
Assessing the Influence of Proportions Between Amount of Vegetables Immersed and Volume of Water To Inactivate Salmonella in Minimally Processed Lettuce and Carrot, Mimicking Disinfection Practices Employed by Brazilian Processing Plants

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Resumo

The proportion between amount of vegetables immersed and volume of water used during the disinfection step of minimally processed vegetables (MPV) is a factor that can affect the efficacy of disinfection process and consequently the quality and safety of the final product. This study aimed at assessing the influence of proportion between amount of vegetables immersed and volume of water on inactivation of Salmonella during the disinfection step of minimally processed lettuce and carrot, mimicking practices employed by MPV processing plants in Sao Paulo, Brazil. Minimally processed lettuce or carrot (1 Kg) was spiked with Salmonella (6 log CFU/mL) through immersion in experimentally contaminated water (4 L at 25°C) for 30 min, and then transferred to recipients containing water with organic chlorine (250 mg/L at 25°C and pH 7.0). The volumes of water tested to disinfect 1 Kg of lettuce were 8, 16, 23 and 28 L, while for disinfection of 1 Kg of carrot were tested 1, 6 and 12 L of water. These values corresponded to the proportions employed by Brazilian processing plants during disinfection step of MPV. The disinfection of minimally processed lettuce caused a reduction of 1.8, 1.9, 1.9 and 2.0 log CFU/g

Referência:

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when the volumes of 8, 16, 23 and 28 L of water, respectively, were used. On the other hand, the disinfection of minimally processed carrot caused a reduction of 2.1, 2.1 and 2.4 log CFU/g when the volumes of 1, 6 and 12 L of water, respectively, were used. These values were not statically different (ANOVA test; $p>0.05$), which indicates that under the same water conditions (250 mg/L at 25°C and pH 7.0), the proportions tested not differed on the inactivation of Salmonella. Nevertheless, the disinfection process was most efficient to reduce Salmonella counts in minimally processed carrot than in minimally processed lettuce, which can be due the difference on the vegetable surface. The different proportions between amount of vegetables immersed and volume of water employed by Brazilian processing plants during the disinfection step of MPV not showed influence on the inactivation of Salmonella when carried out under the same water conditions.

Palavras-Chave: Disinfection practices, Minimally processed vegetables, Salmonella

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