

## ANTIMICROBIAL RESISTANCE PROFILE OF BACTERIA ISOLATED FROM SEIZED ILLEGAL ANABOLIC STEROIDS

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The indiscriminate use of anabolic-androgenic steroids (AAS) derived from illicit trade represents a growing threat to public health and may indicate inadequate manufacturing practices and lack of quality control. The injectable administration of contaminated substances poses a high risk of serious infections, with possible progression to systemic disease or sepsis, especially in the presence of antimicrobial-resistant microorganisms. This study aims to evaluate the antimicrobial resistance profile based on EUCAST criteria of 41 bacteria isolated from illegal anabolic steroids seized in enforcement operations against illegal entry into the country. Susceptibility testing was performed using the disk diffusion method on Mueller-Hinton agar against eight antimicrobials: tetracycline (TET), vancomycin (VAN), linezolid (LNZ), levofloxacin (LVX), penicillin G (PEN), erythromycin (ERI), sulfamethoxazole-trimethoprim (SUT), and cephalothin (CFL). For interpretation of inhibition zones, only isolates with available genus-level identification and validated breakpoints for the genus/antibiotic pair were included. Complete absence of an inhibition zone was classified as phenotypic resistance regardless of breakpoint availability, and isolates with irregular growth were excluded from analysis. Of the 41 isolates, 25 strains belonging to the following genera were evaluated: *Staphylococcus* sp. (16), *Bacillus/Brevibacillus* sp. (8), and *Acinetobacter* sp. (1). In *Staphylococcus*, erythromycin showed the highest resistance rate, with 10 of 16 isolates classified as resistant, while linezolid was the antibiotic with the highest number of susceptible isolates, with 11 of 16. For levofloxacin, all interpretable isolates were classified as Susceptible with Increased Exposure, due to the high breakpoint established by EUCAST for this genus. In *Bacillus/Brevibacillus*, all 8 isolates were susceptible to vancomycin, while penicillin G and sulfamethoxazole-trimethoprim each showed 3 phenotypic resistances by absence of inhibition zone. For levofloxacin, the 7 interpretable isolates were classified as Susceptible with Increased Exposure. The single *Acinetobacter* sp. isolate was susceptible to levofloxacin and resistant to erythromycin, a resistance pattern expected for Gram-negative bacteria against macrolides. Erythromycin resistance in *Staphylococcus* sp. is clinically relevant as it represents acquired resistance to a frequently used macrolide, possibly associated with *erm* genes. The presence of penicillin G-resistant isolates raises concern for beta-lactamase-producing strains. Phenotypic resistances in *Bacillus/Brevibacillus* against penicillin and sulfamethoxazole-trimethoprim, even without available breakpoints, indicate survival capacity in the presence of these antimicrobials. Species-level identification will enable full application of EUCAST criteria. In conclusion, the presence of resistant bacteria in illegal anabolic steroids represents a real public health risk, especially considering the injectable route of administration. The resistance profile identified in *Staphylococcus* sp. reinforces the need for microbiological surveillance of clandestine products and stricter regulatory policies to combat the illegal trade of AAS.

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