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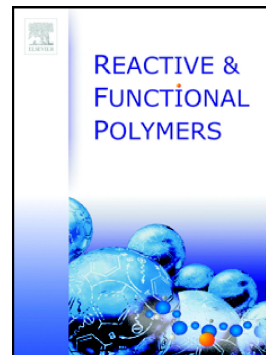
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A novel method of oil encapsulation in core-shell alginate microcapsules by dispersion-inverse gelation technique

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Abstract

Oil-core microcapsules may be produced by dispersing a calcium solution-oil emulsion into an alginate solution. The release of calcium from the emulsion leads to the gelation of alginate around the oil droplet and therefore to the formation of microcapsules. This work aims to propose a new method of microcapsule production by dispersion-inverse gelation technique. Therefore, W/O emulsions were dispersed in alginate solution and led to the formation of capsules with varying diameters depending on the stirring rate of the alginate bath. The membrane thickness varied between 35 and 200 μm depending on the type of emulsion destabilization treatment used. Oil was encapsulated at a yield of 100% allowing the extrapolation of this method at pilot scale. In addition, microcapsules released hydrophilic dye in few hours while hydrophobic dye was retained in the core due to interaction with the oil phase. Core-shell alginate microcapsules produced by dispersion-inverse gelation technique displayed interesting property suitable for applications where actives need to be retained during long times or for volatile compounds.

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