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Book of Abstract



Determination the gastrointestinal survivability of probiotic *Lactobacillus pentosus* microcapsules

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Microencapsulation is an effective technique for stabilizing and maintaining the viability of probiotic microorganisms under stress conditions. In this study, *Lactobacillus pentosus* cells were encapsulated using different coating materials-reconstituted skim milk (RSM), gum arabic (GA), and maltodextrin (MD)-via the freeze-drying method. The resulting microcapsules were evaluated for their ability to enhance probiotic survival under various stress conditions, including simulated gastrointestinal environments. The survivability of encapsulated cells were assessed in simulated gastric and intestinal fluids. Among the tested formulations, microcapsules prepared with the RSM:GA combination demonstrated significantly higher viability. A reduction of approximately 2-3 log CFU/mL in viable cell counts was observed under both gastric and intestinal conditions. These findings suggest that the RSM:GA coating matrix offers superior protection to
L. pentosus during gastrointestinal transit. The use of naturally sourced, food-compatible coating agents such as RSM:GA enables the development of clean label products. Microencapsulation allows for targeted release of probiotics (capsules that open in the intestine or stomach), which is an important step in personalised nutrition approaches.