University of Gdańsk
Technology Transfer Office

Bio-tech

Plasma discharge system for eradication of microorganisms

About technology

Effective and efficient **methods of eradicating microorganisms**, such as **fungi** (especially molds and yeasts), **bacteria** or **protozoa**, are crucial in food, cosmetic and pharmaceutical industries, as well as in health service.

Developed plasma discharge **device utilising direct current atmospheric pressure** glow discharge (dc-APGD) can be used in **sterilization processes involving liquids and gels**, of both high and low viscosity (e.g. milk, water, beer, cream). The system can be used for eradication of a wide variety of microorganisms of the genus Dickeya, Pectobacterium, Xanthamonas, Clavibacter, Agrobacterium, Pantoea, Erwinia, Pseudomonas, Rathayibacter, Bacillus, Xylella, Burkholderia, Streptomyces, Sphingomonas, Acidovorax, Rhizobacter, Serratia, Rhizomonas, Clostridium, Enterobacter and many others.

The device can be used for continuous eradication of microorganisms throughout extended periods of time, which, in combination with precise control of operating parameters (e.g. discharge current, rate of bacterial suspension introduction into the system, feed volume) **allows sterilization** to be performed with very **high accuracy** and **efficiency**. Design of the system is further simplified by lack of reliance on discharge gases for discharge initiation. Due to aforementionned factors, developed method is extremely efficient, environmentally friendly, cheap and competitive, compared to common industrial sterilization methods.

Research Team

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IP Protection

The invention is the subject of polish patent protection Pat. **236055**.

Implementation progress

TRL 4 –Technology validated in laboratory conditions

Cooperation opportunities

- Licensing agreement
- Transfer of ownership
- Spin off

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