TITLE: BIOFILMS FORMATION BY SALMONELLA HEIDELBERG ISOLATED FROM POULTRY SLAUGHTERHOUSES

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ABSTRACT

In the food industry, the biofilms formation is a concern to food safety. Microorganisms can adhere to utensils and surfaces and make it difficult to remove them. And, because have possessed a longer permanence and resistance at processing environment, there is greater chance of cross contamination. When the biofilm is formed by pathogenic microorganisms, such as *Salmonella* spp., it represents a great risk to food safety and may cause an outbreak of food-borne diseases. This work aimed to determine the capacity of biofilm formation in polystyrene of *Salmonella* Heidelberg (SH) isolates. Were used *Salmonella* Heidelberg 132 samples previously isolated from poultry slaughterhouse. After reactivation an aliquot of each culture was transferred to soybean tryptone broth (TSB) without glucose for incubation at 36 ± 1 ° C / 24 hours, the turbidities were adjusted to scale 1 of MacFarland, 200 µL of each suspension was inoculated, in triplicate, into wells of 96-well polystyrene plates. The experiment was done in triplicate and repeated twice, generating six values for each sample. The negative controls were TSB broth without glucose. After incubation at 36 ± 1 ° C / 24 hours, three washes were performed with 250 µL of 0.9% sodium chloride solution. Then, the cells were fixed with 200 µl of methanol p.a. for 15 minutes. The methanol was removed and the plates dried at room temperature. Were stained with 200 µL of 2% Hucker violet crystal for five minutes, washed in running water and dried at room temperature. Prior to reading the plates was added 250 uL of 33% glacial acetic acid (v / v) into each well, the absorbance reading being performed in ELISA reader at 550 nm. In the tests to verify the formation of biofilms 100% of the isolates, that is, the 132 samples of S. Heidelberg had capacity to form biofilms on the surface of the polystyrene plates under the temperature of 36 ± 1° C. Of these, 34.85% of the strains were weakly biofilm-forming, 56.82% moderately forming and 8.33% strongly forming. The knowledge of the characteristics of SH and its ability to form biofilms is of great importance for the food industry, as it seeks to improve control strategies of this serovar of *Salmonella* spp.

Keywords: *Salmonella* Heidelberg, biofilms, food safety.