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### Casein polysaccharides interaction – A Review

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**Abstract :** Casein polysaccharide interaction can be associative or segregative thereby this interaction can improve stability or induce destabilization. The interaction of casein with several anionic, cationic and nonionic polysaccharides such as carrageenan, pectin, carboxymethylcellulose (CMC), gum, chitosan, inulin and glucomannan in aqueous solutions can be interacting to each other, or noninteracting each other. The attractive interactions between casein and polysaccharides mainly contribute to stabilize food emulsion.

Casein micelles especially  $\kappa$ Casein molecules stabilize the casein micelles via electrostatic interaction and steric stabilization. Casein adsorbed into oil-water interface to stabilize oil droplet by the combination of steric stabilization and electrostatic interaction. However, emulsions that stabilized by casein at  $\text{pH} < \text{pI}$  are less stable than those at  $\text{pH} > \text{pI}$ . Destabilisation of emulsion occurs through bridging flocculation or depletion flocculation. If the repulsive and steric stabilization layer is damaged or collapses, Van der Waals interactions appear and the casein micelles form aggregate.

The adsorbing macromolecules such as charged polysaccharides will stabilize oil-water emulsions via steric and electrostatic stabilization. The non-adsorbing macromolecules such as uncharged polysaccharides will stabilize the emulsions via depletion stabilization when the non-adsorbed polymer is in sufficient amount. Casein-polysaccharides layer formation at the oil water interface in continuous aqueous phase, mainly contribute to the emulsion stability of food products.

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