Title Survival, isolation and characterization of a psychrotrophic Bacillus cereus strain from a mayonnaise-based ready-to-eat vegetable salad

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Abstract

Incidence and population levels of *Bacillus cereus* in American salad, an industrially manufactured, packaged and refrigerated deli salad containing vegetables and mustard, were determined. Of 12 ready-to-eat samples examined, one (8.3%) was positive for *B. cereus* at less than 5×10^{3} cfu g^{-1}. According to the ISO confirmation procedure, a strain was isolated and further characterized and identified as *B. cereus* EPSO-35AS by API 50CH/20E phenotypic system, combined with additional tests of motility, oxidase activity and anaerobic growth. This strain produced diarrhoeal enterotoxin in tryptic soy broth culture as detected by BCET-RPLA test, hydrolysed starch and had a low D_{90}-value (2.1 min), with an estimated *z*-value of 6.79 °C. After a lengthy lag phase (9–12 days of incubation), the strain was able to grow at 8 °C in both nutrient broth and tyndallized carrot broth with specific growth rates from 0.009 to 0.037 h^{-1}, respectively. In the vegetable substrate, lag time was approximately 3 days (66 h) shorter than in laboratory medium. The effect of temperature abuses on the safety of the product during the time of use or consumption is discussed.