Title	Attachment of Shiga Toxigenic *Escherichia coli* to Beef Musele and Fat Tissue
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Abstract

Shiga toxigenic *Escherichia coli* (STEC) are important foodborne pathogens causing gastrointestinal disease worldwide. Successful bacterial attachment to food surfaces may lead to persistence and possible foodborne disease. A variety of STEC isolates, including *E. coli* 0157:H7/H- strains, were grown in planktonic (broth) and sessile (agar) culture and the initial attachment to beef muscle and fat tissue was determined. Viable counts were used to determine loosely and strongly attached cells and the strength of attachment (Sr) was calculated using these counts. Attachment counts were greater on fat tissue than on muscle tissue for all STEC isolates. On muscle tissue, viable counts obtained for strongly attached cells. (planktonic and sessile) differed significantly ($P \leq 0.05$) among STEC isolates, while counts for loosely attached cells varied significantly($P \leq 0.05$) among STEC isolates for planktonic culture only. On fat tissue, in contrast, viable counts obtained for strongly attached cells (planktonic and sessile) were not significantly different ($P \geq 0.05$) among STEC isolates, while counts for loosely attached cells were significantly different ($P \leq 0.05$) among STEC isolates. Sr values were not significantly different ($P \geq 0.05$) between STEC isolates for all assays. In addition, all bacterial isolates grown in sessile culture attached in greater numbers to muscle and fat tissue than those in planktonic cultures. Our study suggests that STEC, grown in planktonic and sessile culture, behave differently with respect to attachment to muscle and fat tissue. Cells in sessile culture may have a greater potential to strongly attach to meat surfaces.