

Title Bacterial loads and microbial composition in high pressure treated oysters during storage
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Abstract

Analysis of bacterial communities present in high-pressure (HP)-treated, quick-frozen (QF), and raw oysters was carried out during three different seasons. Bacterial numbers and species diversity in each sample were determined at 0, 7, 14, and 21 days of storage. Results showed that numbers of total aerobic bacterial counts (TABC) in treated oysters were significantly lower than in untreated oysters at day 0 by 10^5 colony forming units per gram of oyster meat (CFU/g) in all samplings. However, an increase in TABC in HP-treated oysters was observed at days 7, 14, and 21 indicating that some bacteria survived the treatment and were able to proliferate during refrigeration conditions. Surprisingly, TABC in HP-treated oysters reached 10^8 CFU/g at 14 days of storage in all samplings (higher than TABC from raw oysters in two of the samplings performed). Analysis of the bacterial flora by 16S rDNA sequencing, revealed six different classes within the bacterial communities. The majority were Gram-negative bacteria, with the Gammaproteobacteria class representing between 56% and 92%. The most common bacterial genera found in this study were *Shewanella*, *Vibrio* and *Psychrobacter*. Four species of human pathogenic bacteria were also identified: *V. vulnificus*, *V. parahaemolyticus*, *V. alginolyticus*, and *A. hydrophila* although *V. vulnificus* was detected only in raw oysters.