

TITLE: PROTEOLYTIC ACTIVITY BASED ON GELATINASE AND CASEINASE PRODUCTION IN *PSEUDOMONAS AERUGINOSA* STRAINS ISOLATED FROM ORAL CAVITY OF PATIENTS WITH ORAL OR CERVICAL-THORACIC CANCER

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Resume:

The proteases production by *Pseudomonas aeruginosa* and other microorganisms of oral cavity can damage host tissues and interfere with host antibacterial defense mechanism, then, this virulence factor can increase of metastatic infections risks, mainly immunocompromised individuals. The secretion of proteases is not decreased even during exposure to antibiotics as ciprofloxacin for 4 days. In the previous studies, there were high frequency of isolation this opportunist species from oral cavity of individuals with oral or cervical-thoracic cancer submitted to oncology therapy. **Objectives:** The aim of this study was to verify the proteolytic activity based on hydrolysis of casein and gelatin by *P. aeruginosa* strains isolated from these patients, diagnosed with oral or cervico-thoracic cancer. **Methodology:** A total 26 *Pseudomonas aeruginosa* isolated from oral cavity of immunocompromised individuals were tested for caseinase and gelatinase hydrolysis. The bacterial were isolated in Cetrimide Agar and the species was confirmed by biochemical tests, as well as Gram, catalase, oxidase, pyoverdine production, motility test, triple sugar iron test and sodium citrate assimilation. For the gelatinase test, was used brain-heart infusion broth – BHI with gelatin (6%) in sterile tubes. The isolates were inoculated with central needle stick platinum and incubated for 24 hours. The hydrolysis of gelatin was positive when there was the fusion of culture medium. For the caseinase test, two solutions were prepared. The first containing skim milk powder (10%) in distilled water and the second solution, 3% of agar in distilled water as well. The solutions were autoclaved separately and mixed only when cooled to 50 °C and plated on petri dishes. The inoculation occurred by the grooving platinum loop and plates incubated for 24 hours. The halo formation around the colony indicated the hydrolysis of casein positive for this test. **Results:** For the caseinase and gelatinase assays, 84,6% (22) and 77% (20) were positive, respectively. Among 26 strains tested, 20 (77%) were positive for both tests, while 4 (15.4%) were negative for both. **Conclusion:** The high prevalence of *P. aeruginosa* with proteolytic activity in the oral cavity can lead to tissue destruction and increase the risks of bacteremia and metastatic infections, in immunosuppressed patients.

Key words: *Pseudomonas aeruginosa*, Protease, Tissue damage, metastatic infections, bacteremia

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