

Title The use of a natural fungicide as an alternative to preharvest synthetic fungicide treatments to control lettuce deterioration during postharvest storage

Author Domingo Martínez-Romero, Maria Serrano, Gloria Bailén, Fabián Guillén, Pedro J. Zapata, Juan Miguel Valverde, Salvador Castillo, Martín Fuentes and Daniel Valero

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Abstract

Lettuce (*Lactuca sativa* L.) is very sensitive to developing decay from microbial attack during the growing period, with severity being increased during postharvest storage. For this reason the application of fungicides is necessary. However, consumers are currently demanding produce free of synthetic chemicals. Thus, in this paper the efficacy of Fungastop™ (a nature-based fungicide) as an antimicrobial, as well as its effect on the overall lettuce quality, was evaluated at harvest and after cold storage and subsequent shelf-life at 20 °C. Two independent experiments were carried out during two different growth cycles: winter–spring and autumn–winter. Fungastop™ had the same efficacy as chemical fungicides in terms of reducing microbial spoilage at harvest with respect to control heads, which was also evident after long storage periods. In addition, lower weight loss and reduction in ethylene production and respiration rates were observed in both Fungastop™ and chemical treated lettuces than found in controls. There was a similar increase in lettuce shelf-life for both treatments compared to the controls, and thus the natural fungicide might be a good alternative to the use of synthetic fungicides, and in turn to fulfil consumer requirements for more natural and healthy foods.