

Title: ANTIBACTERIAL ACTIVITY EVALUATION OF CHEMICAL COMPOUNDS OF THE SELENIUM-TRIAZOLE AND SELENIUM-QUINOLINE CLASSES AGAINST *Pseudomonas aeruginosa*

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Abstract:

Pseudomonas aeruginosa is one of the main bacteria involved in hospital infection cases in the whole world, showing high lethal levels. Its high frequency in hospital environments is due to its antibacterial resistance, thus, it is necessary to search for new substances that are able to fight against this microorganism. Chemical compounds of the selenium-triazole and selenium-quinoline classes show pharmacological properties, being used as antibacterial and antifungal. The purpose of this work, was to investigate these classes compounds antibacterial activity against a strain of *P. aeruginosa* ATCC 27853. For this, this bacteria was cultivated during 16-18 hours at 37°C, in agar Brain Heart Infusion (BHI). From this cultivation, an inoculum in NaCl 0,9% sterile solution was prepared, according to a 1,0 scale of Mc Farland (3×10^8 CFU/mL), and 80 µL of this suspension, 116 µL of Tryptone Soy Broth (TSB) and 4 µL of the test compounds (concentrations varying from 50 µM to 2 mM) added to 96-wells plates. The compounds activity was evaluated as the difference between the optical density at 630 nm (OD₆₃₀) in the end (24h) and in the beginning (0h) of the incubation period. A total of three compounds were evaluated: 2 of the selenium-triazole class and 1 of the selenium-quinoline class. The experiments were performed in triplicate. The minimal inhibitory concentration (MIC) was defined as the lower compound concentration able to restrict the bacterial growth to a level lower than 0,04 of OD₆₃₀. MIC serial dilutions were made and plated in the Mueller-Hilton (MH) medium. After incubation (37°C, 16-18 hours), the counting was done and the UFC/ml determined to evaluate bacterial cells viability. Under this study test conditions, no MIC was obtained in any evaluated conditions for the chemical compounds on *P. aeruginosa* ATCC 27853. A wide new research with other concentrations and new bacteria strains are being performed to better determine the antibacterial potential of these compounds classes.

Key words: antibacterial activity, *P. aeruginosa*, selenium-quinoline, selenium-triazole