

Short-term anaerobic treatment combined with perforation mediated MAP on the quality of *Agaricus bisporus* mushroom

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Abstract

The objective of this paper was to evaluate the combinational effect of different durations of anaerobic treatment and perforation mediated modified atmosphere packaging on the respiration, color, texture, sensory, and amino acid contents of *Agaricus bisporus* mushrooms stored under 5 °C. The anaerobic condition was created by flushing N₂ for 6, 12, and 24 h into a plastic tray sealed with perforated film containing the mushroom samples. The results showed that 6 h treatment combined with perforation mediated MAP was the most effective to maintain the quality of mushrooms, including the appearance, texture, and sensory quality. It reduced the respiration rate by 47.5 % on day 3 compared to control (no anaerobic treatment) and maintained the weight loss under 1.6 % during 15 d storage. Extending the treatment to 24 h accelerated the deterioration of mushroom quality, indicating that extended anaerobic treatment caused irreversible damage to mushroom cells.