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The impact of high pressure thermal sterilization on the microbiological stability and formation of food processing contaminants in selected fish systems and baby food puree at pilot scale

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Abstract:

To this day there is no implementation of the high pressure thermal sterilization (HPTS) in the food industry. HPTS could result in better food quality, lower thermal load applied to the product and less unwanted food processing contaminants (FPCs) such as furan.

Based on findings for selected foods at lab-scale extrapolated temperature-time combinations for a 12 $\log_{10}$ inactivation of *Bacillus amyloliquefaciens* were chosen for a scale-up with a 55 L vessel (HPHT system Hiperbaric). Temperature-time-combinations at 600 MPa were between 100-115°C and 0.45-28min. The scale-up resulted in a reduction of furan, depending on the food system, between 41-98 % to retorting. Results at pilot scale were similar to lab-scale experiments. The performed storage trials (standardized method NF V 08-408) showed that only for the baby food puree two selected treatment conditions (107.5°C, 9.8 min and 115°C, 0.45 min at 600 MPa)