Technology Offer

Rapid high throughput method for antimicrobial and anti-biofilm activity detection

Field of use
Biotechnology;
Antibiotic development;
Food industry;
Cleaning plants;
Producers of microplate readers.

Current state of technology
Tested in laboratory

Intellectual property
LU Patent Application No.: LU102767

Developed by
University of Ljubljana, Biotechnology Faculty;
Jožef Stefan Institute

Reference
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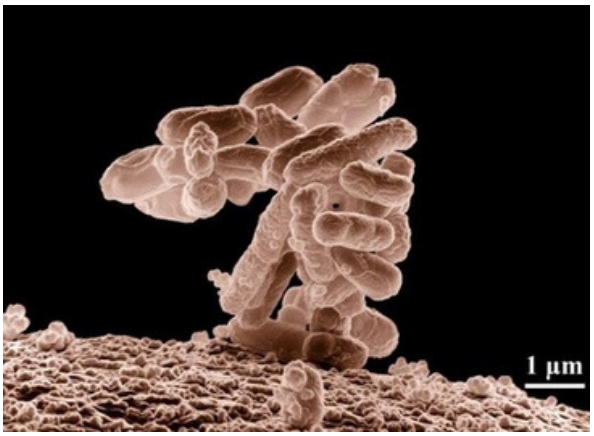
Contact

Knowledge Transfer Office, University of Ljubljana

Gabriela Droga Mazovec
Phone: +386 1 2418 533
E-mail: ipr@uni-lj.si



Background

More than 700,000 people die each year due to drug-resistant infections, and it is estimated that this number could increase to 10 million people per year by 2050. Altogether, food-borne illnesses represent a global public health problem that affects an estimated 600 million people annually (WHO, 2020). The search for new active compounds with antimicrobial and antibiofilm activities requires extensive screening studies. Biofilm formation is a persistence strategy for microorganisms and has a role for colonization of both abiotic and biotic surfaces. Control of biofilm formation might represent a better option in the fight against bacteria, especially due to increasing occurrence of antimicrobial resistance (AMR). To avoid the disastrous impact of AMR we urgently need alternative strategies for combating infectious diseases. Moreover, precise understanding of mechanisms of action and distinguishing between antimicrobial versus anti-biofilm activities will enable us to better control the spread of AMR and help reduce its occurrence.

Description of the Invention

We have developed a method for identifying a compound or a composition of compounds that have either antimicrobial and/or anti-biofilm activities against a bacterium of interest. Our method involves determining the growth of the microorganisms by measuring the optical density in intervals during the incubation.

Main Advantages

None of the existing methods can simultaneously determine antimicrobial and anti-biofilm activities in a relatively short time. Our method enables simultaneous detection and differentiation of the antimicrobial and/or antibiofilm activities of a composition or a compound analyzed in less than 20 hours in a high-throughput format.