

***Cronobacter* spp. exposure assessment after Pulsed electric field (PEF) treatment and storage of reconstituted powder infant formula milk (RPIFM)**



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- ❑ *Cronobacter sakazakii* is an emergent opportunistic pathogen,
- ❑ Affecting neonatal population which is feeding with reconstituted powder infant milk formula (RPIMF)
- ❑ FAO/WHO (2006, 2008) alternatives to thermal treatment (reconstitution > 70°C)
- ❑ Pulsed Electric Fields (PEF) : Non-thermal technology applied to liquid products (10-40 kV/cm)



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H_0
PEF intensity
Temperature and time of storage

Studied scenarios (1, 2, 3.1, 3.2, and 4)

Nf (cfu per fed): Final load of *C. sakazakii* in RPIFM

Probability of illness: due to PEF treated and stored RPIFM consumption

inputs (x)

$$Y = f(x)$$

outputs (y)

Monte Carlo simulation

Baseline scenario:

$H_0 = -3.84 \log_{10}$ cycles

PEF: 10kV/cm- 3000 μ s

T, t storage: 8°C, 12h

PROCESS: Weibull inactivation model applied to *C. sakazakii* in RPIFM

STORAGE: Gompertz growth model applied *C. sakazakii*

BEST SCENARIO: PEF treatment 40kV/cm- 360 μ s, storage 8<T<25°C, t=12-24h

SENSITIVITY ANALYSIS: H_0 ($r^2=0.87$) > PEF treatment ($r^2=0.70$) > Temperature-time storage ($r^2=0.55$)