



# antibiotics



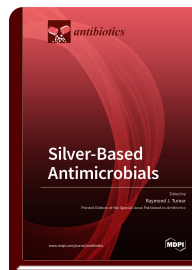
*Special Issue Reprint*

## Silver-Based Antimicrobials

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ISBN 978-3-03943-891-4 (Hardback)  
ISBN 978-3-03943-892-1 (PDF)



There is some talk about an antibiotic Armageddon due to quickly developing resistance towards commercially available antibiotics. For the most part, the classical antibiotic pipeline has dried up, and antibiotic resistance to any new drugs quickly develops. It is here that metal-based antimicrobials can step forward as possible solutions in this antimicrobial resistance era. The biological targets of metal atoms are more diverse, thus making it more difficult for bacteria to develop resistance compared with classical antibiotics. The metal silver has been used since antiquity for wound healing and water purification. At present, it is the most prevalent antimicrobial metal used in healthcare, industry, and consumer products. Silver is being used in the form of ionic salt, colloids, or in specific nanomaterials, and as described in this book, it can be applied as mixtures with other antimicrobials or coating composites. The different formulations are explored for their efficacy against a variety of problems related to agricultural and medical infections. Whilst by no means exhaustive, this book nicely highlights the present directions in silver-based antimicrobial research and antimicrobial formulation development. The chapters have been organized from a general introductory review to approaches of mixing other antimicrobials and materials to enhance silver performance. This is followed by synthetic approaches. First are biogenic (sometimes called green or eco-friendly) approaches, followed by advanced physical–chemical synthetic approaches. The book ends with an overview of applications through a review of patents over the past 10 years.



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