

Screening Novel Compounds for Antimicrobial Efficacy Against a Diverse Pathogen Panel

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The increasing rise of antimicrobial resistance, driven by the overuse and misuse of antibiotics, has emphasized the urgent need for novel compounds. As resistance continues, infections that were once treatable have become increasingly harder to treat, resulting in increased mortality rates throughout the world. To address this, this study evaluates promising compounds against a diverse panel of bacteria, which includes *Listeria innocua*, *Neisseria mucosa*, *Staphylococcus epidermidis*, *Proteus mirabilis*, and *Mycobacterium smegmatis*. These bacteria were selected to represent diverse bacterial pathogens based on their different bacterial structures and resistance mechanisms. To conduct screenings, the antimicrobial efficacy of the experimental compounds was assessed by determining the half-maximal inhibitory concentration (IC_{50}) across a concentration gradient of 0.5 μ M to 50 μ M. Bacterial screenings were conducted using a protocol implemented with an OpenTrons robotic system, enhancing efficiency and minimizing potential errors. This study identified compounds with IC_{50} values below 10 μ M for several bacterial species in the panel. The IC_{50} values identified indicate promising antimicrobial activity and merit further investigation. This study is ongoing, with compounds continuously being evaluated. Thus, the discovery of additional promising candidates remains possible.