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Pyrimidinephenylthiazoles as Antimicrobials

Second-generation Phenylthiazole antibiotics with improved delivery and safety profiles offer rapid elimination of antibiotic-resistant bacteria like MRSA.

The most common 'superbug' found in hospitals is Methicillin-Resistant Staphylococcus Aureus (MRSA). In the 1940s, 95 percent of staphylococcus aureus could be controlled by penicillin, but that is now down to 10 percent (DailyMail.com). The CDC estimates that there are over 80,000 invasive MRSA infections annually, resulting in over 11,000 deaths. Even with the continuous development of new antibiotics to use against MRSA, bacterial resistance continues to grow. Phenylthiazoles have been examined as a new class of antibiotics, but its potential is hampered by poor pharmacokinetic profiles.

Researchers at Purdue University have developed second generation Phenylthiazole antibiotics with enhanced pharmacokinetic properties. After synthesis, tuning, and proper treatment of the substances, one of the compounds showed significant improvement in in-vitro anti-MRSA potency. The rapid elimination of bacterial cells was achieved. This series has improved pharmacokinetic properties compared to the first generation with a better safety profile.

Advantages:

-Improved pharmacokinetic properties

-Rapid elimination of bacterial cells

-Significant improvement in in-vitro anti-MRSA potency

Potential Applications:

-MRSA treatment

-Treatment of other 'superbugs'

-Antibiotic development

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