

**TITLE:** IDENTIFICATION AND ANTIMICROBIAL SUSCEPTIBILITY PROFILE OF BACTERIAS COLLECTED FROM INFECTED CHRONIC WOUNDS UNDER PHOTODYNAMIC THERAPY TREATMENT

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**ABSTRACT:**

Chronic wounds are defined as any interruption in the continuity of a body tissue taking more than six weeks to be healed. They are usually associated with trauma and clinical conditions such as diabetes, hypertension and venous disorders. Chronic wounds are a substantial socioeconomic problem and it has serious implications for patients and their quality of life. Infections caused by Multidrug resistant bacteria is one of the leading impediments of wound healing. This study aims to identify the common bacterias associated with wound infections and their antibiotic sensitivity pattern of patients with chronic wounds under Antimicrobial Photodynamic Therapy (aPDT) treatment, from Policlínica Uniguairacá, Guarapuava city, Paraná State. Wound samples were collected using steril swab sticks. Each swab was plated on three media: CLED, MacConkey and blood agar. Isolated bacterium identifications were based on standard microbiological tests including Gram stain, catalase, coagulase and mannitol for gram-positive cocci (PGC) and fermenters and non-fermenting kits for gram-negative rods (GNR). The antimicrobial susceptibility test (AST) was performed using the disk-diffusion method recommended by the Brazilian Committee on Antimicrobial Susceptibility Testing (BRCAST). Twelve bacterial strains were isolated: eight GNR and four PGC. Among the GNR two strains of *Escherichia coli* and two *Aeromonas* sp. were identified. The other GNR identified were *Proteus vulgaris*, *Citrobacter koseri*, *Morganella morganii*, and the Complex *Burkholderia cepacia*. Among the PGC, two *Staphylococcus aureus* strains and two coagulase-negative *Staphylococcus* strains (CoNS) were identified. Regarding the susceptibility profile, among the PGC, the CoNS strains stand out, which demonstrated resistance to methicillin, cephalosporins, carbapenems, tetracyclines and penicillins. Such strains were susceptible to most antibiotics tested, except macrolides, erythromycin, azithromycin and clarithromycin. Among the GNR bacteria, 80% of the strains were resistant to chloramphenicol and 75% resistant to penicillins and cephalosporins, however, 80% presented to carbapenems susceptibility. The present study demonstrates the importance of pursuing new infections treatments, such as aPDT, since among the isolated strains, it was possible to observe multidrug-resistant strains which can cause delays in chronic wounds healings.

**Keywords:** Wounds, Infectious Diseases, Low-Level Light Therapy, Microbial Sensitivity Tests.

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