Title: Liprotein Lpp is involved in biofilm formation of *Salmonella* Typhimurium on polypropylene

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Resume

Salmonella enterica serotype Typhimurium is one of the major serovar causing salmonellosis and the presence of biofilms on food-contact surfaces are recognized to be one of the sources of food contamination. *Salmonella* spp. forms biofilms onto different surfaces commonly found in food processing environments, such as polypropylene and, despite the efforts to understand biofilm formation, its remains unclear. This study evaluated the differences in protein expression between *Salmonella* Typhimurium ATCC 14028 planktonic and biofilm cells on polypropylene (PP). Planktonic cells of *S*. Typhimurium were cultured in Tryptic Soy Broth at 35 º C for 48 h, centrifuged at 4500 x *g* for 5 min, washed with saline solution and the pellet was used for protein extraction. *S*. Typhimurium biofilm was left to be formed on PP for 48 h. Thereafter, cells were recovered from coupons using a cell scrapper and ultrasonic bath (25 kHz for 10 min), centrifuged at 4500 x *g* for 5 min, washed with saline solution and pellet was used for protein extraction. Lysis buffer and sonication were used for protein extraction and Bradford Method was performed to quantify total protein. Total protein (400µg/mL) was separated in first dimension using Immobiline DryStrip gels pH gradient 4-7 using isoeletric focusing system. Second dimensional separation was carried out vertically in SDS-PAGE gel (12.5% acrylamide/Bis-Acrylamide). After electrophoresis, proteins were stained with Coomassie Blue G-250, gels were digitalized and analyzed using ImageMaster software. Peptide mass fingerprint obtained were matched to the National Center for Biotechnology Information non-redundant. Among spots observed, lipoprotein Lpp was expressed only in *S*. Typhimurium biofilm cells compared to planktonic ones. The deletion of *lpp* gene, which encodes lipoprotein Lpp, in another *Enterobacteriaceae* reduced biofilm formation. Our results suggest that lipoprotein Lpp is involved in biofilm formation of *S*. Typhimurium and could be a target for its control.

Keywords: *Salmonella* Typhimurium, biofilm, proteomics.

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