



## Production of biogas from protein-rich resources

### ***Development status***

Proof of concept

Development

#### **▶ Product development and Testing**

Entering to market

Market development

### ***IP status***

In priority year

PCT I.

PCT II.

#### **▶ National/regional phase**

Validation in Hungary

### ***Challenge***

Protein-rich biomass substrates (as monosubstrates) and by-product materials are currently not used biogas fermenters due to process inhibition. Substrate compositions of low C/N ratio are considered difficult because of the toxic effect on microbes caused by the ammonia. Therefore, the literature and industrial practice strongly argues against the use of protein-based materials as a substrate in biogas reactors. Researchers at the University of Szeged developed an effective solution to this problem.

### ***Technology***

A new community of microbes was introduced which applies protein-rich substrates as monosubstrate in fed-batch operated biogas reactors. This consortium is capable of withstanding a high concentration of ammonia and produces significant quantity of biogas in fed-batch operation either exclusively or almost entirely from the protein-based substrate.

### ***Keywords***

Protein degradation, elimination of protein-rich waste, biogas production.

## ***Benefits***

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- ▶ Enables the overwhelmingly protein-based hazardous waste to be degraded at biogas plants.
- ▶ Environmentally friendly treatment of protein-based waste (produced in meat industry and during animal husbandry) by converting the material to biogas, a renewable energy carrier, and facilitating the economical operation of biogas plants.

## ***Development status***

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The development phase was finished. The next step is to further develop the technology for industrial-scale production, and to optimise the required processes.

## ***IP status***

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The European patent was granted in 2017 (Patent No.:2756070). The European patent has been validated in Hungary in 2017.

## ***What we are looking for***

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The University would like to license out the technology to companies who are interested in developing biogas technologies. The following task is to further develop the technology for industrial-scale production. The University is open to negotiate other utilization forms, such as partnering and R&D collaborations.

### **Contact**



**Dr. Zsófia Herbel**  
Technology Manager

E-mail: [herbel.zsofia@rekt.szte.hu](mailto:herbel.zsofia@rekt.szte.hu)  
Tel: +(36-62) 546-738