

The effect of storage temperature on the shelf life of *Pleurotus* mushrooms

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Abstract

Mushrooms, the spore-bearing fruiting bodies of fungi, present particular challenges to storage when compared to other agricultural products, because they lack certain layers of tissue that constitute barriers to water and microbiological degradation in plants. Fast deterioration reduces shelf life of fresh mushrooms to 96 hours after harvest at room temperature.

In this study, the effect of storage temperatures on the shelf life of mushrooms *Pleurotos ostreatus* was analysed. Organic mushrooms produced over straw mulch were harvested in clusters, immediately refrigerated and taken into the laboratory. The mushrooms were then separated according to colour, dimension and maturation phase. Changes in several metabolic parameters associated with quality were measured (respiratory rate, colour of the upper surface, total soluble solids and mass-loss rate) at different times (0, 24, 48, 72 and 76 hours) and temperatures (2, 6, 10, 14 and 18 °C) of storage. A two-way analysis of variance with 3 replicates was undertaken.

Colour attributes showed significant deterioration over time although greater changes in colour were measured at higher temperatures. Mass-loss rate was confirmed under all tested conditions but was particularly high at temperatures over 10 °C. At this temperature the mass-loss rate achieved 10% after 24 hours and increased exponentially after that. Respiratory rate continued to decrease until 24 hours after harvest at all temperatures. However, after 24 hours higher respiratory rates were measured at higher temperatures.

The results suggest that a temperature of 2 °C is the ideal temperature for maximizing all quality criteria and increase the shelf life of *Pleurotos ostreatus*. Given the great mass-loss rate verified during storage, air humidity inside the pack seems to be another important variable to consider.