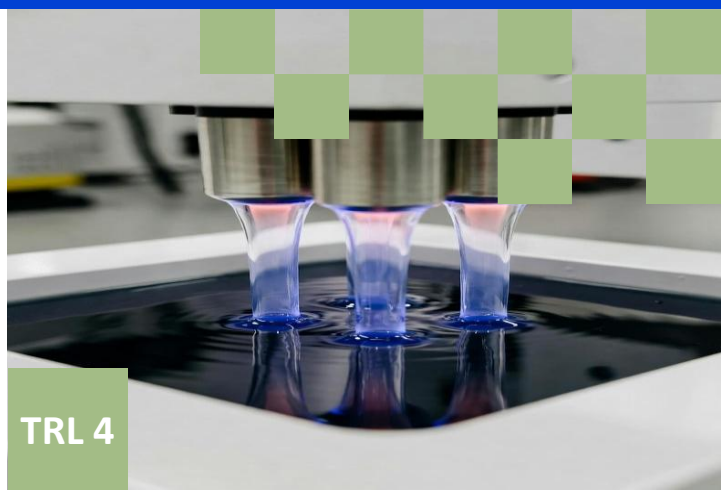
Bio-tech

Method for the Degradation of Antibiotics from Aqueous Solutions Using Cold Atmospheric Plasma



About the solution

The invention relates to a method for degrading antibiotics from aqueous solutions using cold atmospheric plasma generated in flow plasma brushes of the pm-rf-APGD or DBD type, as well as a dedicated plasma brush designed for this process.

The technology enables efficient degradation of single antibiotics and their mixtures, typical of municipal and industrial wastewater.

The flow-through design and multi-cone plasma system (4–5 plasma cones) enhance plasma–liquid interaction and increase degradation efficiency.

Cold atmospheric plasma allows the breakdown of a wide range of antibiotics (including fluoroquinolones, tetracyclines, trimethoprim, chloramphenicols, and β-lactams) without the need for aggressive chemical reagents or high temperatures.

The technology is environmentally friendly and offers an alternative to conventional wastewater treatment methods, helping to reduce antimicrobial resistance.

Research Team

University of Gdańsk
Wrocław University of Science and Technology

IP Protection

The invention is the subject of polish patent application: **P.440185** and international application: **PCT/PL2022/050027**

Applications

- Municipal and industrial wastewater treatment,
- Pharmaceutical and medical industries,
- Environmental engineering,
- Antibacterial and antimicrobial technologies

Cooperation opportunities

- Research and industrial testing partnerships,
- Technology licensing
- Technology sale

biuro@ctt.ug.edu.pl
ul. Wita Stwosza 63,
80-308 Gdańsk
www.ctt.ug.edu.pl

Judyta Gawryś
+48 725 991 257