

The Impact of the Cell-Free Solution of Lactic Acid Bacteria on Cadaverine Production by *Listeria monocytogenes* and *Staphylococcus aureus* in Lysine-Decarboxylase Broth

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Abstract : The influences of cell-free solutions (CFSs) of lactic acid bacteria (LAB) on cadaverine and other biogenic amine production by *Listeria monocytogenes* and *Staphylococcus aureus* were investigated in lysine decarboxylase broth (LDB) using HPLC. Cell-free solutions were prepared from *Lactococcus lactis* subsp. *lactis*, *Leuconostoc mesenteroides* subsp. *cremoris*, *Pediococcus acidophilus* and *Streptococcus thermophiles*. Two different concentrations that were 50% and 25% CFS and the control without CFSs were prepared. Significant variations on biogenic amine production were observed in the presence of *L. monocytogenes* and *S. aureus* ($P < 0.05$). The role of CFS on biogenic amine production by foodborne pathogens varied depending on strains and specific amine. Cadaverine formation in control by *L. monocytogenes* and *S. aureus* were 500.9 and 948.1 mg/L, respectively while the CFSs of LAB induced 4-fold lower cadaverine production by *L. monocytogenes* and 7-fold lower cadaverine production by *S. aureus*. CFSs resulted in strong decreases in cadaverine and putrescine production by *L. monocytogenes* and *S. aureus*, although remarkable increases were observed for histamine, spermidine, spermine, serotonin, dopamine, tyramine, and agmatine, in the presence of LAB in lysine decarboxylase broth.

Keywords : cell-free solution, lactic acid bacteria, cadaverine, food borne-pathogen

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