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## Decontamination Efficiency of Fish Bacterial Flora from Processing Surfaces

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### Summary

There are numerous parameters that can influence bacterial decontamination during washing of machinery and equipment in a food processing establishment. Incomplete decontamination of bacteria will increase the risk of biofilm formation and consequently increase the risk of pathogen contamination or prevalence of other undesirable microorganisms such as spoilage bacteria in the processing line. The efficiency of a typical washing protocol has been determined by testing three critical parameters and their effects on bacterial decontamination. Two surface materials (plastic and stainless steel), water temperatures

(7 and 25 °C) and detergent concentrations (2 and 4 %) were used for this purpose in combination with two types of detergents. Biofilm was prepared on the surfaces with undefined bacterial flora obtained from minced cod fillets. The bacterial flora of the biofilm was characterised by cultivation and molecular analysis of 16S rRNA genes. All different combinations of washing protocols tested were able to remove more than 99.9 % of the bacteria in the biofilm and reduce the cell number from 7 to 0 or 2 log units of bacteria/ cm<sup>2</sup>. The results show that it is possible to use less diluted detergents than recommended with comparable success, and it is easier to clean surface material made of stainless steel compared to polyethylene plastic.

*Key words:* biofilm, fish processing, washing, bacteria, molecular methods

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