

#### Abstract:

Minimally processed (MP) vegetables can support massive microbial growth. In the current study, the complex interaction between the microorganisms of the natural flora of MP, sliced carrots were quantified. A broad range of temperatures (4 to 10°C) and controlled gas atmospheres (1 to 30% CO<sub>2</sub> and 1 to 90% O<sub>2</sub>) were studied. At 8°C or higher and ambient gas conditions, *Pseudomonas* spp. and occasionally Enterobacteriaceae was the dominant flora. At 4 or 6°C and at increased CO<sub>2</sub> and O<sub>2</sub> levels, lactic acid bacteria were isolated from the dominant flora. The gas atmosphere affected the specific growth rates of the potentially spoilage microorganisms. The storage of sliced carrots under CA composed of high CO<sub>2</sub> and O<sub>2</sub> at low temperature did not affect the density of the spoilage flora, but rather resulted in a balanced growth rate, mainly between lactic acid bacteria and pseudomonas. It is concluded that a gas atmosphere enriched in O<sub>2</sub> and CO<sub>2</sub>, at low temperature, is an effective mean to control microbial growth and spoilage of MP carrots.