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Mechanical Bactericide by Biomimetics of the Nanopillars on Insect Wings

The wings of some insects (for example cicadas and dragonflies) reveal exceptional properties such as super-hydrophobicity and self-cleaning abilities. In these aspects they are comparable to the famous lotus leaf. Furthermore, the wings can also kill bacteria [1][2] and potentially viruses. Hexagonally arranged arrays of nanopillars (give approximate height and width) are responsible for mechanically destroying bacteria (notably without chemical bactericides) [3].

The poster presents the surface structures of two New Zealand cicada species (*Amphipsalta cingulata* and *Kikihia scutellaris*) imaged with various methods such as Atomic Force Microscopy. The study's main focus lies in investigating antibacterial structure properties by introducing low-cost bioimprinting techniques to transfer these structures to artificial surfaces. Such a fast and efficient reproduction approach of these antibacterial structures open a vast field of various applications such as hospital surfaces, medical instruments, smartphone displays, and door handles.

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