

A*STAR team creates nanocoating to prevent AMR

10 April 2018 | News

Studies have shown that the wings of dragonflies and cicadas prevent bacterial growth due to their natural structure.



A group of researchers from Singapore's Agency for Science, Technology and Research (A*STAR) has invented an anti-bacterial nanocoating that could help to prevent antimicrobial resistance (AMR).

Studies have shown that the wings of dragonflies and cicadas prevent bacterial growth due to their natural structure. The surfaces of their wings are covered in nanopillars making them look like a bed of nails. When bacteria come into contact with these surfaces, their cell membranes get ripped apart immediately and they are killed.

Inspired by this natural phenomena, the researchers grew nanopillars of zinc oxide on various surfaces. Tests on ceramic, glass, titanium and zinc surfaces showed that the coating effectively killed up to 99.9 percent of germs such as *Escherichia coli* and *Staphylococcus aureus* found on the surfaces.

The researchers also found that the nano-coating demonstrated the best killing activity when applied on zinc surfaces. This is because the zinc oxide nanopillars catalyzed the release of reactive oxygen species which could even kill nearby free-floating bacteria that were not in direct contact with the surface.