**Development status**
- Proof of concept
- Development

**IP status**
- In priority year
- PCT I.
- PCT II.

**Product development and Testing**
- Entering to market
- Market development

**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**

- 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**

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**

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**

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.

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