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IMPACT OF POOLING OF SAMPLES ON *CRONOBACTER*'S DETECTION

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Cronobacter spp. is responsible for rare but fatal cases of infection in neonates and immunocompromised infants. Currently, available standard method for its detection, ISO/TS 22964: 2006, relies on pre-enrichment before selective enrichment, selective isolation and confirmation. *Cronobacter* contamination level in powdered infant food is low and according to the condition the physiological state of cells is likely to correspond to stressed cells. In this context, six strains of *Cronobacter* were subjected to dry stress and stored for 2.5 months at ambient temperature. The individual cell lag time distributions of recovered cells were characterized in favorable conditions and in more realistic conditions, i.e. in powdered infant formula decimally diluted in first pre-enrichment broth. Dry-stress increased the individual lag times mean value and dispersion. Study of growth of *Cronobacter* in pre-enrichment broth with natural microbiota revealed that this microbiota of powdered milk can inhibit the growth of *Cronobacter* spp. and could lead to false negative results. Pooling of samples was associated to a reduction of the probability of reaching high concentration at the end of pre-enrichment step. These results emphasize the importance of taking into account the physiological state of the cells, low numbers and the potential bacterial competition when evaluating the performance of methods to detect pathogens in food.

Keywords: *Cronobacter*, pooling, dry stress, individual cell lag time

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