

Behavior and viability of spontaneous oxidative stress-resistant *Lactococcus lactis* mutants in experimental fermented milk processing

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ABSTRACT. Previously, we isolated two strains of spontaneous oxidative (SpOx2 and SpOx3) stress mutants of *Lactococcus lactis* subsp *cremoris*. Herein, we compared these mutants to a parental wild-type strain (J60011) and a commercial starter in experimental fermented milk production. Total solid contents of milk and fermentation temperature both affected the acidification profile of the spontaneous oxidative stress-resistant *L. lactis* mutants during fermented milk production. Fermentation times to pH 4.7 ranged from 6.40 h (J60011) to 9.36 h (SpOx2); V_{\max} values were inversely proportional to fermentation time. Bacterial counts increased to above 8.50 log₁₀ cfu/mL. The counts of viable SpOx3 mutants were higher than those

of the parental wild strain in all treatments. All fermented milk products showed post-fermentation acidification after 24 h of storage at 4°C; they remained stable after one week of storage.

Key words: *Lactococcus lactis*; Acidification kinetics; Oxidative stress; Spontaneous mutants