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Surface Behavior and Bulk Properties of Aqueous Chitosan and Type-B gelatin Solutions for Effective Emulsion Formulation

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Highlight

- Chitosan-type B Gelatin coacervation occurs through electrostatic interaction.
- The coacervate formation was influenced by pH and concentration ratios of CH and GB
- Chitosan (CH) was found more surface active than type-B gelatin (GB).
- CH and CH-GB blend were found more efficient to stabilize emulsion than GB.

ABSTRACT

The behaviour of aqueous chitosan (CH), type-B gelatin (GB) and CH-GB coacervate was studied on oil-in-water emulsion formulation at various pH and concentration ratio. The coacervate was formed by phase separation at ratios CH:GB, 1:10 to 1:1 with total biopolymer concentrations of 0.55%-1.0% (w/v) at pH 4.0-5.5. Soluble complexes were formed below pH 5.0 and coacervate formation was confirmed at pH 5.0 and above by zeta potential and UV-spectroscopy measurements. The coacervate formation was found maximum at the CH-GB ratios of 1:10 and 1:5 at pH 5.5. Formulated emulsions (>10µm droplets) using 1% (w/v) chitosan and GB were found stable (+52.5mv and creaming index

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