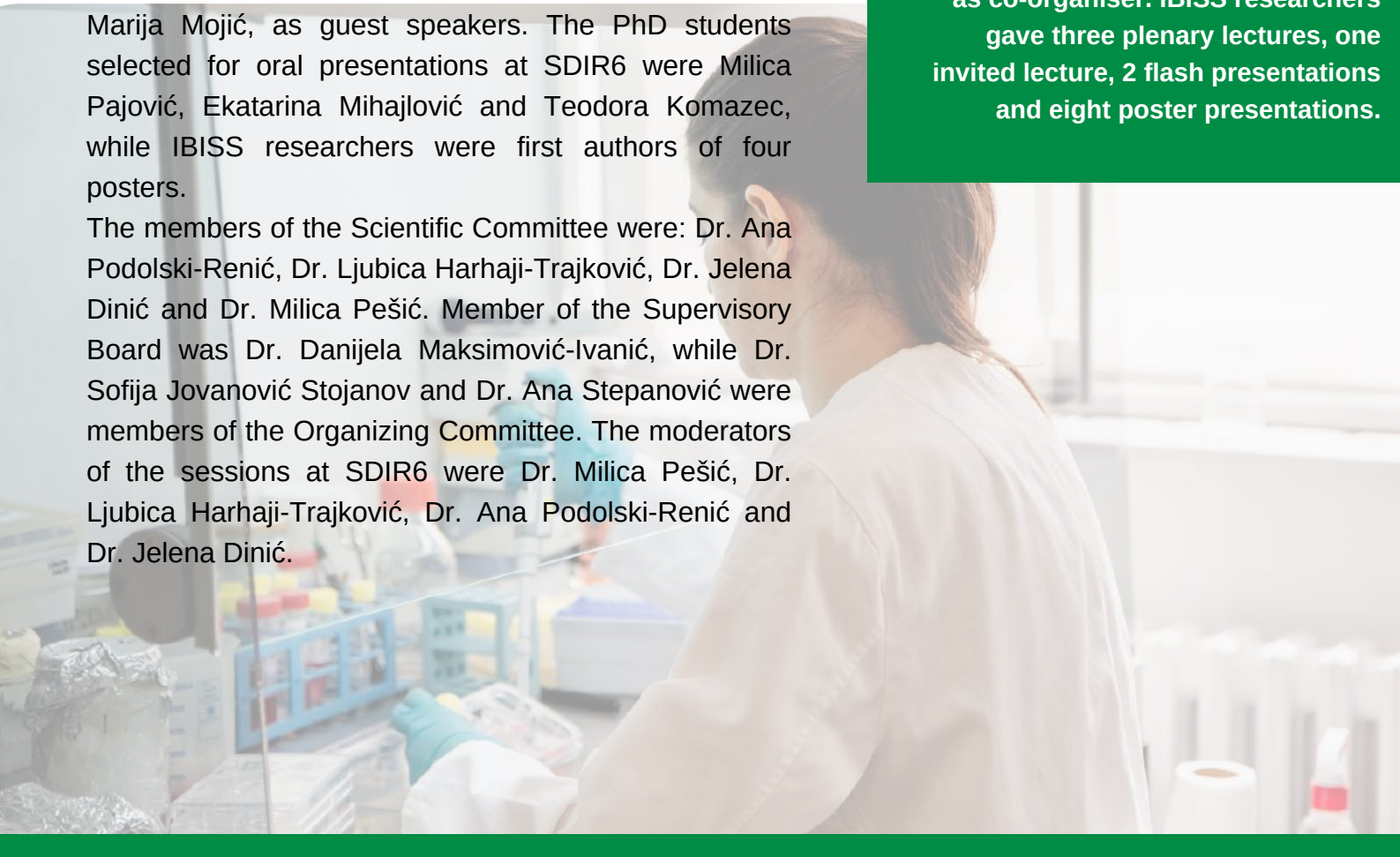
➤➤➤ "6TH CONGRESS OF THE SERBIAN CANCER RESEARCH SOCIETY (SDIR6)"

SDIR6 was organized in Belgrade by the Serbian Cancer Research Society, with IBISS acting as co-organizer. The conference, entitled "From collaboration to innovation in cancer research", was attended by an IBISS researcher, Dr. Sofija Jovanović Stojanov and Dr. Marija Mojić, as guest speakers. The PhD students selected for oral presentations at SDIR6 were Milica Pajović, Ekatarina Mihajlović and Teodora Komazec, while IBISS researchers were first authors of four posters.

The members of the Scientific Committee were: Dr. Ana Podolski-Renić, Dr. Ljubica Harhaji-Trajković, Dr. Jelena Dinić and Dr. Milica Pešić. Member of the Supervisory Board was Dr. Danijela Maksimović-Ivanić, while Dr. Sofija Jovanović Stojanov and Dr. Ana Stepanović were members of the Organizing Committee. The moderators of the sessions at SDIR6 were Dr. Milica Pešić, Dr. Ljubica Harhaji-Trajković, Dr. Ana Podolski-Renić and Dr. Jelena Dinić.

SECOND CONGRESS OF THE MOLECULAR BIOLOGISTS OF SERBIA (COMBOS2)

took place in Belgrade and was organised by the Serbian Society for Molecular Biology, with IBISS acting as co-organiser. IBISS researchers gave three plenary lectures, one invited lecture, 2 flash presentations and eight poster presentations.



CONFERENCES & MEETINGS

FAIR OF GREEN IDEAS, PROJECTS AND INNOVATIONS

Researchers from the Department of Insect Physiology and Biochemistry, together with associates from Belinda Animals, presented the project "Biodegradation of plastics – formation of incubation center – Phase I" organised by the UNDP Serbia on the occasion of the World Environment Day.



TRAINING PROGRAM OF NATURAL PRODUCTS AND DRUG DISCOVERY

The conference was attended by nearly hundred scientists from China, Serbia, Slovenia, North Macedonia, Bosnia and Herzegovina, Montenegro, Albania and Greece. Ms. Shi Yi and Mr. Li Rui, from the Embassy of the People's Republic of China in Serbia, also joined the conference. 26 Lectures were held on various biological activities of natural products and their application in pharmacy and medicine, drug design, functional foods, as well as policies and experiences on achievement transferring, transformation and research.



"INNOVATION FORUM"

IBISS researchers participated in "Innovation Forum" envisaged to encourage innovation and promote cooperation between Serbia and France. Researchers from IBISS (Dr. Tanja Vukov, Dr. Ana Đorđević, Dr. Ana Ćirić and Dr. Dejan Stojković) exchanged ideas, shared knowledge and explored possible collaborations. The event was organised by the French Embassy in Serbia and the Ministry of Science, Technological Development and Innovation of the RS.



CONFERENCES & MEETINGS

➤➤➤ "PANDA" FOURTH ANNUAL CONFERENCE

The Fourth Annual Conference and Training Program of Pan-Balkan Alliance of Natural Products and Drug Discovery Associations (PANDA) and International Seminar of UNESCO Regional Network of Natural Products Chemistry for Safety and Well-being in Asia and the Pacific was held in Shanghai, China. The conference attended nearly sixty scientists from twenty one countries. At the conference, lectures were held on the biomedical research achievements, newly emerging viral infectious diseases, including the discovery of bioactive compounds derived from natural products and traditional medicines and the discovery of new drugs based on active compounds.

➤➤➤ IBISS VISITING WUHAN INSTITUTIONS

The Institute for Biological Research "Siniša Stanković", Institute of Materia Medica (SIMM) and Wuhan Institute of Industrial Innovation and Development (WHIID) co-organised the Third Session of the Donghu Scientific Symposium - International Seminar on Natural Products and New Drug Discovery held in Wuhan, China. The focus was on a facilitated exchange in the research and development of natural products and new drugs between research institutions and universities in China and the wider Balkan region. From IBISS, Dr. Marina Soković gave the opening speech, the lecture was given by Dr. Ana Ćirić, while Dr. Jasmina Glamočlija took part in the panel discussion. During the visit to Wuhan, colleagues from the Department of Plant Physiology, together with PANDA members, visited Wuhan's Optics Valley, United Imaging, Wuhan National University and Nano Body Life Science and Technology Co., Ltd (NBLST).

IBISS AT THE INTERNATIONAL FAIR

Researchers from the Department of Plant Physiology participated at the 4th International Fair of Medicinal, Spice, Ornamental Plants, Bee Products and Mushrooms in Vranje. The fair brought together companies, small entrepreneurs and researchers.

