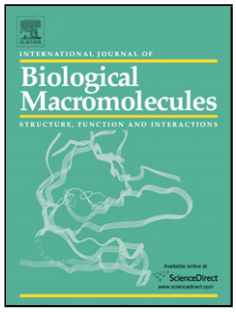

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<AT>Physical stability and rheological properties of konjac glucomannan-ethyl cellulose mixed emulsions

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<ABS-HEAD>Highlights► 1. Emulsion droplet size and morphology changes during storage were studied through confocal microscopy. ► 2. Steady shear properties and dynamic oscillatory properties of emulsions were studied and compared. ► 3. Emulsions were divided into three different types based on phrase diagram, and visual image examples were provided.

<ABS-HEAD>Abstract

<ABS-P>Konjac glucomannan (KGM) / ethyl cellulose (EC) could form a stable homogeneous emulsion with appropriate mixing formula. This study aimed to investigate the stable mechanism of KGM/EC emulsion at different mixing ratio through its rheological properties, and droplet size and morphology changes with up to 6 days storage time. Though emulsions samples with high KGM content had larger droplet size and worse uniformity at the fresh stage, they appeared to be more stable and droplets growth rate were slow during storage. Aggregation and morphology of droplets could be observed under confocal microscopy. Shear-thinning behavior were found in mixed emulsions, and mainly accredited to the KGM component. The effect of temperature on viscosities of the emulsions was well-described by Arrhenius equation. Increased KGM content led to larger storage modulus (G′) and loss modulus (G″), and