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Abstract (publication only)

Biofilm-producing abilities of Salmonella enterica Virchow serotypes, isolated from Turkey

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Objectives: Determine the effect of environmental stresses on biofilm forming abilities of 16 Salmonella enterica Virchow serotype originated from Turkey. Methods: In this study the influence of environmental factors including temperature (20 °C, 25 °C, 30 °C, 35 °C, 37 °C and 40 °C), pH (4.5, 5.2, 5.9, 6.6 and 7.3), incubation period (24, 48, 72 and 96 h) and the presence of tripton concentration (0.5, 1, 1.5, 2, 4, 6, 8, 10 g/L) were determined on biofilm formation by 16 S. Virchow food isolates. Quantification of biofilm formation was performed in Luria Bertani (LB) agar without salt (Wo/NaCl) in polystyrene microtiter plate. Curli production and cellulose production were monitored by assesing morphotypes on LB agar Wo/NaCl containing Congo red and by assessing fluorescense on LB agar containing calcoflour. Results: Fifteen out of 16 strains were found rdar (red, dry, and rough), while the one was found with bdar (brown, dry, and rough) morphotype. All of the S. Virchow isolates were found to produce biofilm. The optimum temperature, time of incubation and pH values for biofilm production were determined as; 20 °C and 72 h and 6.6, respectively. When Tripton concentration reduced from 10 g/L to 2 g/L, 1.5 g/L, 1 g/L and 0.5 g/L, biofilm production of Salmonella Virchow was decreased. There was no biofilm production noticed at 37 °C and 40°C. Conclusion: Biofilm formation is significantly influenced by environmental conditions such as incubation time, tripton concentration, pH and temperature.