

PROJECT DATA SHEET *Molecular toolbox for the analysis and control of biofilms in industrial water distribution systems*

Collaborative partners

University of New South Wales, the Environmental Biotechnology Cooperative Research Centre, and the Cooperative Research Centre for Water Quality and Treatment.

Location

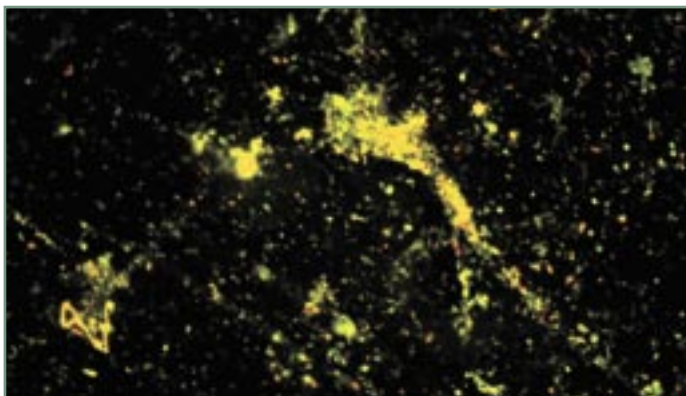
Australia-wide

Year

July 2005 - June 2008

Contact

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The challenge

Biofilms cause extensive problems in municipal and industrial water reticulation systems through biofouling, biocorrosion and bioconversion. Currently there are no effective strategies for the control of biofilms without major disruption to process operations.

Conventional disinfection strategies such as chlorination are often ineffective against these sessile bacteria due to the increased tolerance of biofilms towards antimicrobial agents. Also, many traditional strategies for the detection of bacteria do not detect these bacteria within biofilms.

The solution

Ecowise Environmental is currently researching methods that target biofilm development and dispersal may therefore represent new means to mitigate biofilms in water distribution systems.

The bacterial consortia in biofilms is being characterised by the molecular fingerprinting denaturing gradient gel electrophoresis (DGGE) to assess the diverse populations existing in full-scale potable and recycled water distribution systems.

The effects of various antimicrobial treatments on full-scale biofilms will be assessed using a range of molecular tools including DGGE, fluorescent in situ hybridization (FISH), and quantitative PCR amplification of target analytes (QPCR).

The outcome

Novel methods that target biofilm development and dispersal may represent new means to mitigate biofilms in water distribution systems and assist in the provision of improved water quality in water reticulation.

