



SYMPOSIUM ABSTRACTS

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Packaging

P2-34 Lactic Acid Bacteria and Yeast Species Diversity of Non-thermally Preserved Green Spanish-style Olives during Modified Atmosphere Packaging

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Introduction: Spanish-style green olives are one of the main trade preparations in the international market. Nowadays, there is an increasing trend to use plastic packaging due to reduced weight, lower costs, flexibility and convenience.

Purpose: To investigate the diversity of the technological microbiota of Spanish-style fermented green olives (lactic acid bacteria and yeasts) during modified atmosphere packaging in multilaminated pouches, using culture dependent molecular techniques.

Methods: Green pitted olives of cvs. Conservolea and Halkidiki were packaged in high barrier, multilaminated pouches under modified atmospheres (100% N₂) and stored at room temperature for 12 months. Microbial consortia (lactic acid bacteria – LAB, yeasts, enterobacteria) were monitored during storage. LAB and yeast species diversity was evaluated at the initial (0 days), middle (180 days) and final (360 days) period of storage by RAPD-PCR genomic fingerprinting with the oligo-nucleotide primer M13. The identity of the isolates was obtained by partial sequencing analysis 26S rDNA and 16S rRNA for yeasts and LAB, respectively.

Results: The microbiota consisted of LAB (5.2-5.5 log CFU/g) and yeasts (4.6-4.8 log CFU/g). No enterobacteria could be detected in both olive varieties. Yeasts could not be detected after the beginning of storage on both varieties. In the end, LAB dominated in populations exceeding 5.2 ± 0.29 and 4.6 ± 0.10 log CFU/g for cvs. Halkidiki and Conservolea, respectively. Molecular analysis revealed that the dominant LAB species at the beginning, 6 and 12 months of storage were *Pediococcus ethanolidurans*, *Lactobacillus pentosus*, *Lactobacillus rafi*, *Lactobacillus buchneri* and *Lactobacillus paraffaragnis*. As for the yeasts' isolates, *Pichia manshurica* prevailed in both cultivars.

Significance: The survival of LAB combined with the probiotic potential of this microbial group creates new possibilities for the use of non-thermally preserved olives as a functional food.

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