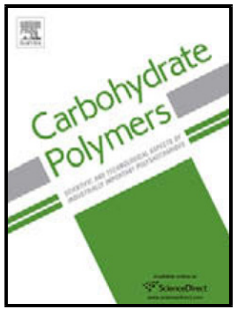

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κ-Carrageenan/Locust Bean Gum as Hard Capsule Gelling Agents

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Highlights

- • Locust bean gum/*κ*-Carrageenan (LBG/*κ*-C) blends synergy verification.
- • Physicochemical properties of films and capsules were improved by LBG.
- • Storage ability and brittleness of hard capsules were improved by LBG.
- • LBG/*κ*-C blends at 1:3 ratio can successfully prepare hard capsules.

Abstract

A novel gelling agent, comprising blended *κ*-carrageenan (*κ*-C), a seaweed polysaccharide and locust bean gum (LBG), was used to prepare hard capsules. The distinct synergism between *κ*-C and LBG was verified by the textural profile analysis (TPA), FTIR and rheological measurement. Afterwards, films and hard capsules were prepared with the optimized LBG/*κ*-C blend gel. And the mechanical properties and morphology of films and hard capsules were analyzed by tensile testing and SEM, respectively. The results showed that the LBG/*κ*-C at 1:3 ratio could serve as an excellent gelling agent, which endowed hard capsule with the promoted mechanical properties, homogenous and smooth surface morphology. This work suggests that a novel blended LBG/*κ*-C gelling agent successfully prepared for hard capsules with improving physicochemical properties.

Keywords: *κ*-carrageenan; locust bean gum; blend gel; synergism; film; hard capsule