Thermal inactivation of *Salmonella* Typhimurium in chicken shawirma (gyro)

Abstract

This study explored the thermal characteristics (D- and z-values) of *Salmonella* Typhimurium in raw chicken shawirma. Marinated and non-marinated chicken breasts with skin were inoculated with *S. Typhimurium* 112 or *S. Typhimurium* 144. Inoculated samples were ground, packed in sterile bags and submerged in a water bath at 54, 56, 58 and 60 °C for 2.5 to 72 min. The mean D-values of *S. Typhimurium* strains in inoculated, non-marinated, ground raw chicken breast, as well as those of *S. Typhimurium* 15 h after exposure to the marinade (inoculated before marinating, IBM) or after brief exposure (30 min) to the marinade (inoculated after marinating, IAM) ranged from 9.15 to 12.44, 2.89 to 3.92, 1.06 to 1.30 and 0.32 to 0.52 min at 54, 56, 58 and 60 °C, respectively. Generally, no significant differences (*P > 0.05*) were found among the D-values of *S. Typhimurium* in all chicken samples. However, the D-values of *S. Typhimurium* in raw ground chicken shawirma IBM were the lowest. The z-values of *S. Typhimurium* in all products ranged from 3.78 to 4.58 °C. It was concluded that thorough cooking of the outside of the shawirma meat cylinder or cone before removal of slices at foodservice counters can enhance the safety of the product.