

## The Effect of Salt Reduction and Salt Replacer Combinations on the Chemical, Microbial and Sensory Quality of Dry Sausage

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### Abstract

The South African Department of Health introduced legislation for mandatory sodium reduction in many food products. The reduction or partial replacement of sodium can have negative implications on the shelf-life and chemical and sensory properties of these products. Although it does not fall under these regulations, a high salt product like South African Dry Sausage may experience serious manufacturing and safety challenges if the salt and sodium content of such a product is reduced. Dry Sausage is a ready to eat (RTE), shelf-stable dried meat product produced from a blend of minced meat, fat, spices, and vinegar.

In this study, five different Dry Sausage treatments were formulated with 3.83% sodium chloride (NaCl) as the positive control, 1.92% NaCl as the negative control, and the remaining three treatments contained 1.92% NaCl with either potassium chloride (KCl), organic potassium salts, or potassium-lactate used as salt replacers. The chemical and microbial stability (total bacterial count, *Escherichia coli*, coliforms, *Staphylococcus aureus*, *Listeria monocytogenes*, Enterobacteriaceae, lactic acid bacteria, yeasts and moulds), along with the effect on sensory properties, were evaluated to determine which replacer was the most effective.

The treatment which contained the organic potassium salts, in conjunction with the potassium-lactate, was the replacer, which was the most effective at inhibiting Enterobacteriaceae, coliforms, lactic acid bacteria, yeasts and moulds. The negative control had the lowest score for saltiness, texture, aftertaste, and overall liking. The positive control differed significantly from the K-lactate and negative control groups when it came to saltiness and overall liking.

It was found that all the replacers were effective without having a negative effect on the sensory quality or stability of the Dry Sausage.