



BioResources
& Technology

BRT Newsletter

Volume #4

2025
Recap

WHO WE ARE

The BioResources and Technology (BRT) is a research division in the Faculty of Tropical AgriScience (FTZ) at the Czech University of Life Sciences Prague (CZU), dedicated to advancing sustainable solutions through rigorous research, innovative technology, and interdisciplinary collaboration. The team is composed of a dynamic group of researchers dedicated to advancing biogas research, bioresources management and sustainable technologies.

"Fearless minds,
Endless potential"

OUR VALUES

"Fearless minds, Endless potential"
... knowledge sharing, ... innovation, ... global research action.



BioResources
& Technology



WH WE

We drive innova-
technologies, tackle
bioenergy, environm-
waste management
Beyond exper-
plants around
cutting-edge
res-
agricultural
and



biogas.czu.cz



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BioResources & Technology Division

CORE AREAS OF REASEARCH

- Bioenergy
- Bioeconomy
- Complexity
- Food Security
- Waste Management
- Sustainable Agriculture & Aquaculture
- much more...



 <http://biores.tech/>



Our research and innovation objectives encompass a wide array of thematic, from the determination of the real impact of small biogas plants (both in developing and developed countries) on the environment, climate change and society to bioresources technologies, including bioenergy, environmental aspects, food security, waste management, biotechnologies and more.

The global shift towards renewable energy and sustainable practices has reinforced the importance of holistic approaches to resource management. This underscores our commitment to fostering collaboration across these disciplines, enhancing our ability to address complex sustainability challenges. Interdisciplinary research is at the core of the BRT. Our team comprises environmental science, engineering, agriculture, and social sciences expertise.

The BRT is committed to applying our research findings to real-world challenges. Our team works with a broad range of stakeholders, including local communities, policymakers, researchers, NGOs, education centres, universities, etc. This expanded network enables us to scale our impact and effectively apply our research findings to real-world challenges. Because here at BRT, we strive to see our results in real-world applications!

BRT Team

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Behind every project, publication, and field mission is a diverse team driving BRT forward.

At the heart of the BioResources and Technology (BRT) Division is a multidisciplinary team united by a shared commitment to applied research, sustainability, and real-world impact. In 2025, the collective efforts of researchers, project managers, communicators, and students brought BRT's projects to life.



“

2025 was shaped not by a single defining moment, but by steady progress across research, education, and international collaboration - a reflection of the growing maturity and confidence of BRT.



Message from the BRT Founder & Director

As we look back on 2025, I see a year that truly reflects the spirit, maturity, and growing confidence of the BioResources and Technology (BRT) Division. It was a year marked not by a single defining moment, but by steady progress across research, education, and international collaboration. Together, these achievements demonstrate how BRT has evolved into a dynamic division that connects scientific excellence with real-world impact.

Throughout 2025, BRT strengthened its position by actively contributing to strategic research initiatives, international projects, and interdisciplinary cooperation. Our work increasingly bridged faculties, institutes, and external partners, reinforcing BRT's role as a connector between disciplines, regions, and sectors. This integration is essential in addressing complex challenges related to sustainability, bioeconomy, energy, and environmental protection.

Looking ahead, I am encouraged by the clear direction of our research and collaborations. BRT's growing involvement in Horizon Europe projects reflects a strong commitment to advancing research that is both internationally relevant and scientifically rigorous.

Our focus on circular bioeconomy, renewable energy, and reproducibility in science, together with expanding partnerships in the Global South, demonstrates long-term commitments grounded in responsibility, integrity, and real-world relevance.

Equally important is our role in preparing the next generation of researchers and practitioners. In 2025, BRT continued to create opportunities for students and early-career scientists through meaningful research, international mobility, and interdisciplinary learning, shaping professionals who are not only technically skilled, but also ethically grounded and globally aware.

I extend my sincere thanks to all BRT members, partners, students, and collaborators whose trust and dedication made this work possible. As we move into 2026, I am confident that together we will continue to build a BRT that is innovative, inclusive, and impactful, locally rooted, yet globally connected.

And remember: “Fearless minds, endless potential.”

The New Dean of FTZ

Leading Excellence in Tropical AgriSciences

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Read all about the multifaceted career of Assoc. Prof. Dr. Hynek Roubík!



On April 25th, 2025, BRT Director Assoc. Prof. Dr. Hynek Roubík was formally appointed as Dean of the Faculty of Tropical AgriSciences (FTZ) at the Czech University of Life Sciences Prague (CZU). The inauguration ceremony reflected the spirit and traditions of FTZ, marked by symbolic elements such as the dean's regalia and the planting of the third Dean's tree, a lasting symbol of growth, continuity, and academic stewardship. In his inaugural address, Dr. Roubík emphasised a vision grounded in international cooperation, sustainability, and strong student engagement, values that resonate deeply with FTZ's work.

The BRT team warmly congratulates Hynek on this important milestone. We are proud to continue working under his leadership and look forward to advancing impactful, interdisciplinary research together in this new chapter.





Publications

In 2025, the BRT team continued to advance a wide range of impactful research across its core areas of expertise. From innovative biogas technologies to new approaches in sustainability and resource management, BRT publications reflect a shared commitment to addressing pressing global challenges through rigorous, applied science.

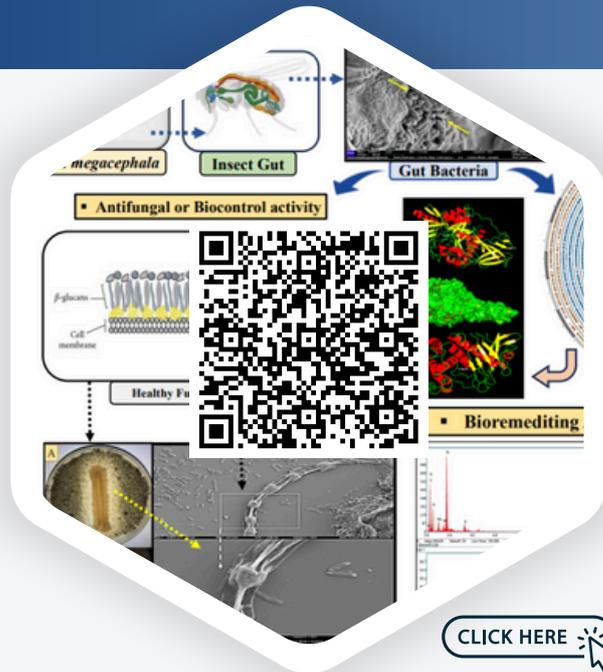
**24 PUBLICATIONS
IN 2025**



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Scan the QR code to explore all our 2025 publications and stay connected with the breakthroughs driving our work forward!

Publications – SELECTED ARTICLES



BIOCONTROL, PLANT GROWTH-PROMOTING, AND BIOREMEDIATION POTENTIAL OF AEROMONAS VERONII CMF FROM THE GUT OF CHRYSOMYA MEGACEPHALA

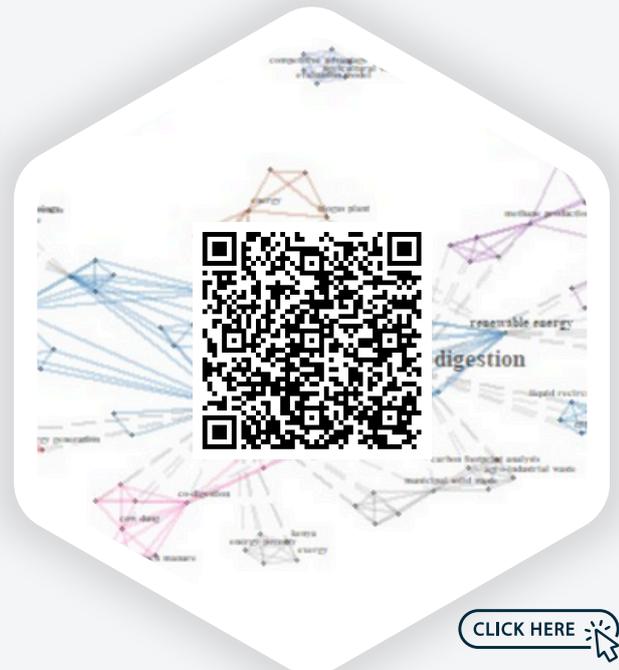
BRT Members: Sandipan Banerjee, Hynek Roubík

This study describes a non-pathogenic bacterial strain, *Aeromonas veronii* CMF, isolated from the gut of the chitinivorous insect *Chrysomya megacephala*. The strain showed antifungal activity, plant growth-promoting traits, root colonisation ability, and heavy-metal tolerance, highlighting its potential for sustainable agriculture.

A SYSTEMATIC SCOPING REVIEW OF BIOGAS AS AN INSTRUMENTAL TECHNOLOGY FOR A CIRCULAR ECONOMY AND A WAY FORWARD TO ENSURE SUSTAINABLE DEVELOPMENT IN THE CONTEXT OF GLOBAL SOUTH NATIONS

BRT Members: Tewodros Tarekegn Lapiso, Hynek Roubík

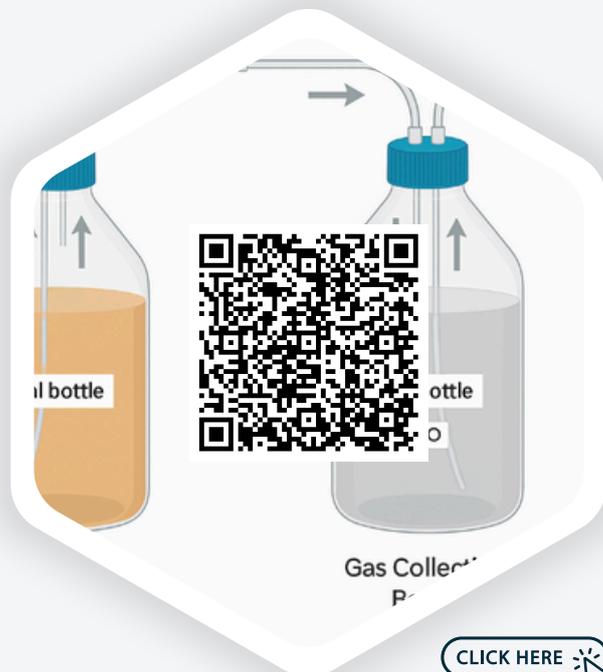
This review explores research linking biogas technology with circular economy and sustainable development in the Global South, based on 43 peer-reviewed studies published between 1988 and 2024. The analysis highlights key research trends and the need for more balanced methodological approaches.



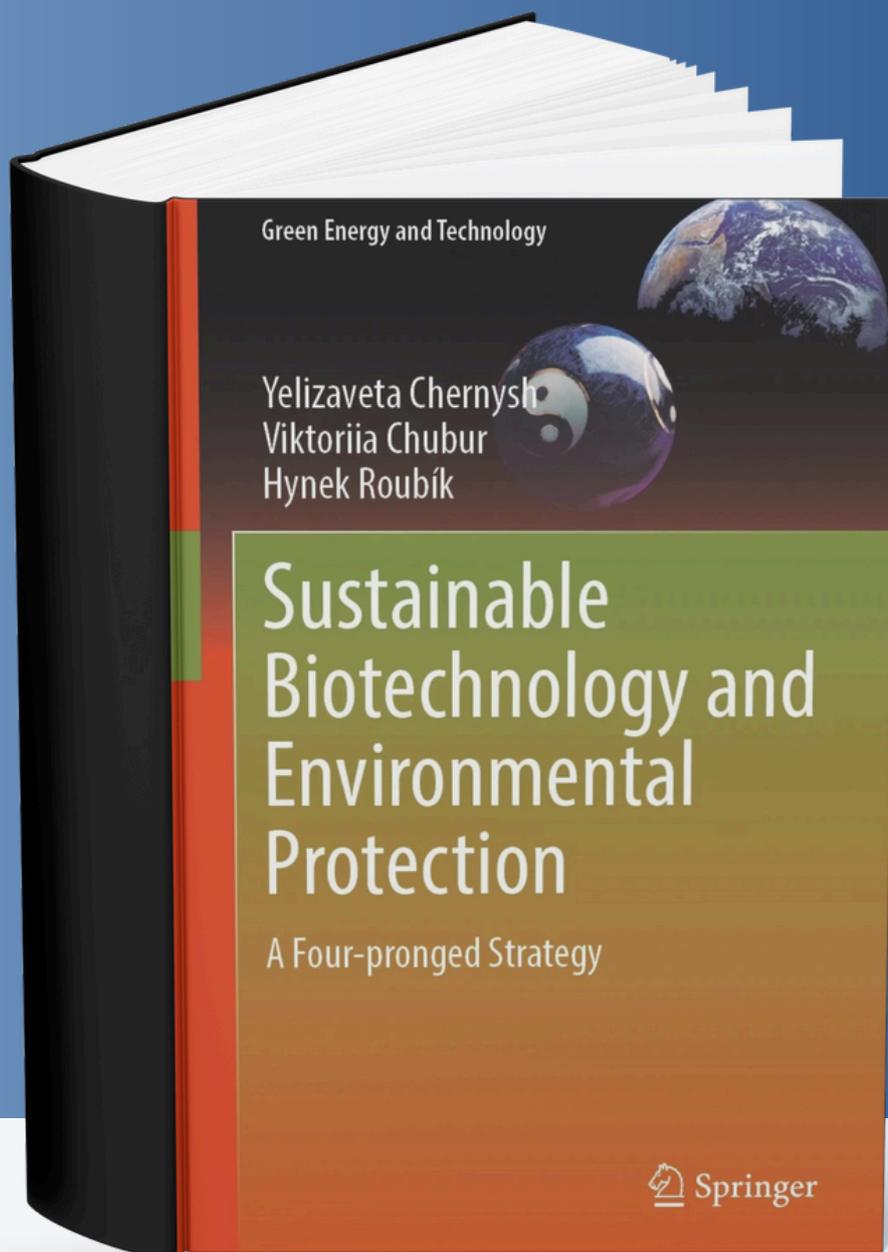
POTENTIAL OF SUGARCANE BAGASSE AS FEEDSTOCK FOR BIOGAS PRODUCTION IN NIGERIA

BRT Members: AbdulAzeez Shobajo, Viktoriia Chubur, Hynek Roubík

This study evaluates sugarcane bagasse as a biogas feedstock in Nigeria using farmer surveys and laboratory digestion experiments. The findings show strong adoption potential and comparable methane yields from bagasse alone and with cow manure, highlighting opportunities for small-scale rural biogas solutions.



Publications – BOOK



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SUSTAINABLE BIOTECHNOLOGY AND ENVIRONMENTAL PROTECTION

BRT Members: Yelizaveta Chernysh , Viktoriia Chubur , Hynek Roubík

This book highlights how biotechnology can tackle today's urgent environmental challenges. It presents strategies to minimize waste, cut toxicity, improve disposal, and turn waste into valuable resources – all within a sustainable bioeconomy framework. With insights into policy and urban development, it charts a path toward a safer, more sustainable world.

Projects

In 2025, BRT continued to translate research into practical, sustainable solutions through a diverse portfolio of projects. From advancing biogas systems and circular bioeconomy approaches to strengthening open science, biodiversity, and data-driven decision-making, these initiatives reflect BRT's applied research focus. Working closely with international partners, BRT projects combined technological innovation, field implementation, and capacity building to support agriculture, rural development, and environmental resilience across regions.



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Scan the QR code to explore all our major projects!

At a Glance



Applied Research



Global Collaboration



Real-World Impact

Projects - HORIZON EUROPE HIGHLIGHTS



BRT joined partners in London for the OSIRIS-TIER2-iRISE Tripartite General Assembly, bringing together three EU-funded projects focused on Open Science. The meetings supported exchange on reproducibility, research integrity, and training, while aligning partners on progress and next steps.

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The BIO-CAPITAL consortium met in Prague for a key project meeting hosted at the Czech University of Life Sciences Prague (CZU). As project coordinator, Assoc. Prof. Dr. Hynek Roubik brought partners together to align research, tools, and use cases supporting data-driven and investment-ready approaches to biodiversity protection.



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BRT contributed to COMUNIDAD workshops in Chile and Colombia and the project's Final Event in Brazil. These activities supported knowledge exchange and collaboration around data-driven tools, helping advance the practical use and uptake of COMUNIDAD solutions across the region. They also strengthened dialogue between researchers, institutions, and regional stakeholders, supporting continued collaboration beyond the project.



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Projects - KEY INITIATIVES



MWAZACO PROJECT LAUNCH IN ZAMBIA

In September 2025, the “Mine Water Atlas of the Zambian Copperbelt” (MWAZACO) project was officially launched at the Copperbelt University (CBU), marking a key step in strengthening mine-water management in one of Africa’s most intensively mined regions. Bringing together Zambian and Czech partners, the project aims to develop a digital Mine Water Atlas that integrates field data, modelling, and remote sensing to support evidence-based decision-making for cleaner and more sustainable mining landscapes.

KICK-OFF OF THE V-BIOCHAR PROJECT: VERMICOMPOST & BIOCHAR INTEGRATION FOR CLIMATE-SMART FARMING IN CAMBODIA

Launched in 2025, the “V-BIOCHAR” project brings together CZU, ADRA Cambodia, and ADRA Czech Republic to support climate-smart farming in Pursat province. The initiative integrates vermicompost and biochar to improve soil health, reduce reliance on chemical fertilisers, and promote sustainable use of local agricultural residues.



ON THE GROUND IN LAOS: BRT BEGINS BASELINE STUDY ON SINGLE-USE PLASTICS

BRT in cooperation with Savannakhet University, Caritas Czechia, and Catholic Relief Services (CRS) launched a baseline study on single-use plastic waste starting with a two-week field mission in Savannakhet and Thakhek provinces, Lao PDR. Working with local universities and development partners, the team refined data-collection methods, trained local enumerators, and began field surveys to build an evidence base for more sustainable and context-appropriate plastic waste management.



Projects - KEY INITIATIVES

AGRISCI-UA SUMMER SCHOOL AT CZU

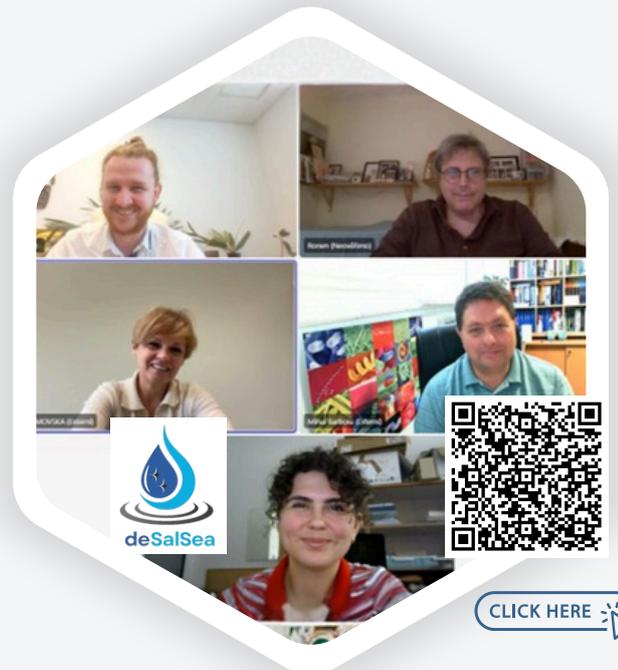
In December 2025, the “AgriSci-UA” Summer School brought researchers and academic staff from Ukrainian universities to CZU for an intensive week of learning and exchange. Through laboratory visits, workshops, and discussions on sustainability, applied research, and emerging tools such as AI, the programme strengthened academic cooperation, fostered new research connections, and laid the groundwork for future collaboration and mobility under the AgriSciences-UA platform.



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DESALSEA PROJECT KICK-OFF: SUSTAINABLE DESALINATION INNOVATION

The “deSalSea” project officially launched, bringing together an international consortium to advance sustainable seawater desalination through forward osmosis technology. Combining expertise in membrane science, materials innovation, and sustainability assessment, the project aims to develop energy-efficient, low-impact desalination solutions that contribute to cleaner water access and support long-term environmental responsibility.



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BIOGAS FOR COMMUNITY RESILIENCE IN WESTERN ZAMBIA

The project “Through Biogas Technology Towards Higher Resilience of the Communities in Western Province of Zambia” supports smallholder farmers by improving access to clean energy and organic fertilisers. Through awareness-raising, capacity building, and financing mechanisms, the initiative expands biogas adoption to strengthen food security, livelihoods, and climate resilience, while integrating bio-slurry use into agriculture and aquaculture.



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International Engagements

Building global partnerships through research and exchange

In 2025, BRT's activities reached more than 20 countries through a wide range of international engagements, including internships, academic mobility, guest lectures, workshops, field visits, and collaborative initiatives. These activities strengthened scientific exchange, deepened partnerships, and created meaningful opportunities for knowledge sharing and cooperation. Together, they reflect BRT's commitment to globally connected research that is responsive to local contexts and real-world challenges.

21 INTERNATIONAL COLLABORATIONS IN **2025**





CONNECTING RESEARCH AND REAL IMPACT AT TROPENTAG

BRT PhD student Hidayatul Fitri participated in Tropentag 2025 in Bonn, presenting research on women's roles in sustaining long-term biogas adoption in rural Vietnam and on improving biogas production through enzymatic pretreatment of rice straw. The conference provided a platform for exchange across disciplines, fostering dialogue on renewable energy, gender perspectives, and innovation in sustainable agriculture.

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ENGINEERING SOLUTIONS AND CULTURAL CONNECTIONS IN BHUTAN

BRT PhD student Antoine Bercy took part in an Erasmus+ academic mobility at Jigme Namgyel Engineering College of the Royal University of Bhutan. During his stay, he worked with local teams to assess and revive a biogas plant intended to treat canteen food waste, contributing technical guidance on reactor operation, monitoring, and troubleshooting, while gaining hands-on experience and engaging closely with Bhutanese academic and cultural life.



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EMPOWERING RESEARCH THROUGH LCA AT THE UNIVERSITY OF SOUTH BOHEMIA MASTERCLASS

BRT PhD student AbdulAzeez Shobajo took part in an international Life Cycle Assessment (LCA) Masterclass hosted by the University of South Bohemia in České Budějovice. The programme combined theoretical grounding with hands-on training in LCA tools and methods, strengthening his capacity to apply environmental impact assessment to research on biogas technologies, waste valorisation, and sustainable resource use.



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In the News

Key updates, milestones, and stories from across BRT.

Throughout 2025, BRT shared regular updates on project developments, new publications, events, and field activities, reflecting strong engagement in research and collaboration. News highlights include contributions to global research initiatives, participation in international conferences and workshops, cross-border partnerships, and key institutional milestones that advanced BRT's work within CZU and beyond.



News - HIGHLIGHTS FROM ACROSS BRT



BRT DIRECTOR ASSOC. PROF. DR. HYNEK ROUBÍK RANKED AMONG TOP 0.5% OF SCHOLARS WORLDWIDE BY SCHOLARGPS

BRT Director Assoc. Prof. Dr. Hynek Roubík was recognised as a ScholarGPS Top Scholar, placing him among the top 0.5% of researchers worldwide. Ranked #52 globally in the Rural Area category over the past five years, the recognition highlights his strong research impact and contribution to sustainable development, while underscoring the high level of research excellence at the Faculty of Tropical AgriSciences (FTZ), CZU.

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SEIZING OPPORTUNITIES FOR GROWTH AT HIMACHAL PRADESH UNIVERSITY, INDIA

BRT PhD student Manvendra Kumar completed a one-month research internship at Himachal Pradesh University in India. The internship provided hands-on experience in anaerobic digestion, wastewater treatment, and bioenergy systems, allowing him to connect his PhD research on combined waste streams with real-world applications while strengthening international collaboration and professional skills.



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ENHANCING SCIENTIFIC EXPERTISE THROUGH STSM AT YILDIZ TECHNICAL UNIVERSITY, TURKEY

BRT postdoc Lydia Mawar Ningsih undertook a Short-Term Scientific Mission (STSM) at Yildiz Technical University (YTU) in Turkey. During her stay, she conducted techno-economic analysis of biogas production from tofu wastewater using anaerobic digestion modelling, while engaging with academic partners and expanding her expertise in sustainable engineering and renewable energy systems.



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Internship Program

The BRT Internship Program brings together students and early-career researchers from across the globe for hands-on experience in sustainability, bioresources, and environmental technology.

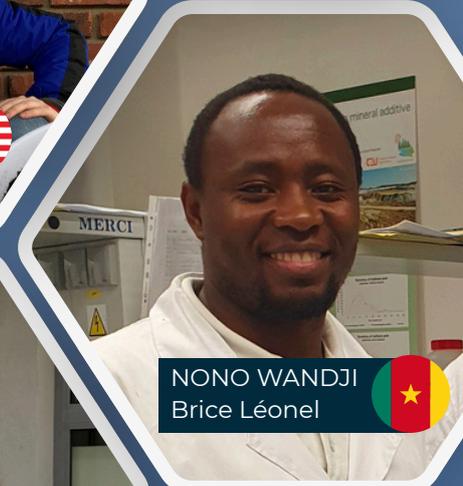
Interns work side by side with BRT researchers on lab-based projects, science communication, and project coordination - gaining practical skills while contributing to a diverse, collaborative research environment. This international exchange fosters mutual learning and broadens perspectives on global sustainability challenges.



Esther Folepe
Azemo



Katie Jacobs



NONO WANDJI
Brice Léonel



Viktoriia
Pidnebesna



Mihir Gandhi



Dave Umang



Maame Mesiwah
Andzie-Quainoo



Rahul Keswani



Paula Andrea
Castro Martinez



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2025 BRT PhD Graduates



DR. CHAMA THEODORE KETUAMA

Dr. Chama Theodore Ketuama's doctoral research examined sustainable transition pathways for small-scale biogas technology in rural Cameroon. His work addressed cleaner household energy access while tackling deforestation, waste management, and greenhouse gas emissions, alongside contributions to teaching, publications, and international development projects across Africa, Europe, and Asia.

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DR. LYDIA MAWAR NINGSIH

Dr. Lydia Mawar Ningsih's doctoral research examined the revalorization of agro-industrial wastewater for bioenergy production in developing countries. Using anaerobic digestion and biofilter-assisted systems, her work demonstrated the potential of tofu and tempeh wastewater to generate biogas, valuable by-products, and nutrient-rich effluent, supporting low-cost, scalable solutions aligned with circular economy and climate mitigation goals.



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DR. JAN STAŠ

Dr. Jan Staš' research examined plant-derived compounds for inhibiting beverage-spoiling microorganisms, developing methods to test natural antimicrobials directly in real juice matrices. His work supports cleaner food preservation practices and is complemented by extensive experience in international development projects in Zambia, Ethiopia, and Cambodia, using a multidisciplinary, applied science approach.

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New Faces at BRT

In 2025, BRT welcomed new colleagues across a range of roles, including project managers, postdoctoral researchers, and PhD students. Bringing diverse expertise and perspectives, these new team members strengthen BRT's interdisciplinary approach and contribute to advancing applied research, project implementation, and international collaboration.



Aishwarya Chaure - Project Manager



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Sandipan Banerjee - Postdoctoral Researcher



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Ayeah Gideon Gobti - PhD student



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Chhorth Chhiengputheavy - PhD student



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MCYR 2025



6th International Multidisciplinary Conference for Young Researchers

The MCYR conference provides a dynamic platform for early-career researchers to present their work, exchange ideas across disciplines, and engage in meaningful scientific discussions. It aims to cultivate an open and supportive environment that encourages constructive feedback, collaboration, and professional growth. Beyond showcasing research, MCYR offers valuable opportunities for networking, helping participants connect with peers, experts, and institutions that can inspire future partnerships and advance their academic and professional journeys.

The annual MCYR conference is held in Prague at the Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague.



Join us next year for MCYR 2026!

MCYR STORYTELLING COMPETITION 2025

The MCYR 2025 Storytelling Competition, “Your Research, Your Story,” invited early-career researchers to transform their scientific abstracts into engaging narratives with real-world relevance. Set within the 6th International Multidisciplinary Conference for Young Researchers, the competition highlighted creative science communication across four European research projects—OSIRIS, COMUNIDAD, BIO-CAPITAL, and AgriSci-UA—showcasing how research stories can connect innovation, impact, and audience engagement.

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Olha Kruhliak

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Anxhela Hameti



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Richard Marfo

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Pavla Přinosilová





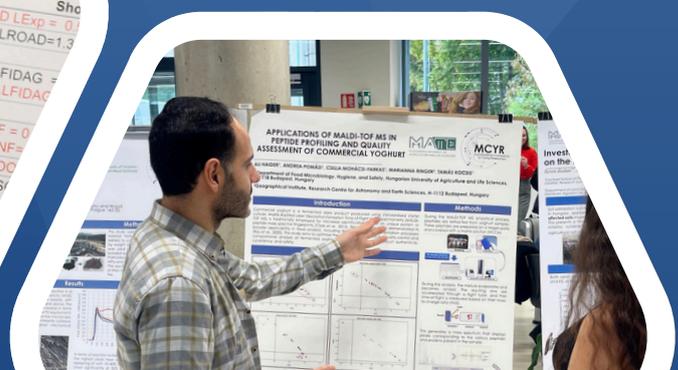
MCYR 2025 PHOTO ALBUM

The MCYR 2025 Photo Album captures the highlights of two inspiring days of collaboration, innovation, and scientific exchange. From keynote talks and dynamic oral and poster sessions to informal networking moments and the awards ceremony, the collection reflects the energy, diversity, and community spirit that define MCYR and celebrate the people behind the research. Explore the gallery, find your favorite moments, and share them with your colleagues and networks.

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Scan the QR code to relive the moments from MCYR 2025.

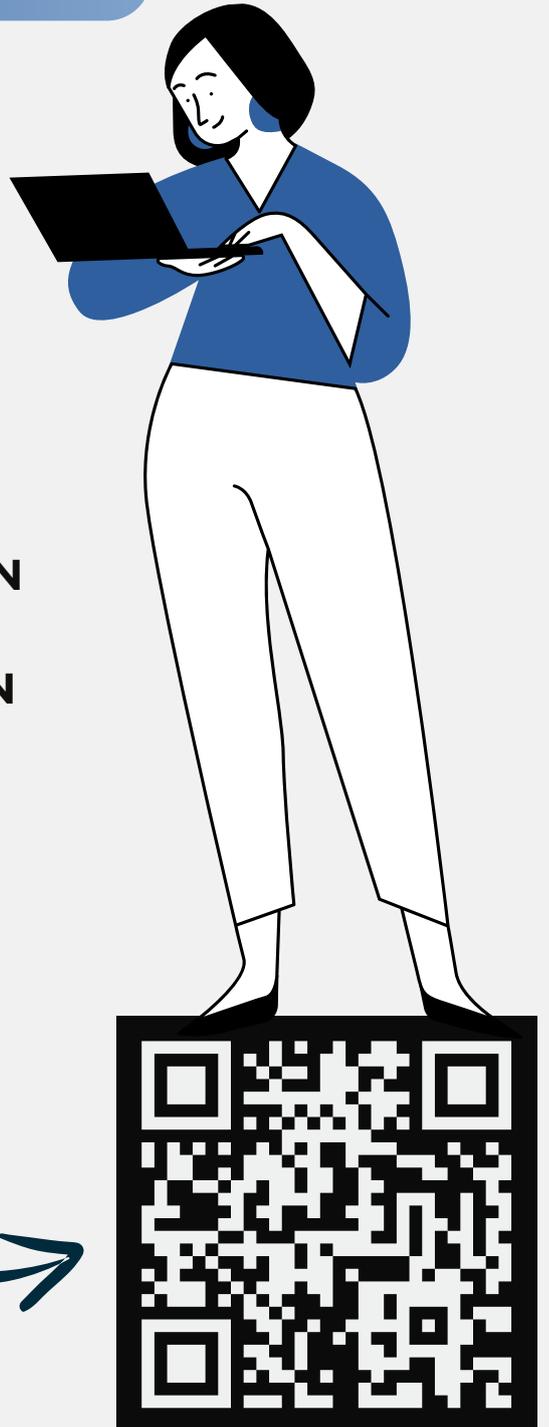


BRT Services

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- **SOCIAL MEDIA MANAGEMENT**
- **CONTENT CREATION**
- **COMMUNICATION & DISSEMINATION TOOLS**
- **EVENT PLANNING & COORDINATION**
- **EDITING & PROOFREADING**

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Endless potential”***