Industrial scale application of natural products of lactic acid bacteria against pathogenic bacteria *Cronobacter sakazakii*

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ABSTRACT In recent years there have been considerable interests in the use of probiotic live and dead 'paraprobiotics' cells for nutritional and therapeutic purposes. *Lactobacillus acidophilus* n.v. Er 317/402 strain Narine known as an health beneficial functional probiotic culture and supplementary nutrition for newborns. In this study the potential Narine lyophilized (Nanrine-L), Narine-heat treated (Narine-HT), and crude cell-free extract (Narine-CCFE) was evaluated anti-microbial activity *in vitro* against neonatal pathogens *C. sakazakii* in agar and a rehydrated infant milk formula model. The inhibition zones of NL and Narine-HT were 150U, whereas Narine-CCFE was 200U. The Narine-L and Narine-HT (1g) were subjected to 10 ml artificially contaminated infant milk, with 100 µl of *C. sakazakii* (10^8 CFU/ml), and 30 mg of Narine-CCFE was treated overnight grown culture of *C. sakazakii* (10^8 CFU/ml). Viable cell pathogens were not detected in milk treated with Narine-L and Narine-HT after 3 and 6 h. Examination by transmission electron microscope (TEM) was found *C. sakazakii* cells exposed to Narine-CCFE. Employing Narine-L and Narine-HT as a natural and safe bio-preservatives give novel perception to protect infant.