Abstract

The growth of aerobic bacteria on Korean seasoned soybean sprouts was modelled as a function of temperature to estimate microbial spoilage and shelf life on a real-time basis under dynamic storage conditions. Counts of aerobic bacteria on seasoned soybean sprouts stored at constant temperatures between 0 °C and 15 °C were recorded. The bootstrapping method was applied to generate many resampled data sets of mean microbial plate counts that were then used to estimate the parameters of the microbial growth model of Baranyi and Roberts. The distributions of the model parameters were quantified, and their temperature dependencies were expressed as mathematical functions. When the temperature functions of the parameters were incorporated into differential equations describing microbial growth, predictions of microbial growth under fluctuating temperature conditions were similar to observed microbial growth.