

ABSTRACT

PROTECTION OF MICROBIAL CELLS FROM ACIDIC DEGRADATION

A simple cellulose sulphate based microencapsulation technology has been applied to encapsulate bacterial or other microbial cells, which produce and release digestive enzymes and thereby provides an acid resistant shelter for these microbial cells. Surprisingly, the resulting spheres were found to provide sufficient protection for encapsulated cells from treatment with aqueous acidic solutions. Thereby the cellulose sulphate microencapsulated cells, such as probiotics are now enabled to survive passage, for example, through the stomach after consumption by a human or animal with a higher survival rate than those not within a microcapsule. After passing the stomach these cells are delivering products produced by them, e.g. enzymes or other nutrition factors. This technology therefore proves to be very useful in providing digestive or otherwise beneficial enzymes and/ or of living microbial cells, into the lower gastrointestinal tract, where they could confer their health benefit to the host. Described is how cells are encapsulated with said material, and under which conditions the encapsulated cells survive the stomach passage and how the microbial cells or enzyme produced by said microbial cells can exit the microcapsules allowing the cells and/or the enzymes produced within the microcapsules to provide their health benefit. This technology will play an important role in the improvement of food, especially probiotic foods or the delivery of food additives to improve human and animal health and wherein these cells are still able to release their generated products e.g. enzymes and/or other nutritional factors into the surrounding environment after having been exposed to an acidic environment first.

(Fig. 4)