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New in-situ synthesized hydrogel composite based on alginate and brushite as a potential pH sensitive drug delivery system

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Highlights

- Ibuprofen was loaded on the in-situ synthesized Alginate-brushite hydrogel beads.
- Transformation of Na-ibuprofen to its acidic form occurred within the loading procedure.
- The brushite within alginate matrix improved mechanical properties
- The brushite crystals restricted swelling behavior of alginate
- Less crosslinked beads obtained as the concentration of $(\text{NH}_4)_2\text{HPO}_4$ reached to 0.4M.
- The hydrogel composite beads released ibuprofen in a controlled manner.

Abstract

A Series of in-situ alginate-brushite (Alg-Bru) hydrogel composites were fabricated to optimize release profile of ibuprofen (Ibu) and to avoid burst releases associated with the pure form of the hydrogels. The Bru crystals were synthesized and dispersed during the crosslinking process of Alg

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