

Encapsulation of acid-sensitive probiotic bacteria

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Probiotic bacteria have become increasingly popular as a method for safely alleviating the symptoms of some specific illnesses of the intestine. However, the acid sensitivity of these species can be very high. As a result, some potentially beneficial strains may not survive passage through the low pH of the stomach if orally administered. Our work focuses on the design of alginate hydrogel matrices to immobilize these cells, with the aim of improving the survival of acid-sensitive probiotic strains after oral administration. These alginate capsules can be modified with multilayer coats, which further enhance the ability of these materials to protect live bacteria during exposure to acidic conditions. Microencapsulated prebiotic oligosaccharides may also be co-encapsulated in order to deliver both viable bacteria and their feedstuff in parallel. The visualization of different pH environments within the capsules by confocal microscopy is also possible using pH sensitive dyes bound to the bacteria.