

In vitro antibacterial and antibiofilm activities of chlorogenic acid against clinical isolates of *Stenotrophomonas maltophilia* including the trimethoprim / sulfamethoxazole resistant strain

ABSTRACT

The in vitro antibacterial and antibiofilm activity of chlorogenic acid against clinical isolates of *Stenotrophomonas maltophilia* was investigated through disk diffusion, minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC), time-kill and biofilm assays. A total of 9 clinical *S. maltophilia* isolates including one isolate resistant to trimethoprim / sulfamethoxazole (TMP/SMX) were tested. The inhibition zone sizes for the isolates ranged from 17 to 29 mm, while the MIC and MBC values ranged from 8 to 16 g mL⁻¹ and 16 to 32 g mL⁻¹. Chlorogenic acid appeared to be strongly bactericidal at 4x MIC, with a 2-log reduction in viable bacteria at 10 h. In vitro antibiofilm testing showed a 4-fold reduction in biofilm viability at 4x MIC compared to 1x MIC values (0.085 < 0.397 A 490 nm) of chlorogenic acid. The data from this study support the notion that the chlorogenic acid has promising in vitro antibacterial and antibiofilm activities against *S. maltophilia*.

Keyword: In vitro; *Stenotrophomonas maltophilia*; Chlorogenic acid; Trimethoprim/Sulfamethoxazole; Minimum inhibitory concentration(MIC); Minimum bactericidal concentration(MBC)