

Formation of biofilm by *Listeria monocytogenes* ATCC 19112 at different incubation temperatures and concentrations of sodium chloride

ABSTRACT

Biofilm formation can lead to various consequences in the food processing line such as contamination and equipment breakdowns. Since formation of biofilm can occur in various conditions; this study was carried out using *L. monocytogenes* ATCC 19112 and its biofilm formation ability tested under various concentrations of sodium chloride and temperatures. Cultures of *L. monocytogenes* ATCC 19112 were placed in 96-well microtitre plate containing concentration of sodium chloride from 1 to 10% (w/v) and incubated at different temperature of 4°C, 30°C and 45°C for up to 60 h. Absorbance reading of crystal violet staining showed the density of biofilm formed in the 96-well microtitre plates was significantly higher when incubated in 4°C. The formation of biofilm also occurs at a faster rate at 4°C and higher optical density (OD 570 nm) was observed at 45°C. This shows that storage under formation of biofilm that may lead to a higher contamination along the processing line in the food industry. Formation of biofilm was found to be more dependent on temperature compared to sodium chloride stress.

Keyword: Biofilm; *Listeria monocytogenes*; Microtiter plate; Sodium chloride; Temperature