Supporting Information

Whey protein isolate/gum arabic intramolecular soluble complexes improving the physical and oxidative stabilities of conjugated linoleic acid emulsions

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Structural transition induced by in situ acidification

The change of pH with time during GDL acidification can be monitored by pH meter. The change of turbidity and light scattering with time during GDL acidification can be monitored by UV/Vis and dynamic light scattering, respectively. Correlation of data at the same time point resulted in the turbidity-pH and light scattering-pH curves (Figure S1). This has been described clearly in a previous publication. [1, 2]

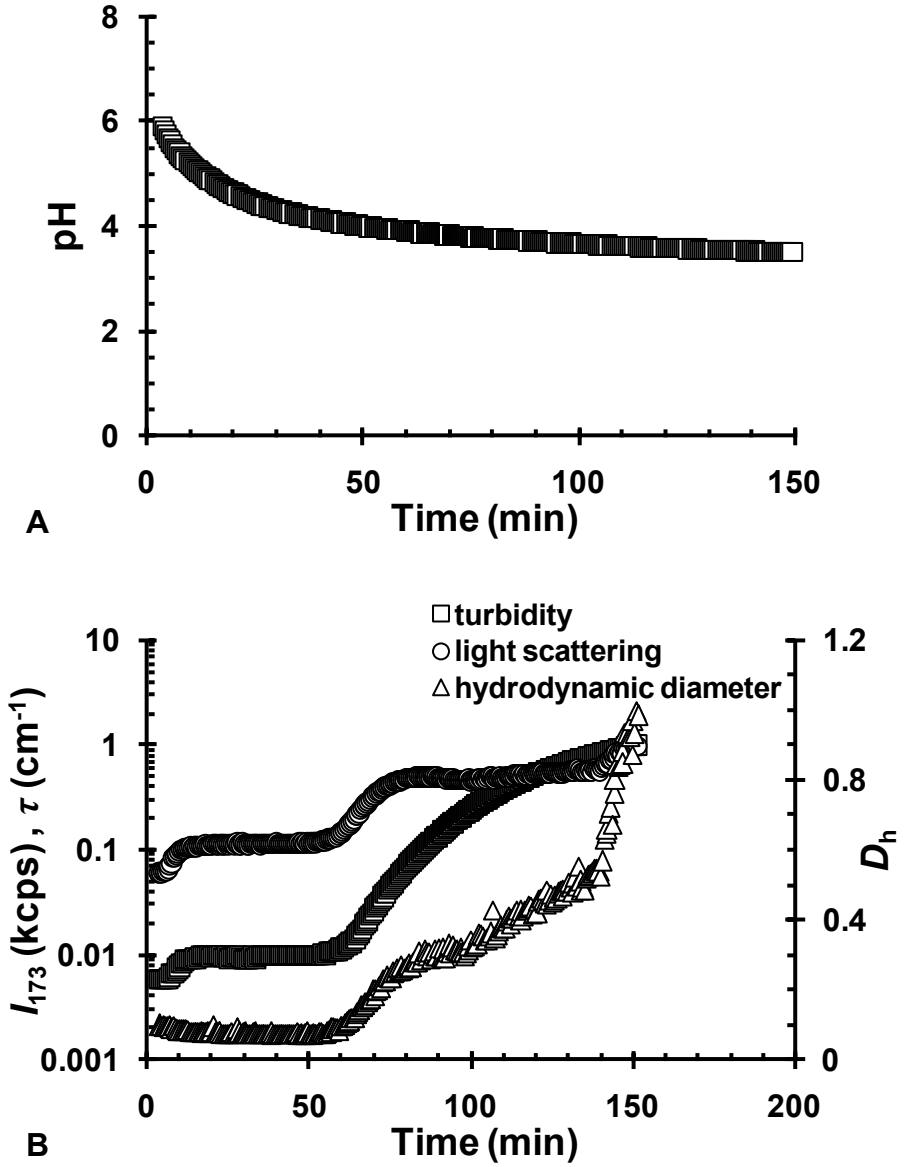

Figure S1 Change of pH with time during GDL-induced acidification for a 0.3wt% WPI/GA mixture at r = 0.5 with 10mM NaCl (A). Evolution of the turbidity at 500 nm (τ, □), scattered light intensity at 173° (I173, ○), and hydrodynamic diameter (D_h, Δ) as a function of time during GDL-induced acidification in the same system (B).

Nano-sized range of ISCs complexes

ISCs represented a rather stable state of the electrostatic complexation of WPI/GA, and D_h attains a nearly constant value of ~ 50 nm within this specific pH range (4.0-5.4). The change of D_h for ISCs during GDL acidification for a 0.3wt% WPI/GA mixture at r = 0.5 with 10mM NaCl is shown in Figure S2.

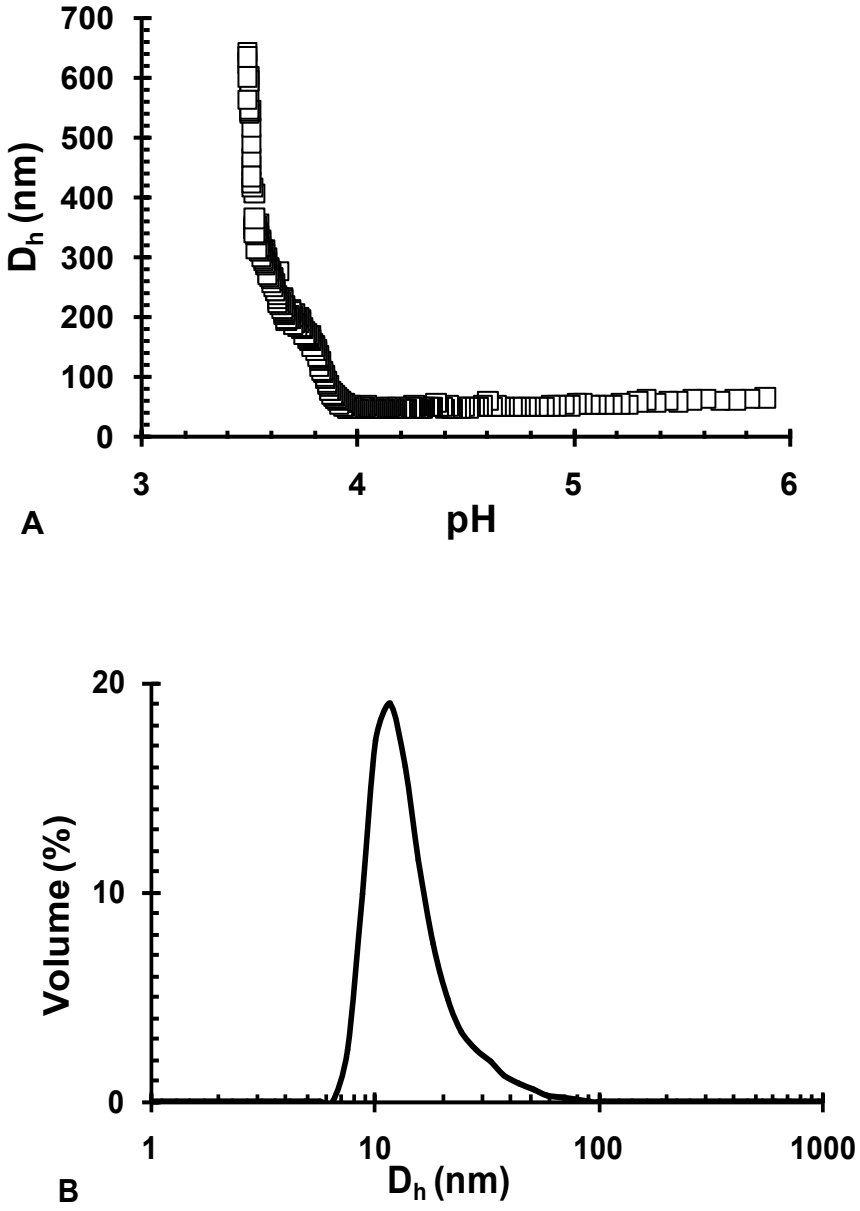

Figure S2 Evolution of hydrodynamic diameter (D_h) as a function of pH during GDL-induced acidification for a 0.3wt% WPI/GA mixture at r = 0.5 with 10mM NaCl (A). The particle size distribution of ISCs is given at pH 4.4 (B).

References

1 G. Mekhloufi, C. Sanchez, D. Renard, S. Guillemin and J. Hardy, *Langmuir*, 2004, 21, 386-394.

2 X. Li, Y. Fang, S. Al-Assaf, G. O. Phillips, X. Yao, Y. Zhang, M. Zhao, K. Zhang and F. Jiang, *Langmuir*, 2012, 28, 10164-10176.