TITLE: ACYL HOMOSERINE LACTONE CHANGES THE GLUCOSE CONSUMPTION OF *Salmonella* Enteritidis

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ABSTRACT:
Salmonella is one of the main pathogens that causes infections related to the contaminated food products consumption. The serotype Enteritidis (*Salmonella* Enteritidis) is the most common reported from human isolates in most countries, including Brazil. The pathogenicity of *Salmonella* is related to the presence of virulence genes, mechanisms of resistance to stress and biofilm formation that can be regulated by the cellular communication system known as quorum sensing (QS). Acyl homoserine lactones (AHLs) are molecules signals of the QS and, although *Salmonella* does not produce these molecules, it is able to recognize those produced by other species and modulate its cellular functions. The aim of this work was to evaluate the influence of N-dodecanoyl-DL-homoserine lactone (C12-HSL) on the glucose consumption by *Salmonella* Enteritidis PT4 578 using High Performance Liquid Chromatography (HPLC), and also to evaluate the growth, pH and titratable acidity in anaerobic conditions. The four parameters evaluated altered throughout time of growth in both treatments. The growth of *Salmonella* was not influenced by 50 nM of C12-HSL, but after 4 and 6 h of cultivation in presence of this signal molecule, there were lower glucose consumption and pH reduction, when compared to the control. Although there was a gradual reduction of pH and increase of acidity up to 12 h of cultivation, after 24 h this behavior changed and pH increased and a reduction in titratable acidity were observed in absence and presence of C12-HSL. The titratable acidity was different only in the time of 24 h between the treatments. The results shown that C12-HSL influence on glucose consumption by *Salmonella*, and modifies the pH and acidity of the medium. However, further studies are needed to elucidate which stages and metabolic pathways modified by C12-HSL in *Salmonella*.

Keywords: metabolism, pathogen, pH, quorum sensing, titratable acidity.

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