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Impact on the physicochemical and sensory properties of salt reduced corned beef formulated with and without the use of salt replacers

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Abstract

The aim of this study was to investigate physicochemical and microbiological properties as well as a sensory (affective and descriptive) driven sodium reduction (0.2 g/100 g - 1.0 g/100 g product) strategy for a cured meat product (corned beef). A second aim was to use the same methodology to further reduce salt, using salt replacers. Significant differences in colour, hardness and cooking loss were measured. Corned beef samples low in sodium (0.2 g/100 g, 0.4 g/100 g) showed reduced ($P < 0.05$) saltiness perception, but were positively correlated ($P > 0.05$) to liking of flavour and overall acceptability. Samples formulated with $CaCl_2$, $MgCl_2$ and KCl scored higher ($P < 0.01$) in saltiness perceptions, but correlated negatively ($P > 0.05$) to liking of flavour and overall acceptability. However, a sodium reduction in corned beef was determined to be achievable as assessors liked ($P < 0.05$) the flavour of the sodium reduced corned beef containing 0.4 g/100 g sodium and formulated with potassium lactate and glycine (KLG), even with the noticeable lower salty taste. Sodium reduction in corned beef (packaged under modified atmosphere) did not negatively impact on the microbiological shelf-life.