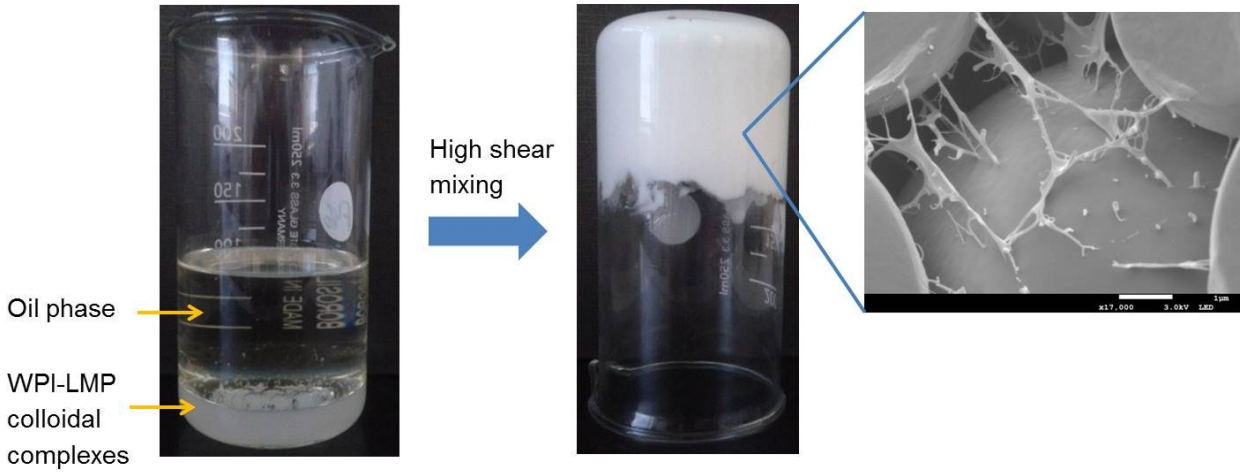
Electronic Supplementary Material (ESI) for Food & Function.

Supplementary information

Graphical abstract

Emulsion fabrication and schematic of stabilization



Figures

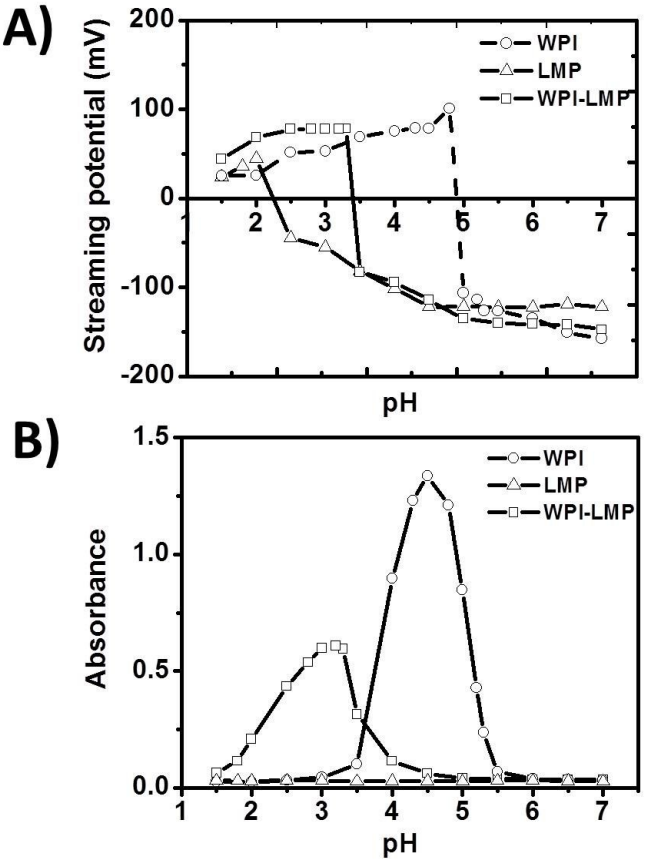


Figure S1. Streaming potential as a function of pH for WPI (1.0%), LMP (0.5%) and WPI-LMP (1:0.5%) (A). Absorbance against pH for WPI (1%), LMP (0.5%) and WPI-LMP (1:0.5%, with 10x dilution) (B).

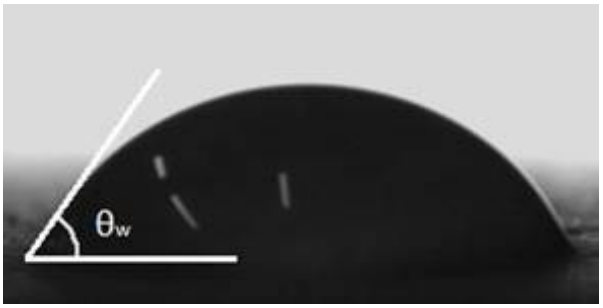


Figure S2. Contact angle (θ_w) of WPI-LMP complexes (2.5:1.25% w/w) formed at pH 4.5.

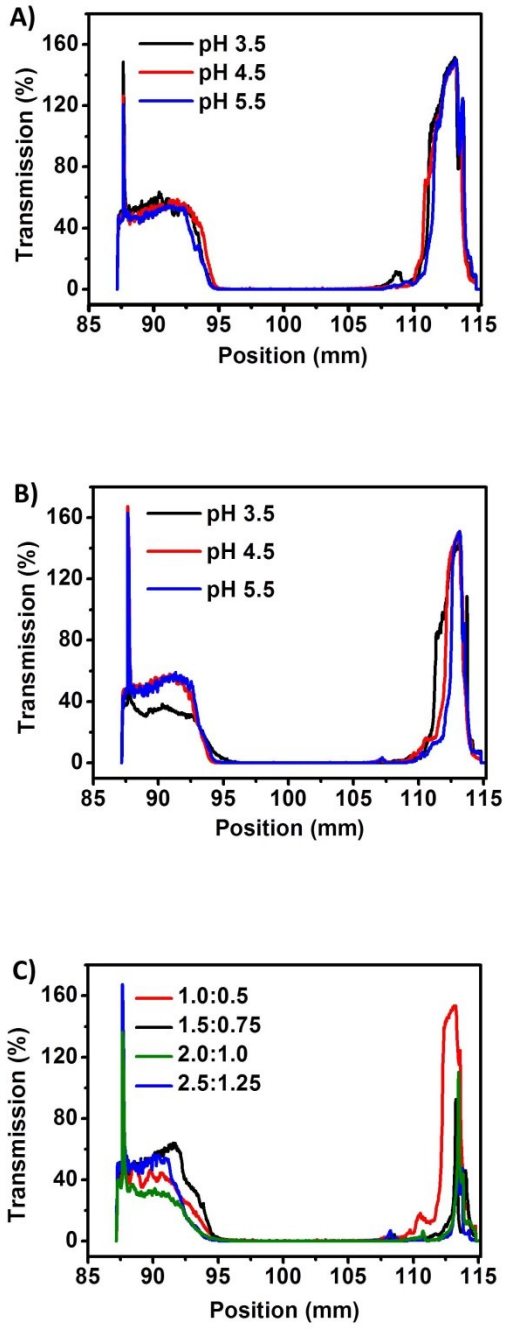


Figure S3. Phase separation profiles at the last measurement point (3600 s) of fresh HIPEs stabilized by WPI (1.0%) (A) and complexes (1.0:0.5%) (B) as a function of pH and as a function of concentration (at pH 4.5) (C). The top and the bottom of the measurement region were located at a radial distance of approximately 95 mm and 115 mm from the rotation centre, respectively.

Tables

Table S1. Specific surface area and Sauter mean diameter, $D_{[3,2]}$, as a function of biopolymer complex concentration

Concentration (% w/w)	$D_{[3,2]}$ (μm)	SSA (m^2/kg)
1.0:0.5	7.20 ± 0.06	906 ± 8
1.5:0.75	6.32 ± 0.08	1033 ± 12
2.0:1.0	5.93 ± 0.03	1102 ± 3
2.5:1.25	5.35 ± 0.10	1238 ± 9

Table S2. Elastic modulus within the LVR (G'_{LVR}) and oscillatory yield stress of HIPEs as a function of pH

pH	G'_{LVR} (Pa)		Osc. yield stress (Pa)	
	WPI	Complexes	WPI	Complexes
3.5	727 ± 9	1536± 16	100 ± 0	500 ± 1
4.5	228± 11	1135 ± 8	50 ± 1	251 ± 1
5.5	747 ± 5	1115 ± 6	126 ± 0	158 ± 0

Table S3. Elastic modulus within the LVR (G'_{LVR}) and oscillatory yield stress of HIPEs as a function of biopolymer complex concentration (at pH 4.5)

Concentration (% w/w)	G'_{LVR} (Pa)	Osc. yield stress (Pa)
1.0:0.5	1892 ±83	316 ± 1
1.5:0.75	2789 ± 39	398 ± 1
2.0:1.0	3381 ± 51	631 ± 0
2.5:1.25	3835 ± 64	631 ± 0

Table S4. Creaming rate of HIPE samples stabilized by WPI and WPI-LMP complexes as a function of pH

pH	Creaming rate (%trans/1000s)	
	WPI	Complexes
3.5	32.41 ± 3.41*	23.66 ± 1.52*
4.5	33.65 ± 3.46*	5.43 ± 0.72**
5.5	32.91 ± 1.93*	2.39 ± 0.10**

*unstable emulsions, the slopes were determined by linear regression from the initial of steep rise of transmission before the plateau was reached, i.e. during the initial 1000 s measurement

**stable emulsions, the slopes were determined by linear regression over the complete time interval of total integrated area of light transmission

Table S5. Creaming rate of HIPE samples stabilized by complexes (formed at pH 4.5) as a function of concentration

Concentration (%)	Creaming rate (%trans/1000s)
1.0:0.5	5.76 ± 0.11**
1.5:0.75	0.37 ± 0.01**
2.0:1.0	0.16 ± 0.00**
2.5:1.25	0.10 ± 0.01**

**stable emulsions, the slopes were determined by linear regression over the complete time interval of total integrated area of light transmission