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Novel starch based emulsion gels and emulsion microgel particles: Design, structure and rheology

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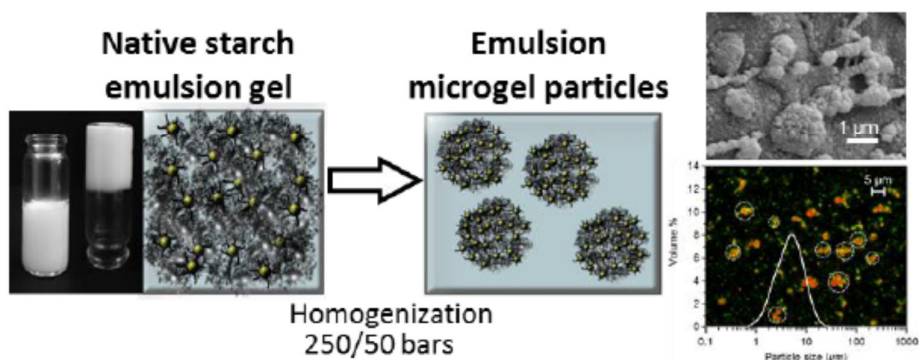
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Graphical Abstract



Highlights

- Novel starch based emulsion microgel particles of 5–50 µm size were designed
- OSA-modified starch-stabilized emulsion droplets acted as “active fillers”
- Hydrogen bonding occurred between OSA-stabilized droplets and native starch
- Facile top down shearing of emulsion gel was used to create microgel particles
- Size of the particles can be tuned using oil volume fraction and starch content.

Abstract

Novel starch-based emulsion microgel particles were designed using a facile top-down shear-induced approach. The emulsion droplets were stabilized using octenyl succinic anhydride (OSA) modified starch and incorporated into heat-treated and sheared native starch gels, forming emulsion gels. Using gelation kinetics and small deformation rheological measurements of sheared native starch gels and emulsion gels, OSA starch-stabilized

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