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[P60] QUANTIFYING THE GROWTH VARIABILITY OF PATHOGENIC AND SPOILAGE SPORE-FORMING MICROORGANISMS OF INTEREST FOR CHILLED FOODS USING META-ANALYSIS TECHNIQUES

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To ensure the safety and quality of chilled products with a long shelf-life, it is important to control pathogenic and spoilage spore-forming microorganisms that may grow at refrigeration temperatures, among which *Bacillus cereus* and spoilage *Bacillus* spp. are of particular concern for the industry. Meta-analysis techniques can be a strong tool for evaluating the growth potential of these microorganisms under chilled conditions and for identifying control strategies.

The aim of this study was to perform a meta-analysis of growth rates of spoilage and pathogenic psychrotrophic *Bacillus* spp. found in a publicly available predictive modelling database and to use this information for predicting their growth in chilled products.

ComBase was screened for information on growth of *B. cereus* and spoilage *Bacillus* spp. in dairy matrices and laboratory media at temperatures relevant for refrigerated storage including product abuse by the consumer (0-15°C). The simple square root model of Ratkowsky¹ was fitted to the collected datasets, as previously described². This allowed for the estimation of the mean growth rate as a function of temperature.

The quality of extracted data varied depending on the species of microorganism with best dataset obtained for *B. cereus*. The availability of data for spoilage spore-formers was relatively limited. Quantifying the variability of growth rates as a function of temperature can allow for fail-safe shelf life estimations for chilled products. The meta-analysis also helped to identify areas where limited information is available for controlling psychrotrophic spore-formers.

References:

¹Journal of Bacteriology, 1982. **149**(1): p. 1-5.

²Trends in Food Science and Technology, 2012. **25**(1): p. 34-39.

[P61] ABSTRACT WITHDRAWN