Anaerobe 2010

The 10th Biennial Congress of the
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Philadelphia, PA USA • July 7-10, 2010

SESSION VI: DIAGNOSTIC METHODS & MICROBIOLOGY

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DIAGNOSTIC METHODS & MICROBIOLOGY

EFFECT OF STORAGE CONDITIONS ON STABILITY OF FREE AND ENCAPSULATED IN PLAIN- OR CYSTEINE-SUPPLEMENTED ALGINATE, *BIFIDOBACTERIUM ANIMALIS* BB-12®

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The main objective of this research work was to study the viability of *Bifidobacterium animalis* BB-12® as free and calcium alginate-encapsulated cells, with or without cysteine, throughout storage, at four different temperatures. Extrusion by aerodynamically assisted flow was used to produce alginate and calcium alginate supplemented with L-cysteine·HCl microcapsules, containing *B. animalis* BB-12®. The microcapsules were suspended in Ringer solution in a 1:9 (g/mL) ratio, and stored at 21, 4, -20 and -80 ºC throughout six months, respectively. In parallel, the viability of free cells in cell suspension, was subjected to the same storage conditions and the corresponding viability assessed. Results showed that at 21, 4 and -20 ºC, the encapsulation did not have a protective effect—free cells maintained their viability throughout longer periods than encapsulated counterparts. At -80 ºC, encapsulation protected *B. animalis* BB-12® in comparison to the behavior of free cells. However, this effect was only observed in calcium alginate microcapsules supplemented with L-cysteine.HCl. After 180 days storage at -80 ºC, a 2 log cycle difference, in viable cells was observed between microcapsules with or without cysteine. The viable numbers of *B. animalis* BB-12® in microcapsules without cysteine was similar to that of free cells. In conclusion, alginate encapsulation revealed a protective effect on viability of *B. animalis* BB-12® stored at -80 ºC when supplemented with L-cysteine.HCl.