Reuterin, lactoperoxidase, lactoferrin and high hydrostatic pressure treatments on the characteristics of cooked ham

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Abstract

The effect of reuterin, lactoperoxidase system (LPS) and lactoferrin (LF) combined with high hydrostatic pressure (HHP) on the characteristics of sliced cooked ham during 35 days at 4 and 10 °C were investigated. Reuterin and LPS inhibited the growth of total microorganisms during 35 days at 4 and 10 °C, whereas a regrowth at 10 °C was observed when HHP was applied. Combined treatments kept total viable counts below 1.5 log cfu/g after 35 days at 10 °C. Regarding the effect of treatments on colour of cooked ham, LPS alone or in combination with HHP slightly affected L*, a* and b* values, but these changes tended to attenuate during storage. Likely, slight differences were registered in shear strength values among control and treated cooked ham. The accumulation of volatile compounds was reduced in cooked ham treated with LPS and LF in combination with HHP, even under abuse temperature conditions (10 °C).

Industrial relevance

LPS applied in combination with HHP was the most effective treatment at reducing the growth of total microorganisms in refrigerated cooked ham with minor changes in its characteristics. The antimicrobial activity of such combined treatment against food-borne pathogens, which has also been reported in RTE foods, points to its usefulness to assure a safe product of sensory characteristics similar to those of untreated cooked ham.