

## The Effect of Sodium Reduction and Replacement by Potassium Chloride on the Sensory Quality and the Survival of *Escherichia coli* ATCC 8739<sup>TM</sup> and *Staphylococcus aureus* ATCC 25923<sup>TM</sup> in Feta Cheese

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### Abstract

Salt (NaCl) is a preservative found in high concentrations in Feta cheese. High salt intake has proven to cause some health risks; therefore, a reduction of salt is necessary. The aim of this research was to assess the effect of using potassium chloride (KCl) as a partial salt replacer on the microbial safety of the Feta cheese that has been inoculated with either *Escherichia coli* ATCC 8739<sup>TM</sup> or *Staphylococcus aureus* ATCC 25923<sup>TM</sup>. The pH, water activity ( $a_w$ ) and sensory characteristics of the non-inoculated Feta cheese were also evaluated.

Feta cheese containing a higher amount of NaCl (75% NaCl + 25% KCl) was preferred by the consumer panel over the 50% NaCl and the 25% NaCl cheese treatments. Salt reduction and replacement with KCl did not affect the pH of the Feta cheese. Salt reduction and replacement increased the  $a_w$  of the product which may be a problem in terms of preservation because more water will be available for microorganisms to grow and spoil the product.

*Escherichia coli* ATCC 8739<sup>TM</sup> and *Staphylococcus aureus* ATCC 25923<sup>TM</sup> did not survive 15 days and 10 days storage at 4 °C, respectively, in any of the salt reduction and replacement treatments.

The 100% NaCl treatment was the most effective in the control of growth of *E. coli* ATCC 8739<sup>TM</sup>, while the 75% NaCl + 25% KCl treatment was the most effective in the control of growth of *S. aureus* ATCC 25923<sup>TM</sup>.

In conclusion, salt reduction and replacement in Feta cheese will not be possible to control the growth of all pathogens, although, KCl will be regarded a suitable sodium replacer in terms of sensory characteristics, pH and water activity. More studies are needed to investigate the effect of sodium reduction and replacement on all kinds of pathogens.