

# Reuterin, lactoperoxidase, lactoferrin and high hydrostatic pressure on the inactivation of food-borne pathogens in cooked ham

*Food Control* (2015) 51, 122-128

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## Abstract

The antimicrobial effect of high hydrostatic pressure (HHP) processing combined with reuterin, lactoperoxidase system (LPS) and lactoferrin (LF) on the survival of *Listeria monocytogenes*, *Salmonella enterica* subsp. *enterica* serovar Enteritidis and *Escherichia coli* O157:H7 in sliced cooked ham stored under strict refrigeration temperature (4 °C) and mild temperature abuse conditions (10 °C) was investigated. One day after treatment, *L. monocytogenes* counts in HHP at 450 MPa for 5 min were 0.8 log units lower, but a recovery was observed with counts not significantly different to those observed in control after 35 d. *S. Enteritidis* and *E. coli* O157:H7 levels were reduced around 5 log cfu/g by the pressure treatment (450 MPa/5 min) and the numbers of these pathogens did not increase significantly during the 35 d of storage at 4 °C. The individual application of reuterin and LPS influenced the survival of the three pathogens studied, extending the lag phase of *L. monocytogenes* and diminishing *S. Enteritidis* and *E. coli* levels throughout storage, whereas no effect was recorded when LF was added. When reuterin or LPS were applied in combination with HHP there was a synergistic antimicrobial effect against *L. monocytogenes*, avoiding at 4 °C the recovery observed with individual treatments. These combined treatments also kept the levels of *S. Enteritidis* and *E. coli* O157:H7 below the detection limit (<1 log unit) in cooked ham stored at 4 and 10 °C during 35 d. The results obtained in the present work suggest that HHP at 450 MPa for 5 min in combination with LPS or reuterin would be useful as a hurdle technology approach against *L. monocytogenes*, *S. Enteritidis* and *E. coli* O157:H7 in cooked ham.