



ONTARIO AGRICULTURAL COLLEGE  
Department of Food Science

## Efficacy of Odorox Mobile Disinfection Unit to Decontaminate Lettuce during Post-harvest Storage

### Aim

To determine the level of reduction in *Escherichia coli* levels inoculated onto Cos lettuce and treated with hydroxyl radicals generated by an Odorox mobile disinfection unit.

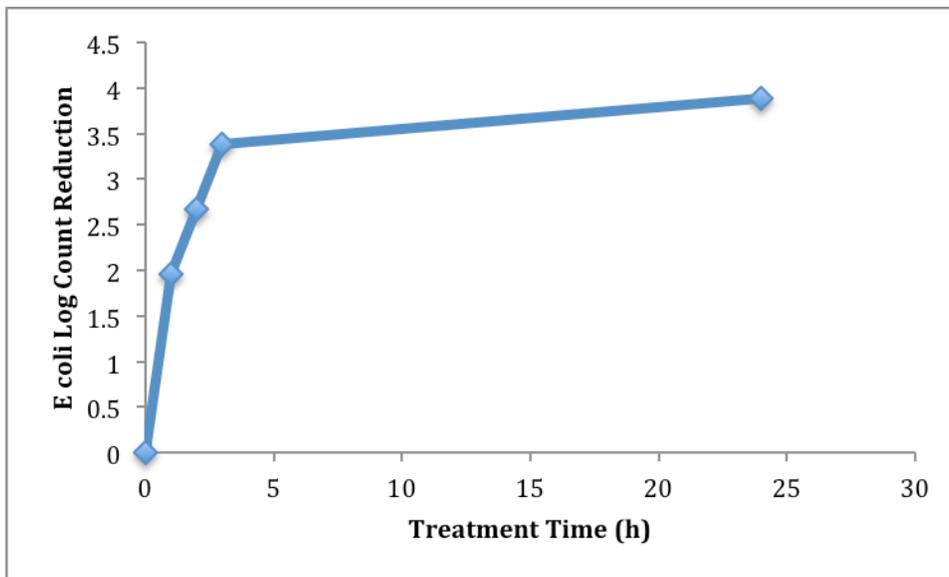
### Methods

*Escherichia coli* P36 was cultivated for 24h at 37°C in TSB supplemented with 50µg/ml kanamycin. The cells were harvested by centrifugation and suspended in peptone water to a final optical density at 600 nm equal to 0.2 (8 log cfu/ml). The cell suspension was transferred to 4°C until required. Individual Cos lettuce leaves were spot inoculated with 0.1 ml of suspension to give a final cell density of 7 log cfu per leaf.

The treatment chamber consisted of a 50 litre container into which the outlet air stream of the Odorox unit fed into. The treatment temperature was maintained at 24°C throughout. The lettuce leaves were laid out as a monolayer within the treatment chamber. At different time points five lettuce leaves were removed to recover and enumerate the surviving E coli P36. Here individual leaves were placed in a stomacher bag along with 100 ml of saline containing 1% Tween 80 solution. The sample was stomached for 30s and a dilution series prepared in saline. Aliquots (0.1 ml) were plated onto TSA kanamycin plates that was subsequently incubated at 37°C for 24 h.

### Results

Sampling Time (h)	Control log cfu/leaf	Treated with Odorox Log Count Reduction
0	7.15±0.01	0
1		1.96±1.00
2		2.37±0.66
3		3.39±0.36
24		3.89±1.76



### Conclusions

Inactivation of *E. coli* P36 followed a biphasic pattern with an initial exponential phase in the first 3 h treatment period that subsequently plateaued. Extended treatments beyond 3h did not result in greater inactivation kinetics.

The Odorox unit provides an intervention to reduce the bacterial loading of post-harvest lettuce.

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