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Special Issue Reprint

Antibacterial Materials

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In recent years, the emergence of resistant bacteria has stimulated intensive research in developing antibacterial materials in different fields in order to reduce the spread of antibiotic-resistant bacterial strains. Novel antibacterial materials include a large number of compounds such as nanoparticles, polymers, chemicals, proteins, and enzymes. Moreover, the final antibacterial products that embed the antibacterial compound can have many different shapes, such as textiles, plastics, cosmetics, ceramics, metals, paper, wood, etc. It is difficult to compare the performances of such different materials and applications because cross-method comparisons are currently lacking in the literature. Moreover, the procedures for testing developed in the past are often unsuitable for new antibacterial materials/products, and the scientific soundness of the results can be weak. Quantification (e.g., bacterial reduction) is crucial, and qualitative-only methods can be misleading. The conditions for testing required by current regulations should be critically evaluated to assess the limits of their applications. On the other hand, existing procedures for antibacterial testing of materials are usually quite far from real conditions. Simple and affordable methods have to be developed in order to ensure reproducibility and robustness in conditions close to real world. The aim of this Special Issue is to stimulate contributions to fill these gaps.

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