The effectiveness of different wash processing methods on spinach and lettuce

What is this research about?
This research is aimed at finding the effectiveness of wash process under commercial conditions on reducing bacteria. This study examined this effectiveness on spinach and lettuce.

What did the researchers do?
The researchers sampled different amounts of spinach and lettuce at pre- and post-wash. The samples were processed over a usual processing period in three different processing facilities (A, B, and C). At facility A, the spinach was washed in a small tank of water to remove soils, and then a tank of peroxyacetic acid to remove bacteria.

In facility B, the spinach was washed in a large tank of water which was continuously replenished. Both facility A and B kept constant levels of chlorine in the water. In facility C, shredded lettuce was washed in a wash tank continuously replenished with fresh water, and then washed in a tank of hypochlorite solution. The researchers also sampled the effect of water temperature on amount of bacteria post-wash.

What you need to know:
Cross-contamination is when bacteria from one food item transfer to another. Lettuce has less bacteria than spinach. Just washing vegetables has only limited effectiveness in removing bacteria.

The overall effectiveness of the wash process is dependent on the amount of bacteria pre-wash and low water temperature.

How can you use this research?
This research could be beneficial to processors who wish to increase the effectiveness of vegetable washing and reduce cross-contamination events. Consumers can use this research to know more about how their pre-washed produce is treated before they eat it.

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**What did the researchers find?**

The researchers found that levels of the bacteria, coliform, on spinach were reduced by the wash process in both facilities A and B.

Because the water was not replenished in the wash tanks of facility A, there were higher levels of coliform and *E. coli*, another bacteria, in the water. This did not affect the amount of bacteria on the spinach post-wash, but it could lead to cross-contamination events.

Levels of coliform were even lower in lettuce than in spinach pre- and post-wash. The researchers also found that there were reductions in coliforms in both spinach and lettuce by using cold wash water.

**Article citation:**


**Keywords:**

Fresh produce, spinach, lettuce, wash water, oxidation – reduction potential, peroxycetic acid, scherichia coli, coliforms, post-harvest, decontamination.

**About the University of Guelph researcher:**

Keith Warriner is a Professor and Food Safety and Quality Assurance (FSQA) Program Director with the Department of Food Science at University of Guelph. Professor Warriner can be reached by email at kwarrine@uoguelph.ca.

**Cite this work:**


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