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# Supplementary Information

## **Designing biopolymer-coated Pickering emulsions to modulate in vitro gastric digestion: A static model study**

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Table S1: Mean hydrodynamic diameter ( $D_h$ ), polydispersity index (PdI) and  $\zeta$ -potential values for WPN, WPN + DxS-40 and WPN+DxS-500 after formation at pH 3.0.

	<b>WPN</b>	<b>WPN + DxS-40</b>	<b>WPN + DxS-500</b>
$D_h$ / nm	$91.51 \pm 0.55$	-	-
PdI	$0.236 \pm 0.0$	-	-
$\zeta$ – potential / mV	$+30.2 \pm 1.45$	$-21.6 \pm 2.67$	$-37.4 \pm 3.30$

Table S2. Mean hydrodynamic diameter ( $D_h$ ), polydispersity index (PdI) and  $\zeta$ -potential values of control samples for WPN, WPN + DxS-40 and WPN + DxS-500 in an in vitro gastric model at pH 3.0 in presence of SGF without pepsin, respectively.

Gastric digestion time / min	WPN			WPN + DxS-40	WPN + DxS-500
	$D_h$ / nm	PdI	$\zeta$ – potential / mV	$\zeta$ – potential / mV	$\zeta$ – potential / mV
0	93.58 ± 1.84	0.215 ± 0.03	19.13 ± 2.66	-11.51 ± 1.58	-19.26 ± 5.9
5	92.13 ± 3.35	0.333 ± 0.01	17.46 ± 2.20	-5.41 ± 2.67	-4.34 ± 0.52
30	110.16 ± 4.12	0.350 ± 0.11	17.73 ± 3.25	-1.71 ± 4.26	-9.38 ± 0.94
60	88.35 ± 2.66	0.271 ± 0.02	19.43 ± 1.43	-5.29 ± 1.48	-16.96 ± 1.05
90	89.88 ± 2.90	0.291 ± 0.00	18.2 ± 2.05	1.42 ± 0.56	-11.58 ± 1.24
120	90.22 ± 2.12	0.308 ± 0.01	17.03 ± 2.31	-4.20 ± 1.77	-14.33 ± 1.19
150	102.61 ± 7.09	0.334 ± 0.05	18.86 ± 0.70	0.67 ± 1.2	-8.89 ± 0.9

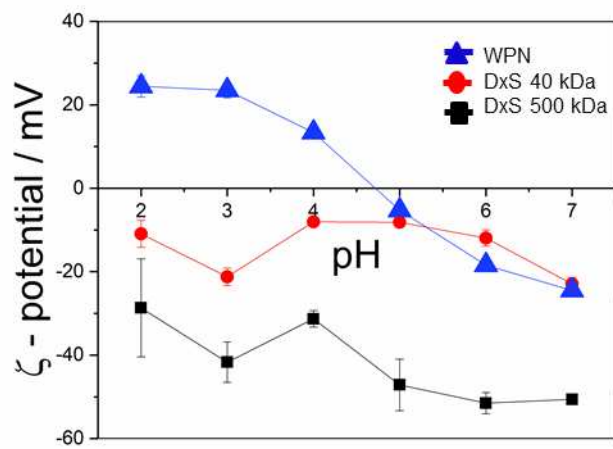


Figure S1. Mean  $\zeta$ -potential values of aqueous dispersions of WPN, DxS-40 kDa and DxS-500 kDa as a function of pH, respectively.

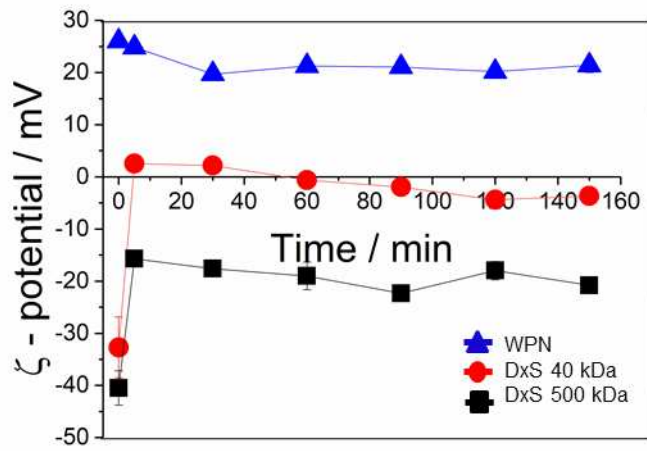


Figure S2. Change in mean  $\zeta$ -potential values of 1 wt% WPN without or with the addition of 0.2 wt% DxS-40 kDa or 0.2 wt% DxS-500 kDa in an in vitro gastric model at pH 3.0 in presence of SGF containing pepsin, respectively.

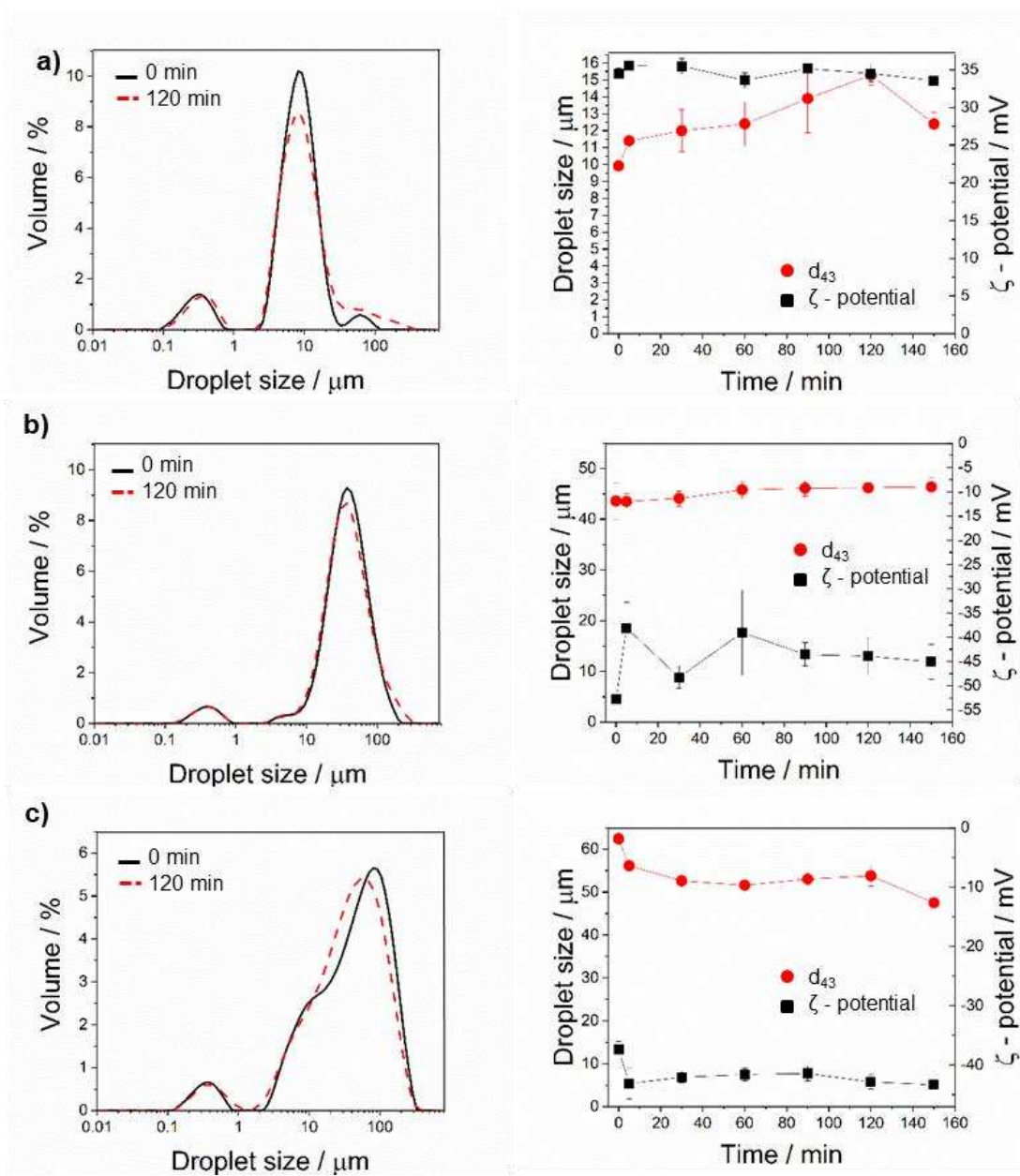


Figure S3. Droplet size distribution, mean  $d_{43}$  values and  $\zeta$ -potential values of control samples for a) EWP, b) DxS-EWP-40 and c) DxS-EWP-500 after in vitro gastric digestion in presence of SGF buffer without pepsin, respectively.

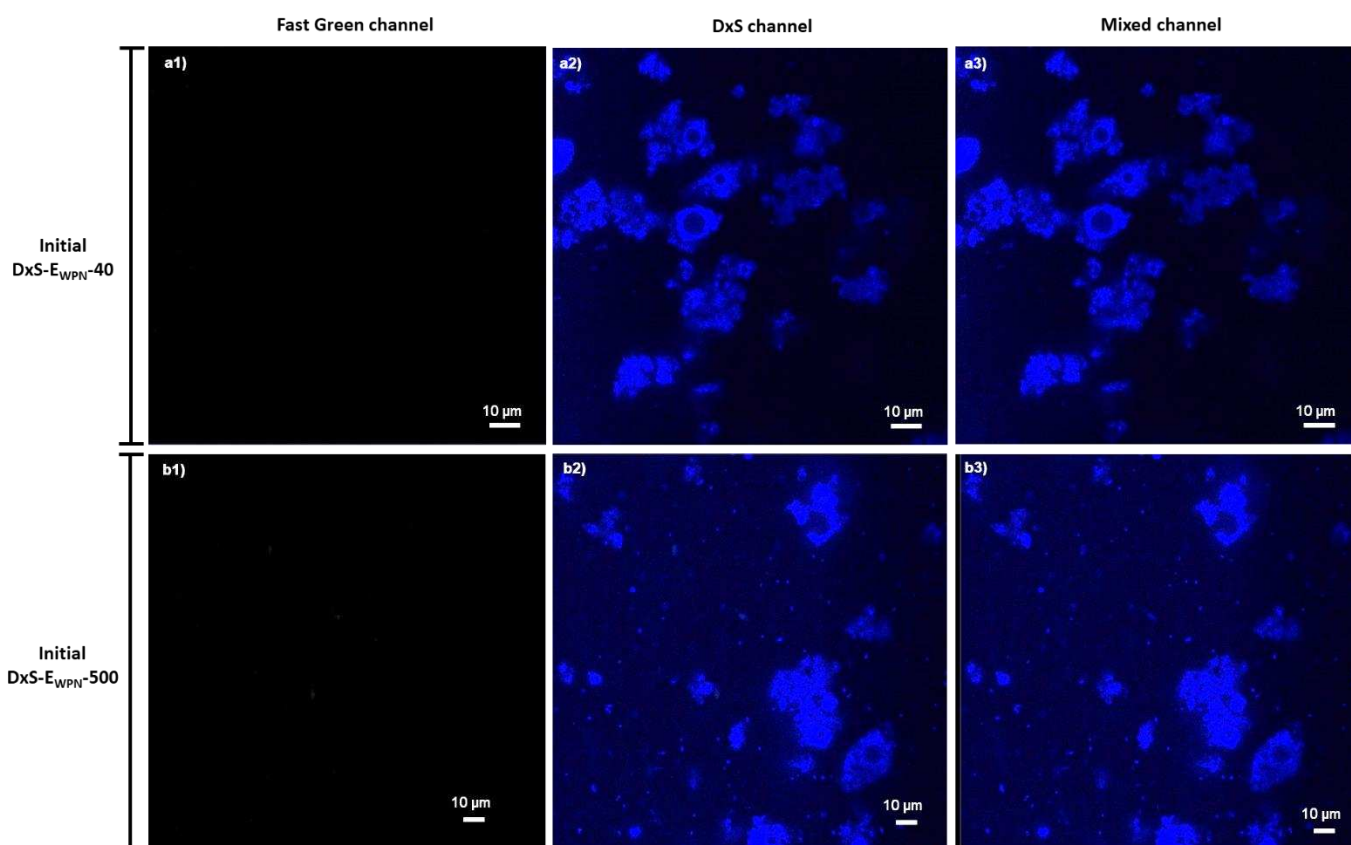


Figure S4. Confocal micrographs of initial FITC-DxS-E<sub>WPN</sub>-40 and FITC-DxS-E<sub>WPN</sub>-500 samples. Simultaneous recording of the emission of Fast Green and FITC-DxS dyes without the addition of Fast Green in the samples. Blue colour represents the FITC-labelled DxS.