

Abstract

Outbreaks of infections associated with consumption of fresh fruits and vegetables have been documented with increased frequency in several countries in recent years. Changes in agronomic, processing, preservation, packaging, distribution, and marketing technologies on a global scale have undoubtedly contributed to this increase. Numerous interventions have been applied to prevent contamination of pre- and postharvest fruits and vegetables. Treatment of whole and minimally processed fruits and vegetables with chemicals and other antimicrobials reduces populations of pathogens such as *Salmonella*, *Escherichia coli* O157:H7, *Shigella*, and *Listeria monocytogenes*, but cannot be relied upon to eliminate all viable cells. Aqueous chemical solutions used to treat fresh fruits and vegetables include those containing chlorine (hypochlorous acid), chlorine dioxide, peroxyacetic, acetic, citric, and lactic acids, hydrogen peroxide, and ozone. Treatment with irradiation, pressure, and ultraviolet light has also been shown to reduce populations of enteric pathogens but, with the exception of irradiation, chemical and physical treatments generally not to kill more than 2-3 log₁₀ CFU/g without adversely affecting sensory quality of fruits and vegetables. The ineffectiveness of chemical sanitizers is caused in part by their inability to reach microbial cells that have infiltrated subsurface tissues. The importance of good HACCP programs in enhancing the microbiological safety of produce cannot be overemphasized.