Title	Influence of Biosurfactant-producing *Pseudomonas fluorescens* on Growth Kinetics and Dynamics of Adherence of *Escherichia coli* 0157:H7 on Greenhouse-grown Romaine Lettuce
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Abstract

Characterizing the interactions of epiphytes on the fate of zoonotic bacterial pathogens arriving on the phyllosphere may provide management potions in food safety systems for edible horticultural crops. In this study, the interactions and effects on growth kinetics and dynamics of adherence on greenhouse-grown Romaine lettuce leaves, pre-colonized by a biosurfactant producing *Pseudomonas fluorescens* 123 or *P. fluorescens* EG3 (Tn5 mutant that does not secrete biosurfactant) were conducted. *P. fluorescens* 123 or *P. fluorescens* EG3 were inoculated at approximately 0 and 5.0 log CFU/leaf and held a 25 °C under lights (16D/8N) and high relative humidity (>95%). At 48 h, approximately 5.0 log CFU/leaf *Escherichia coli* 0157:H7 was inoculated at the target site and returned to the same conditions. Recovery of pseudomonas and *E. coli* 0157:H7 at inoculation (-0.5 h) and at 0, 24, 48, 72, 96, and 120 h was conducted on appropriate selective media. Individual populations from 6 replicate leaves were enumerated, correcting for carry-over of tightly adhering wash water. Recovery was conducted using a sequential rub-shake-rub (1°) followed by a separate stomaching (2°) procedure. In contrast to previous studies with *Salmonella* spp. on Romaine, although significant differences in recovery ($P < 0.05$) were observed for pre-colonized leaves, no significant difference could be ascribed to the role of the biosurfactant synthesis. Biosurfactant did not enhance removal or measurable internalization. An apparent differential increase in adherence over time was observed with *E. coli* 0157:H7 recovered from leaves inoculated with *P. fluorescens* EG3 at 120h ($P < 0.05$) between the 1° and 2° recovery.