

Title: Biofilm formation by *Staphylococcus* spp on stainless steel and polypropylene.

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Abstrac:

The presence of biofilm in food or contact surfaces is a serious hygiene problem and could cause economic losses because the contaminated products need to be discarded. *Staphylococcus* spp is a pathogen commonly isolated in dairy products and these bacteria is one of the most studied because could form biofilms. The aim of this study was to quantify biofilm formation on stainless steel and polypropylene with strains of different genotypic profiles (*icaA*, *icaD*, *ebpS*, *fib*, *fnbA*, *fnbB*, *clfA*, *clfB*, *cna*, *eno*, *bbp*) previously isolated from dairies in Sao Paulo State, Brazil. The experiment was accomplished with 4 *S. aureus* strains and 2 *S. epidermidis* strains. Overnight bacterial cultures were adjusted to a cell concentration of approximately 10⁸ CFU/mL for all strains on BHI, 1 mL aliquot was added into each well with a coupon in 24-well microplate. Biofilm formation was quantified after 12, 48 and 96 h of incubation at 25 °C. At each sampling time, coupons were placed into a new microplate and washed (3 times) with 1 mL of PBS. After, was added violet cristal in the well, the coupons were washed with sterile distilled water, finally 1 mL of 33% (v/v) glacial acetic acid was added and 200uL of the solution was transferred to a 96-well round-bottom microplate. The absorbance was measured at 600 nm. Data were analyzed using ANOVA and the variations were: strains, surfaces and the time. There was a highly significant difference ($p < 0.001$) between the strains and the surfaces, about biofilm production, but there is no significant difference ($p = 0.752$) on the time. Biofilm formation was higher at stainless steel, these results can be expected due the high surface energy, which promotes bacterial adhesion, is worth to mention that is necessary to keep a frequently and good sanitation to prevent possible formation of biofilms on surfaces that are commonly used in the dairy industry.

Keywords : biofilm, dairy products, *Staphylococcus* spp.

Development Agency : PRONABEC, CAPES.