

Title Applicability of an enzymatic time temperature integrator as a quality indicator for mushrooms in the distribution chain

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Citation Postharvest Biology and Technology, Volume 42, Issue 1 , October 2006, Pages 104-114

Keywords Colour; Kinetics; Modelling; Mushroom; Quality; Shelf life; TTI

Abstract

A feasibility study was carried out to evaluate the potential of time temperature integrators (TTI) as an indicator of the quality of horticultural products, using mushroom (*Agaricus bisporus* Pilát) as a case study. The kinetic parameters of the loss of mushroom quality were determined using three different modelling approaches, ranging from simple linear kinetics to more complex mechanistic models. Based on these results, a commercially available enzymatic TTI (Vitsab A.B., Malmö, Sweden) with the same kinetic behaviour as the product was selected. To evaluate its performance, response kinetics of the TTI were obtained and analysed using two different model approaches, a standard TTI response model and again a more complex mechanistic approach. The responses of both mushrooms and the selected TTI were measured during both constant and variable temperature profiles using a spectrophotometer. The results highlight some of the problems that need to be overcome when selecting a product–TTI combination for horticultural products.