

TITLE: AVALIATION OF MINIMUM INHIBITORY CONCENTRATION (MIC) OF DIFFERENT SANITIZERS UNDER PLANKTONIC AND SESSILE CELLS OF *LISTERIA MONOCYTOGENES* AND *SALMONELLA* TYPHIMURIUM FROM SURFACES OF THE SWINE SLAUGHTER AND PROCESSING

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ABSTRACT:

The sanitizers are classified according to chemical composition and mode of action, among them, peracetic acid (AP) and polyhexamethylene biguanide hydrochloride (CPB) are employed in industrial hygiene more frequently. The presence of pathogenic micro-organisms with the ability of biofilm formation may cause resistance according to the concentration and exposure time. In Brazil, the regulation that evaluates the action of sanitizers considers your efficiency on planktonic cells rather than sessile cells. The objective was to evaluate the minimum inhibitory concentration (MIC) of the AP and CPB in planktonic and sessile cells of *L. monocytogenes* and *S. Typhimurium*. For the realization of the MIC, the isolates were adjusted in 0.5 McFarland scale and impregnated on the surface of Mueller-Hinton Agar (MH). The sanitizers evaluated were diluted to the sixteenth dilution and 0.01 to 0.6% for AP and 0.01 to 3.0% for CPB. Aliquots of 10µL were sown on the surface of the MH, and incubated at 37°C/24h. The MIC was regarded as the highest dilution which inhibited bacterial growth for the sanitizing tested. The sessile cells were formed in polypropylene coupons in duplicate in the broth TSB-YE the 37°C/120h. Subsequently, were highlighted by friction with swabs. At the same time, coupons were treated with the MIC for 10 minutes for sanitizing. Both situations were diluted and seeded in TSA-YE, listed after 37°C/48h, with results expressed as CFU/cm². The MIC for *L. monocytogenes* and *S. Typhimurium* was 0.02% and 0.05% for AP and CPB, respectively. However, none of these concentrations was able to totally eliminate the population of micro-organisms in the biofilms formed. The final counts of *L. monocytogenes* were 0.18 and 1.14 Log CFU/cm² for AP and CPB, respectively. To *S. Typhimurium* was 2.35 Log CFU/cm² for AP and 2.89 Log CFU/cm² for CPB, which showed greater resistance to CPB in both isolates. The failure of the total population remotion of sessile cells on condition of MIC reinforces the protection that biofilm structure grants, increasing the resistance to the active principles used. Thus, the elimination and control of biofilms becomes a constant challenge for industries and affect the safety of products. In addition, there is a need to re-evaluate the validation testing of these compounds, considering the formation of biofilms.

Keywords: *L. monocytogenes*, *Salmonella* spp., resistance