

**Title** Effects of pulsed light treatments on quality and antioxidant properties of fresh-cut mushrooms (*Agaricus bisporus*)

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### **Abstract**

This study investigated the impact of pulsed light treatments on microbial quality, enzymatic browning, texture and antioxidant properties of fresh-cut mushrooms. The reduction of the native microflora of sliced mushrooms ranged from 0.6 to 2.2 log after 15 days of refrigerated storage by flashing at 4.8, 12 and 28 J cm<sup>-2</sup>. Pulsed light treatments allowed extension of the microbiological shelf life of fresh-cut mushrooms by 2–3 days in comparison to untreated samples, while providing a high quality product. The use of high pulsed light fluencies (12 and 28 J cm<sup>-2</sup>) dramatically affected the texture of sliced mushrooms due to thermal damage induced by the treatments. Enzymatic browning was also promoted by an increase in polyphenol oxidase activity when the highest dose of pulsed light was applied. At 28 J cm<sup>-2</sup>, phenolic compounds, vitamin C and antioxidant capacity were significantly reduced. Our results suggest that the application of pulsed light at doses of 4.8 J cm<sup>-2</sup> could extend the shelf life of fresh-cut mushrooms without dramatically affecting texture and antioxidant properties.