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*Investigating E. coli Colonization and Prevention on Leafy Produce*

E. coli outbreaks among the food industry are both costly to producers and dangerous to consumers. The purpose of this research was to examine the possible prevention of E. coli colonization on spinach, lettuce, and cabbage leaves through the use of microbes safe for human consumption. It was hypothesized that T4 bacteriophage, Lactobacillus acidophilus, and Saccharomyces cerevisiae would limit the growth of E. coli on all leaf types. A third hypothesis stated that T4 bacteriophage would be most effective treatment at preventing E. coli colonization. The hypotheses were tested by applying chosen microbes and, independently, their carrier broths to leaves inoculated with E. coli. The leaves were then incubated for 48 hours and finally vortexed in a buffer solution. The solution was plated on MacConkey's agar. An E. coli cfu count was taken after 48 hours. The first hypothesis was supported. T4 bacteriophage successfully limited E. coli bacterial growth on all leaf types, although there was only a statistically significant 10-fold cfu count difference on the lettuce leaves. The second hypothesis was partially supported because Saccharomyces cerevisiae restricted growth of E. coli only on lettuce, but Lactobacillus acidophilus did on all leaf types. Neither microbe showed a ten-fold significance level. The third hypothesis was partially supported. Analysis showed that the sugar carrier broth showed a ten-fold difference on the lettuce and the spinach leaves. The sugar broth was equally effective with the T4 bacteriophage on lettuce and spinach leaves.