

TITLE: CHARACTERIZATION OF *Stenotrophomonas maltophilia* FOR BIOFILM PRODUCTION AND SUSCEPTIBILITY TO CHLORAMPHENICOL IN PLANKTONIC AND BIOFILM FORM

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ABSTRACT

Stenotrophomonas maltophilia is a gram-negative, aerobic, and non-fermentative bacillus, motile due to polar flagella, and has the ability to form biofilm on biotic and abiotic surfaces. In the last decade, it has been reported as an opportunistic pathogen, associated with nosocomial infection, especially related to biofilm formation in catheters and prosthesis. Within the limited antimicrobial arsenal against *S. maltophilia*, chloramphenicol shows good activity against the planktonic forms of the microorganisms. Our objective was to identify and characterize clinical samples of *S. maltophilia* for biofilm production and susceptibility to chloramphenicol in planktonic and biofilm form. Nineteen samples of *S. maltophilia* recovered from bacteremias were submitted to phenotypic tests (gram staining, MacConkey agar growth, Dnase test, oxidase test and glucose fermentation) and species-specific PCR directed to the 23S rRNA gene to confirm the identification. *S. maltophilia* ATCC® 13637 was used as control. The biofilm assay was performed on 96-well microplates. The minimum inhibitory concentration (MIC) of chloramphenicol was determined for the planktonic and for the biofilm form by broth microdilution. The minimum inhibitory concentration in the biofilm plate (MIC-b) was defined as the lowest concentration of an antibiotic in which a planktonic bacterial population could not be established by shedding of bacteria from the biofilm. All *S. maltophilia* were confirmed by phenotypic tests and amplification of 23S rRNA. All samples were biofilm producers, being 80% moderate and 20% poor producing. MIC of chloramphenicol for the planktonic form was 4 µg/mL, all being sensitive to the antimicrobial. However, the MIC-b of chloramphenicol for the biofilm samples was >4096 µg/mL, indicating the inefficacy of this drug in inhibiting the growth of *S. maltophilia* in biofilm.

Keywords: *Stenotrophomonas maltophilia*; Biofilm; Biochemical and molecular characterization; Chloramphenicol.

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