IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, January 2024

How Antibiotic Revolutionized Medicine: A Comprehensive Review of their Evolution, Application and Ongoing Challenges

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Abstract*: This review paper delves into the rich history of antibiotics in subsequent years. Examining their multifaceted uses, we explore the pivotal role antibiotics play in modern medicine, encompassing the treatment of bacterial infections, prophylactic applications, and contributions to various fields, including agriculture. The paper provides an in-depth analysis of the advantages of antibiotics, underscoring their life-saving potential, support for medical procedures, and prevention of severe complications. However, we also address the associated disadvantages, including antibiotic resistance, side effects, and ecological concerns. Current issues, such as the emergence of antibiotic-resistant strains, are discussed alongside ongoing efforts in research and development. This comprehensive exploration aims to provide a nuanced understanding of antibiotics, paving the way for informed decisions in their use and development.*

Keywords: Antibiotic application, antibiotic resistance, global health impact, multi-faceted challenges, evolution of antibiotics.

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