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Reliant Species**

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**Book of
Abstracts**

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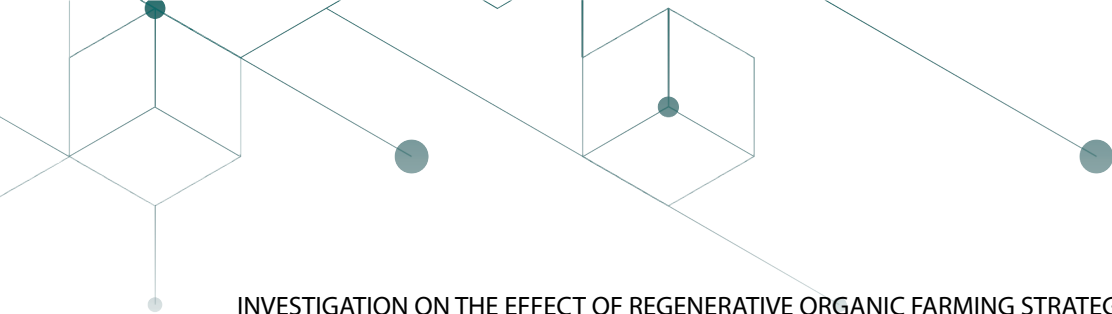
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● ABOUT THE CONFERENCE

The Faculty of Biology at Sofia University “St. Kliment Ohridski” is proud to announce the **International Conference on Natural Sciences & Biotechnology – KLIMENT’S DAYS 2025**, to be held on **November 6 – 7, 2025**, in **Sofia, Bulgaria**:

website: <https://cmebg.com/en/sabitia/kliments-days-2025/>

Celebrating academic excellence and innovation, **ICNSB – KLIMENT’S DAYS 2025** aims to unite leading scientists, researchers, and young scholars from around the world in a vibrant forum dedicated to the advancement of **Natural Sciences and Biotechnology**. This year’s edition continues a distinguished tradition of interdisciplinary dialogue, cutting-edge discoveries, and meaningful collaboration.

We are also pleased to announce a **Satellite Scientific Conference on “Reintroduction of Conservation-Reliant Species”**, to be held in conjunction with the main conference. This focused event will provide a platform for experts in Conservation Biology, Ecology, and Wildlife Management to share research, strategies, and best practices addressing the unique challenges of species conservation in the 21st century.

The conference features keynote lectures by renowned experts, interactive sessions, poster presentations, and ample opportunities for networking and idea exchange. Whether you’re exploring the frontiers of Molecular Biology, Environmental Science, or Applied Biotechnology, this is the place to connect, share, and inspire.



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● SCIENCE AND EDUCATION – THE TWO SIDES OF THE SAME COIN

If you have knowledge, let others light their candles in it.

Margaret Fuller

The cooperation between R&D activities and Higher Education exerts a transformative impact on science and society. The synergy and partnership play a vital role in enhancing the quality and relevance of academic educational efforts supported by the relevant scientific background. Science and education collaboration fosters knowledge exchange, innovation, and interdisciplinary advances, inspiring the academic world to new achievements.

The International Conference on Natural Sciences & Biotechnology – KLIMENT'S DAYS 2025 unifies the efforts of academia and science to spread knowledge across national and international research communities, adhering to the principle of research-enabled training for professional development, accountability, and public awareness on breakthrough topics of natural science and biotechnology.

The KLIMENT'S DAYS 2025 is motivated to create a knowledge network embedding the most recent (inter)national research and educational projects of the academic staff of the Faculty of Biology, Sofia University "St. Kliment Ohridski".

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<p>European Cooperation in Science and Technology (COST)</p>	

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PROGRAM

6th of November 2025, Aula

08:00 – 11:00 Registration & Poster Mounting [CB-Phys/MetEdu/MB-BT/MBiolm/PlaBT]

**09:15 – 09:30 Opening by Lyuben Zagorchev, Dean of the Faculty of Biology
Welcoming from the Student Council of the Faculty of Biology**

Plant Biotechnology and Phytochemistry

Moderators, Session 1: Valya Vassileva & Miroslava Zhiponova, Bulgaria

09:30 – 10:00 Sergey Shabala, Australia

Towards Green Revolution 2.0: Cell-Based Phenotyping for Abiotic Stress Tolerance

10:00 – 10:20 Eugenia Russinova, Belgium

Regulation of Brassinosteroid Homeostasis in the Arabidopsis Root Meristem

10:20 – 10:35 Gustavo Gudesblat, Argentina

How and Why Stomata Respond to Auxin

10:35 – 10:50 Milica Milutinović, Serbia

Molecular Responses to Rehydration in Resurrection Fern *Asplenium ceterach* L.

10:50 – 11:20 Coffee break

Moderators, Session 2: Danijela Misic, Serbia & Zhenya Yordanova, Bulgaria

11:20 – 11:40 Heribert Hirt, Saudi Arabia

Harnessing the Power of Deserts to Make Plants Resistant to Heat and Drought Stress

11:40 -12:00 Erich Grotewold, USA

Flavonoids in Progress: Uncovering the Bioactivity of Pathway Intermediates

12:00 – 12:20 Liliya Mihaylova, Bulgaria

Biotechnology, Metabolomics and Molecular Pharmacology: A Powerful Synergy for an Accelerated Bioactive Lead Finding

12:20 – 12:30 Yordan Georgiev, Bulgaria

In Vitro Screening of Herbal Extracts for Antioxidant and Lipoygenase Inhibitory Activities (PlaBT001)

Methodology of Biology Education – Traditions and Perspectives

(Parallel Session, 438 Hall)

Moderator: Nadezhda Raycheva, Bulgaria

09:15 – 09:45 Isa Hadjiali, Bulgaria

Trends in Dissertation Research on the Methodology of Biology Education for the Period 1974 – 2024

09:45 – 12:35 Discussion

12:30 – 13:30 Lunch break

Cell Biology and Physiology

Moderators: Hristo Gagov & Petar Eftimov, Bulgaria

13:30 – 13:50 Andrea Doseff, USA

Metabolic and Transcriptomic Reprogramming by Dietary Plant Compounds Mitigate Inflammation and Fatty Liver Disease

13:50 – 14:10 Mitko Mladenov, North Macedonia

Comparative Study of the Effects of Hypergravity and Simulated Microgravity on Cardiac Mechanosensitivity in Rat Ventricular Cardiomyocytes

14:10 – 14:25 Nia Petrova, Hungary

Highly Exoelectrogenic Green Microalga *Parachlorella kessleri*: Photosynthetic Traits and Bio-electricity Production

Molecular Biology and Immunology

Moderators: Svetla Petrova & Ginka Cholakova, Bulgaria

14:25 – 14:45 Ferdinando Nicoletti, Italy

The Galectin Family: a Pleiotropic and Redundant Network of Members with Emerging Theranostic Potential in Autoimmune Diseases and Cancer

14:45 – 15:05 Jordan Dimitrov, France

Natural and Cryptic Polyreactivity of Antibodies

15:05 – 15:25 Andrey Tchorbanov, Bulgaria

Mouse Models in Immunotherapy: Bridging Bench and Bedside

15:25 – 15:45 Nikolay Popgeorgiev, France

On the Origin and Evolution of BCL-2 Family Proteins. Lesson from the Ocean

15:45 – 16:15 Coffee break

Microbiology and Biotechnology

Moderators: Trayana Nedeva & Nikola Atanassov, Bulgaria

16:15 – 16:35 Itatí Ibañez, Argentina

A Versatile Nanobody Platform for Biotechnology Applications

16:35 – 16:55 Zoltan Urshev, Bulgaria

Quantitative Polymerase Chain Reaction in Yoghurt Science

16:55 – 17:10 Mirjana Grujović, Serbia

Lactiplantibacillus plantarum from Traditional Goat Cheese: a Promising Candidate for Probiotic Applications

17:10 – 17:20 David Binev, Bulgaria

Molecular Assessment of Bacterial and Viral Hazards in Marine Bathing Waters (MB-BT006)

17:20 – 17:30 Mirena Zhelezarova, Eliza Uzunova, Bulgaria

Enhancing *Hermetia illucens* Chemical Composition and Amino Acid Profile Through Fish Residue-Enriched Diet (MB-BT012)

17:30 – 17:40 Yordan Hodzhev, Bulgaria

Host-Microbiome Interactions Shape Inter-Kingdom Microbial Abundances in Healthy Human Blood (MB-BT022)

17:40 – 18:40 Poster session [CB-Phys/MetEdu/MB-BT/MBiolm/PlaBT]

18:30 Welcome drink



7th of November 2025, Aula

08:00 – 11:00 **Registration & Poster Mounting [GenBio/EcoPro]**

Genetics and Bioinformatics

Moderators: Dimitrina Miteva & Slavi Peykov, Bulgaria

09:15 – 09:40 **Tibor Szekeres, Novogene**

Accelerating Genomics Research: Novogene's NGS Solutions for Life Sciences and Medicine

09:40 – 10:00 **Eero Vesterinen, Finland**

Normalising Metabarcoding Data using Synthetic Spike Controls: Why, How, and When?

10:00 – 10:20 **Stefaniya Kamenova, Bulgaria**

A Roadmap for Scaling Up DNA-Based Biodiversity Monitoring in Bulgaria

10:20 – 10:40 **Robert Penchovsky, Bulgaria**

Computational Design of Allosteric Ribozymes as Biosensors

10:40 – 11:10 **Coffee break**

Ecology and Environmental Protection

Moderators, Session 1: Blagoy Uzunov & Silvena Boteva, Bulgaria

11:10 – 11:30 **Javier Almunia, Spain**

Understanding Communication to Unlock Cognition and Welfare in Cetaceans

11:30 – 11:50 **Nishanta Rajakaruna, USA**

Serpentine: Evolution and Ecology of a Model System

11:50 – 12:10 **Leide Rovênia M. de Andrade, Brazil**

Enhancing Ecosystem Recovery: The Role of Plant Diversity, Metal Availability, and Soil Microorganisms in Rehabilitating Metal (Ni, Au, Fe) Mining Sites

12:10 – 12:25 **Nenad Zlatić, Serbia**

Metabolic Fingerprint Differentiation of *Teucrium montanum* L. (Lamiaceae) in Relation to Substrate Type

12:25 – 12:45 **Aida Bani, Albania**

Phytomining of Heavy Metals: A Promising Phyto-technology for Remediation of the Environment and Metal Recovery

12:45 – 12:55 **Violeta Kotova, Bulgaria**

Regeneration after Two Severe Wildfires in Subalpine Forests in Bulgaria (EcoPro004)

13:00 – 14:00 **Lunch break**

Moderators, Session 2: Diana Zlatanova & Elitsa Tahchiyska, Bulgaria

14:00 – 14:20 **Corrado Marcenò, Italy**

Conservation Action plan for *Ptilostemon greuteri* (Asteraceae), an Enigmatic Climate Relict from Sicily (Italy)

14:20 – 14:35 **Dime Melovski, North Macedonia**

Saving the Balkan lynx

14:35 – 14:50 **Chavdar Zhelev, Bulgaria**

The Red Deer (*Cervus elaphus*) – the Symbol of Game Management in Bulgaria



14:50 – 15:05 Nikolay Natchev, Bulgaria

The Tools of Functional Anatomy – High-Speed Motion Analysis as a Data Source for Reconstruction of Evolutionary Processes in Diverse Vertebrate Lineages

15:05 – 15:15 Dimitar Dimitrov, Bulgaria

Creating a GIS Model for Studying the Distribution of Freshwater Fishes in Bulgarian Black Sea Rivers (EcoPro008)

15:15 – 15:25 Ivona Asenova, Bulgaria

Conservation Threats for Amphibians and Reptiles in the Urban Environment – Local Specifics and Possible Solutions (EcoPro030)

15:25 – 15:35 Grigorios Markakis, Greece

First Detection of Haemosporidians and Sarcocystis Halietai in Eurasian Griffon Vultures (*Gyps fulvus*) from Greece and Identification of Novel Genetic Lineages (EcoPro024)

15:35 – 16:00 Coffee break

Satellite Scientific Conference: Reintroduction of Conservation-Reliant Species

Moderators: Atanas Grozdanov & Elitsa Tahchiyska, Bulgaria

16:00 – 16:10 Atanas Grozdanov, Bulgaria

Opening of the Satellite Conference

16:10 – 16:30 Rigas Tsiakiris, Greece

Vulture Status in Greece and the Effects of Reinforcement Activities

16:30 – 16:50 Eliza Uzunova, Bulgaria

Captive Breeding and Translocation of Endangered Bullhead (*Cottus gobio*) – Tools for Conservation in the Conditions of Climate Change and Increased Anthropogeneous Pressure

16:50 – 17:05 Desislava Kostadinova, Rewilding Rhodopes Foundation, Bulgaria

Rewilding and Restoration of the European Bison in the Rhodope Mountains: Challenges and Perspectives

17:05 – 17:15 Emilian Stoynov, Bulgaria

Some Aspects of the European Sousek (*Spermophilus citellus*) Post-Reintroduction Ecological Role in Kotlenska Planina, Bulgaria (EcoPro038*)

17:15 – 17:25 Ivelin Ivanov, Bulgaria

Bearded Vulture (*Gypaetus barbatus*) Practical Reintroduction in Bulgaria – Status by 2025

17:25 – 17:35 Georgi Stoyanov, Bulgaria

Monitoring Results and State of the Locally Reintroduced Population of the Griffon Vulture (*Gyps fulvus*) in Balkan Mountain, Bulgaria (EcoPro039*)

17:35 – 17:45 Simeon Marin, Ivelin Ivanov, Bulgaria

Results from the On-Going Reintroduction of the Cinereous Vulture (*Aegypius monachus*) in Balkan Mountain and Kresna Gorge in Bulgaria 2018-2025 (EcoPro040*)

17:45 – 17:55 Hristo Peshev, Ivelin Ivanov, Bulgaria

Results of the Re-Introduction of the Griffon Vulture (*Gyps fulvus*) in Kresna Gorge of Struma River, Bulgaria – Completion of the Establishment Phase 2010 – 2025 (EcoPro041*)

17:55 – 19:00 Poster session [GenBio/EcoPro]

19:00 Poster Awards and Closing

- Microbiology
and
Biotechnology





● MB-BT001 – Daniela Todevska, North Macedonia

EXPLOITING BENEFICIAL BACTERIA AS PLANT PROBIOTICS FOR SUSTAINABLE CROP ENHANCEMENT

Daniela Todevska¹, Natalija Atanasova-Pancevska²

¹Goce Delcev University – Stip, Faculty of Agriculture, Department for Plant Production, Stip, Republic of North Macedonia

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Plant probiotics, defined as beneficial bacteria that colonize the rhizosphere, represent a promising eco-friendly alternative to synthetic agrochemicals. These microorganisms can enhance plant growth through mechanisms such as nutrient solubilization, and stress mitigation. Although numerous studies have highlighted their potential in various crops, systematic evaluation of strain-specific effects under standardized conditions remains limited. This work assesses the potential of selected bacterial isolates to promote growth, nutrient acquisition, and abiotic stress tolerance in tomato seedlings.

A collection of 30 soil bacteria were isolated from healthy tomato plants in organic farms. Isolates were screened in vitro for plant growth-promoting traits including potassium, phosphate and zinc solubilization. Two promising strains of *Bacillus* sp. (strain Bv and Ba) were selected for greenhouse trials. Surface-sterilized tomato seeds were inoculated with bacterial suspensions (10^8 CFU mL⁻¹) and grown under controlled conditions for six weeks. Plant growth parameters, chlorophyll content, and drought tolerance were assessed. Root colonization was also quantified.

Two bacterial treatments significantly increased shoot height (15–25%), root length (20–30%), and total biomass (18–28%). Chlorophyll content rose by 12–18%, compared to controls. Under drought stress, inoculated plants exhibited higher relative water content (10–15% increase) and maintained 25% greater biomass than controls. Quantification analysis confirmed effective root colonization with densities of 10^6 – 10^7 CFU g⁻¹ root.

These results demonstrate that plant probiotic bacteria can substantially enhance growth and drought resilience, offering a sustainable alternative to chemical inputs in agriculture. Integrating these strains into crop management strategies could improve yield stability and environmental sustainability.