

Effect of alginate and chitosan on viability and release behavior of *Bifidobacterium pseudocatenulatum* G4 in simulated gastrointestinal fluid

ABSTRACT

The main aim of this study was to investigate the effect of different coating materials (i.e. Na-alginate and chitosan) on the viability and release behavior of *Bifidobacterium pseudocatenulatum* G4 in the simulated gastric fluid (SGF) and simulated intestinal fluid (SIF). This study reports the viability of encapsulated *B. pseudocatenulatum* G4 coated using different alginate (2–4 g/100 mL) and chitosan (0.2–0.8 g/100 mL) concentrations. The results indicated that the highest concentration of alginate (4.4142 g/100 mL) along with 0.5578 g/100 mL chitosan resulted in the highest viability of *B. pseudocatenulatum* G4. The release behavior of the encapsulated probiotics in SGF (pH 1.5) in 2 h followed by 4 h in SIF (pH 7.4) was also assessed. The resistance rate of alginate–chitosan capsule in SGF was higher than SIF. The alginate–chitosan encapsulated cells had also more resistance than alginate capsules. The current study revealed that alginate encapsulated *B. Pseudocatenulatum* G4 exhibited longer survival than its free cells (control).

Keyword: Encapsulation; Chitosan; Alginate; Probiotics; Cell viability; Release behavior