The effectiveness of heat treatment in reducing the microbial load in fish based herbal sausages

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Five formulations of fish based herbal sausages were produced using parsley, mint, curry leaves, coriander and celery powders. The objective of the study was to determine the effectiveness of heat treatment in reducing the microbial load in fish based herbal sausages at 40 ^{0}C for 30 min. and at 90 ^{0}C for 15 min.

Five formulations of sausages were prepared separately. Half of each formulation was subjected to heat treatment and the other half was not heat-treated. Both heat-treated and non heat-treated sausages were packed, labeled and stored under freezer condition (-18 °C).

08 samples of each sausage formulation were analysed before and after heat treatment for Aerobic Plate Count, Yeast & Mould Count, Coliforms, Faecal coliforms, *E.coli, Staphylococcus aureus, Salmonella*, *Clostridium perfringens* and *Clostridium botulinum*. All analyses were done according to Sri Lanka Standard specifications.

Results before heat treatment, Aerobic Plate Count (2.3×10^5 - 8.6×10^6) and Yeast & Mould Count (2.1×10^2 - 4.0×10^2) were high in all five sausage formulations. Coliforms, Faecal coliforms, *E.coli* and *Staphylococcus aureus* were present in all samples. *Salmonella* was not detected in Mint and curry leaves sausage mixtures. None of the sausage mixtures contained *Clostridium perfringens* and *Clostridium botulinum.*

Results after heat treatment, Aerobic Plate Count ($7.5 \times 10^2 - 1.7 \times 10^4$) and Yeast & Mould Count (13 – 46) have reduced considerably .None of the samples contained Coliforms, Faecal coliforms, *E.coli, Staphylococcus aureus, Salmonella*, *Clostridium perfringens* and *Clostridium botulinum*.]

The above results indicate that the heat treatment was a very effective and an essential step in controlling food borne pathogens in sausage production.

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