BIOCIDE TOOLBOX NEWSLETTER

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IMPORTANT BIOCIDES NEWS IN 2016

BY A/PROF SIMON SWIFT

"In the Biocide ToolBox we try to keep abreast of important findings and other events that might influence what we do. As we start 2017, I have reflected on some of the stories from the scientific and popular press that I found both interesting and important."

FDA Ruling Out Triclosan

In February 2016, the FDA released a decision on biocides in over the counter hand-washes and soaps. After looking at the safety and effectiveness data for 19 additives, it ruled out a number of them. The most high profile is triclosan, which will be outlawed for use in products from September 6th 2017.

This shows the value of solid scientific evidence to back up the claims made for the effectiveness of antimicrobial ingredients. It shows the need for thorough safety assessment (especially in the longer term), and to consider the indirect impact of active ingredients on antimicrobial resistance.

In Biocide ToolBox research we place value on establishing efficacy not only in "tubes in the laboratory", but also in models that demonstrate fitness for purpose. We are concentrating efforts on producing greener biocides to reduce the chance of residues accumulating in our environment. These biocides are biodegradable, and presented in such a way to minimise leaching and/or the amount of biocide needed.

Antibiotic Resistance

Numerous publications have highlighted the reality of disease causing, pan-resistant organisms that we cannot kill with antibiotics. The solution to this alarming situation will involve the discovery of new antimicrobials, combined with the intelligent use of existing antimicrobials, to limit the development and spread of resistance.

Biocide ToolBox is searching novel antimicrobial options that might be applied in the medical field to prevent the spread of infectious agents via fomites in the hospital, and could protect implanted devices and invasive medical instruments from infectious colonisation.

New Zealand is now focussing on reducing the veterinary use of antibiotics, especially in dairy. The New Zealand Veterinary Association's aspirational goal is to no longer need antibiotics for the maintenance of health and welfare of animals by 2030, so there may be opportunities in the animal welfare field.

Polymeric Antimicrobials

An important research paper demonstrating the potential of polymeric antimicrobials was published by an Australian group in September 2016. (doi:10.1038/nmicrobiol.2016.162)

The authors demonstrated the star-shaped polymers they produced were antibacterial, killed antibiotic resistant bacteria, and were effective in clearing infections in animal models.

BTB researchers are also developing polymeric antimicrobials, and for us this study raises awareness of the potential of polymeric antimicrobials. It sets a standard for the experimental evidence we hope to obtain.

BIOCIDE TOOLBOX FAREWELLS INTERNATIONAL STUDENT

MSC STUDENT KARSTEN PARISON

MSc student Karsten Parison (25) is studying Chemistry at the University of Freiburg in Germany.

Polymer sciences are Karsten's strong suit - during his Bachelor thesis, he worked in the field of Green Chemistry, focussing on the isocyanate-free synthesis of thermoplastic, semi-crystalline polyurethanes.

At the end of August 2016, Karsten came to New Zealand to complete a five-month internship at the University of Auckland. He was welcomed in the Biocide ToolBox research group, and just completed his internship under the supervision of Professor Ralph Cooney. Kartsen's research focusses on the synthesis and characterisation of antimicrobial polyurethane surfaces.

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