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food and drink innovation

INVESTIGATION INTO THE DECONTAMINATION OF TWO LENGTHS OF SILICON TUBING USING A STEAM STERILISER

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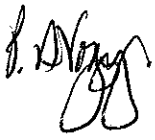
Report Approved By: 

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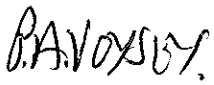
Name: 

SUMMARY

A study was conducted on two lengths of silicon tubing to determine the efficacy of decontamination using a steam steriliser. The tubing is intended for use within a breast pump and the efficacy of cleaning and sterilising the tubing so as not to contaminate any milk was assessed. Sample of silicon tubing 60cm and 80cm in length were submitted for testing and were inoculated with *Escherichia coli, Listeria monocytogenes, Staphylococcus aureus* and Salmonella *champagne* within a milk suspension. Levels of each organism were determined before and after processing in the steam steriliser. Samples were also assessed with and without a rinsing step to simulate user cleaning of the tube. Positioning within the steam steriliser was also varied in order to establish whether this would impact on the efficacy of decontamination.

The initial loading of *E.coli* in the 60cm and 80cm lengths of tubing was determined as 8.02 log cfu/tube and 8.22 log cfu/tube respectively from the five replicate samples of each length. No survivors were detected in the replicates of either length tube when processed in the steam steriliser. If tubes were not rinsed prior to sterilisation no impact in the efficacy of decontamination was seen demonstrating that >7.02 and >7.22 log reductions of the organism in the 60cm and 80cm tubes respectively could be achieved during steam sterilisation.

The initial loading of *Salmonella* in the 60cm and 80cm lengths of tubing was determined as 7.39 log cfu/tube and 7.53 log cfu/tube respectively from the five replicate samples of each length. No survivors were detected in the replicates of either length tube when processed in the steam steriliser. If tubes were not rinsed prior to sterilisation no impact in the efficacy of decontamination was seen demonstrating that >6.09 and >6.23 log reductions of the organism in the 60cm and 80cm tubes respectively could be achieved during steam sterilisation.

The initial loading of *L.monocytogenes* in the 60cm and 80cm lengths of tubing was determined as 7.38 log cfu/tube and 7.42 log cfu/tube respectively from the five replicate samples of each length. No survivors were detected in the replicates of either length tube when processed in the steam steriliser. If tubes were not rinsed prior to sterilisation no impact in the efficacy of decontamination was seen demonstrating that >6.08 and >6.12 log reductions of the organism in the 60cm and 80cm tubes respectively could be achieved during steam sterilisation.

The initial loading of *S.aureus* in the 60cm and 80cm lengths of tubing was determined as 7.36 log cfu/tube and 7.38 log cfu/tube respectively from the five replicate samples of each length. No survivors were detected in the replicates of either length tube when processed in the steam steriliser. If tubes were not rinsed prior to sterilisation no impact in the efficacy of decontamination was seen demonstrating that >6.06 and >6.08 log reductions of the organism in the 60cm and 80cm tubes respectively could be achieved during steam sterilisation.

The study demonstrated that decontamination within a steam steriliser resulted in the removal of significantly high levels of non-spore forming food poisoning organisms. Whilst the study did show good levels of decontamination even without a washing step, it is advised that users are still advised to follow a cleaning procedure in order to adopt good hygienic practice in the use of the breast feeding equipment.