

Bioenergy and biomass Romanian research team is offering its research services and the capabilities to create new products and technologies under commercial agreement with technical assistance or research and development cooperation agreements

Summary

Profile type

Technology offer

Company's country

Romania

POD reference

TORO20241009012

Profile status

PUBLISHED

Type of partnership

**Commercial agreement with
technical assistance**

**Research and development
cooperation agreement**

Targeted countries

• **World**

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Term of validity

22 Nov 2024

22 Nov 2025

Last update

22 Nov 2024

General Information

Short summary

Transylvanian research institute represented by the team offers its research services (bioenergy - biomass, circular bioeconomy, clean technologies for biofuel production) under commercial agreement with technical assistance and also is looking for project partners under research and development cooperation agreement within a consortium (Horizon Europe Cluster 5 or 6).

Full description

Located in Transylvania, the Romanian research institute is active in the fundamental and applied research and has decades of experience in applied analytical chemistry in three main directions:

- Environment and Health;
- Bioenergy and Biomass;
- Analytics and Instrumentation.

The Romanian research institute has experienced scientists and researchers, as well as a remarkable endowment, that allow approaching projects from industrial research to stages "prototype realization" and "technology transfer".

The Bioenergy-Biomass Laboratories (Renewable Energy Laboratory and Biofuel Quality Certification Laboratory) are dedicated to the development and implementation of green technologies for biofuel production and efficient biomass conversion. The institute offers/develops green technologies for the production of liquid, solid and gaseous biofuels, biomass conversion processes, as well as testing and analysis of the resulting biofuels. The service ensures the design and implementation of green technologies for the production of renewable biofuels, efficient biomass conversion technologies, and biofuel quality certification in accordance with current standards. The institute has the equipment and installations for developing innovative solutions from design to pilot level. It also can ensure the commissioning of biodiesel production plants.

Services offered include: (1) Designing green technologies for biofuel production (liquid, solid, and gaseous) based on technical feasibility (type of raw material, processing technologies, and scalability) and economic feasibility (cost-benefit analysis), (2) Process design (technology selection, identification, and selection of the most suitable technologies, process optimization), (3) Testing, validating, and optimizing biofuel production technologies to achieve optimal efficiency and yield, (4) Biofuel analysis and certification, and (5) Sustainability and durability evaluation through life cycle analysis (LCA) and carbon footprint assessment (details are established after the request is submitted).

Laboratories and equipment involved:

The research institute possesses a variety of equipment and facilities for the development/testing and validation of biofuel production technologies, equipment's used for biomass analysis, biochemical conversion of biomass (fermentation, enzymatic hydrolysis, anaerobic digestion, pelletization, and briquetting), as well as equipment for biofuel analysis. The available equipment includes the following items:

(1) Plants and equipment for biomass conversion processes: pretreatment reactor (Parr bioreactor), bioreactors for fermentation (Lambda Minifor), biofermenter for biogas production (Automated Methane Production Potential Test System (AMPTS), reactor for continuous biogas production (Gas Endeavor III);

(2) Analytical equipment for biomass and biofuel analysis includes a gas chromatograph coupled with different types of detectors, such as a mass detector (GC-MS), an electron capture detector (GC-ECD), and a flame ionisation detector (GC-FID). Additionally, the laboratory possesses an ion chromatograph, a liquid chromatograph (UHPLC-ELSD, DAD, RI), and other similar instruments.

Green technologies have been implemented in various research projects: green technologies for bioethanol, biodiesel, and biogas production, obtaining pellets and briquettes from vine cuttings; green bioethanol production technologies from lignocellulosic biomass; green biogas production technology from lignocellulosic and/or biogenic biomass.

Willing to further develop green technologies, the Romanian research institute would like to conclude commercial agreement with technical assistance with partners that need research services or research and development cooperation agreement within a consortium (Horizon Europe Cluster 5: Climate, Energy and Mobility & Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment).

Advantages and innovations

Applicable standard methods and procedures

Technology design is based on preliminary biomass analysis and the desired type of biofuel. Testing and certification of biofuels comply with SR EN 14214 standards for biodiesel and SR EN 15376 for bioethanol. Biofuel performance evaluations are carried out through various combustion tests (combustion gas analysis). Environmental and sustainability assessments are ensured through life cycle analysis, which includes evaluating the environmental impact of technology and biofuel use. The LCA methodology complies with the ISO 14040 standard.

Representative parameters and accuracy

The design of green technologies involves essential parameters and ensuring high accuracy to obtain efficient, sustainable, and economical processes. Representative parameters include: raw material selection and treatment parameters (chemical composition), biochemical conversion, process integration, experimental validation, process control, and monitoring, etc.

Technical specification or expertise sought

Stage of development

Concept stage

IPR Status

No IPR applied

IPR Notes

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

Partner Sought

Expected role of the partner

Under the commercial agreement with technical assistance the Romanian research institute is looking for foreign partners that require:

- Test reports on biofuel testing.
- Reports for biofuel production installations.

Under research and development cooperation agreement the Romanian research institute is looking for foreign partners within a consortium (Horizon Europe: Cluster 5: Climate, Energy and Mobility & Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment) - e.g. Green biofuel production technology projects.

The Romanian research institute will support its foreign partners with the provision of all required documents.

Type of partnership

Commercial agreement with technical assistance

Research and development cooperation agreement

Type and size of the partner

- **University**
- **Big company**
- **R&D Institution**
- **SME 11-49**
- **SME 50 - 249**
- **SME <=10**

Dissemination

Technology keywords

- **04005012 - Waste to energy - other**
- **04005010 - Integrated waste-energy processes**
- **04006 - Biogas and anaerobic digestion (AD)**
- **04005009 - Energy from wastewater**
- **04005011 - Bio-refineries for energy**

Targeted countries

- **World**

Market keywords

- **09003007 - Other services (not elsewhere classified)**

Sector groups involved

- **Energy-Intensive Industries**
- **Renewable Energy**
- **Mobility - Transport - Automotive**