TITLE: PURE AND MIXED BIOFILMS FORMATION OF *LISTERIA MONOCYTOGENES* AND *SALMONELLA* TYPHIMURIUM ON POLYPROPYLENE SURFACES AT 12 AND 37°C

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ABSTRACT:
Biofilms are microbial complex ecosystems formed of one or more microbial species immersed in a polysaccharide matrix. Several micro-organisms present that characteristic, sticking and colonizing areas of industrial use, showing interaction between species. The objective was to evaluate and compare the biofilm formation of *Listeria monocytogenes* and *Salmonella* Typhimurium in polypropylene surfaces to 12 and 37° C in pure and mixed cultures. Three isolates of *L. monocytogenes* and one isolate of *S*. Typhimurium were used, both isolated from the same processing surface of swine. The TSB-YE broth with polypropylene sterile coupons was adjusted in 0.5 MacFarland scale and incubated to 12 and 37ºC /120h. After, the coupons were washed in duplicate with 10 ml of PBS. The sessile cells were highlighted by friction with sterile swabs, immersed in tubes containing 10mL of saline solution and homogenized in the vortex for 60 seconds. Decimal dilutions were performed, with seeding in TSA-YE to *L. monocytogenes*, TSA for *S*. Typhimurium in pure cultures and Oxford Listeria Agar and Xylose Lysine Deoxycholate Agar for *L. monocytogenes* and *S*. Typhimurium, respectively, in mixed biofilms. The results were expressed in Log CFU/cm^2. All trials were conducted in three repetitions in time. The results showed counts of 4.46 and 3.95 Log CFU/cm^2 for biofilms pure of *L. monocytogenes*, and 4.85 and 4.58 Log CFU/cm^2 for *S*. Typhimurium under conditions 12 and 37°C, respectively. When evaluated the interaction in mixed biofilms, the total count to 12°C was 8.47 Log CFU/cm^2, of which 54.5% (4.62 Log CFU/cm^2) of the population was composed of *S*. Typhimurium and 45.5% (3.86 Log CFU/cm^2) of *L. monocytogenes*. On condition of 37°C, the total count was 6.90 Log CFU/cm^2, composed 57.6% (3.97 Log CFU/cm^2) of *S*. Typhimurium and 42.4% (2.92 Log CFU/cm^2) of *L. monocytogenes*. When mixed biofilm populations were observed individual and compared with the pure, the counts of microorganisms have reduced. However, with respect to total count/cm^2, it found increase 3,6 logs at 12° C and 2,3 logs at 37°C in mixed biofilms, inferring that the interaction resulted in the increased of total microbial population. These results corroborate with the structure of biofilms in natural conditions and arouse concern because are two pathogens of interest in public health and by the difficulty of control at industrial level.

Keywords: Industry, *Listeria monocytogenes*, Mixed Biofilms, *Salmonella* spp.,