

Title Fresh-cut product sanitation and wash water disinfection: Problems and solutions

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Citation International Journal of Food Microbiology, Volume 134, Issues 1-2, 31 August 2009, Pages 37-45

Keywords Fruits and vegetables; Microbial growth; Minimally processed; Sanitizers; Processing aids; Disinfecting agents; Chlorine; Process water; Decontamination

Abstract

It is well known that fresh-cut processors usually rely on wash water sanitizers to reduce microbial counts in order to maintain quality and extend shelf-life of the end product. Water is a useful tool for reducing potential contamination but it can also transfer pathogenic microorganisms. Washing with sanitizers is important in fresh-cut produce hygiene, particularly removing soil and debris, but especially in water disinfection to avoid cross-contamination between clean and contaminated product. Most of the sanitizing solutions induce higher microbial reduction after washing when compared to water washing, but after storage, epiphytic microorganisms grow rapidly, reaching similar levels. In fact, despite the general idea that sanitizers are used to reduce the microbial population on the produce, their main effect is maintaining the microbial quality of the water. The use of potable water instead of water containing chemical disinfection agents for washing fresh-cut vegetables is being advocated in some European countries. However, the problems of using an inadequate sanitizer or even none are considered in this manuscript. The need for a standardized approach to evaluate and compare the efficiency of sanitizing agents is also presented. Most new alternative techniques accentuate the problems with chlorine suggesting that the industry should move away from this traditional disinfection agent. However, the use of chlorine based sanitizers are presented as belonging to the most effective and efficient sanitizers when adequate doses are used. In this review improvements in water disinfection and sanitation strategies, including a shower pre-washing step and a final rinse of the produce, are suggested.