Supporting Information

Smart Textiles in Wound Care: Functionalization of Cotton/PET Blends with Antimicrobial Nanoparticles

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Table S1. HPLC gradient for determination of glucose, where A is water, B is methanol and C is formic acid.

Time [min]	A [%]	B [%]	C [%]	Flow (mL min^{-1})	Pressure (bar)
1	80	10	10	0.75	600
8	40	50	10	0.75	600
10	0	90	10	0.75	600
15	0	90	10	0.75	600

Table S2. Ratio of HSA to SF in nanoparticle formulations with two different degradation degrees of SF (30 and 60 mb) before sonication, edited from Tallian et al.[30]

ID[1]	Degradation degree of SF[2] [mb]	% SF
HSA	**none**	**0**
3010	**30**	**10**
3025	**30**	**25**
3050	**30**	**50**
3075	**30**	**75**
6010	**60**	**10**
6025	**60**	**25**
6050	**60**	**50**
6075	**60**	**75**

[1] ID composed of the combination of the degradation degree and the % of silk fibroin in the formulation e.g. 3050 with 30 mb SF and 50% HSA/SF ratio, HSA refers to formulations containing no silk fibroin

[2] Refers to the minutes of boiling (30 minutes or 60 minutes)

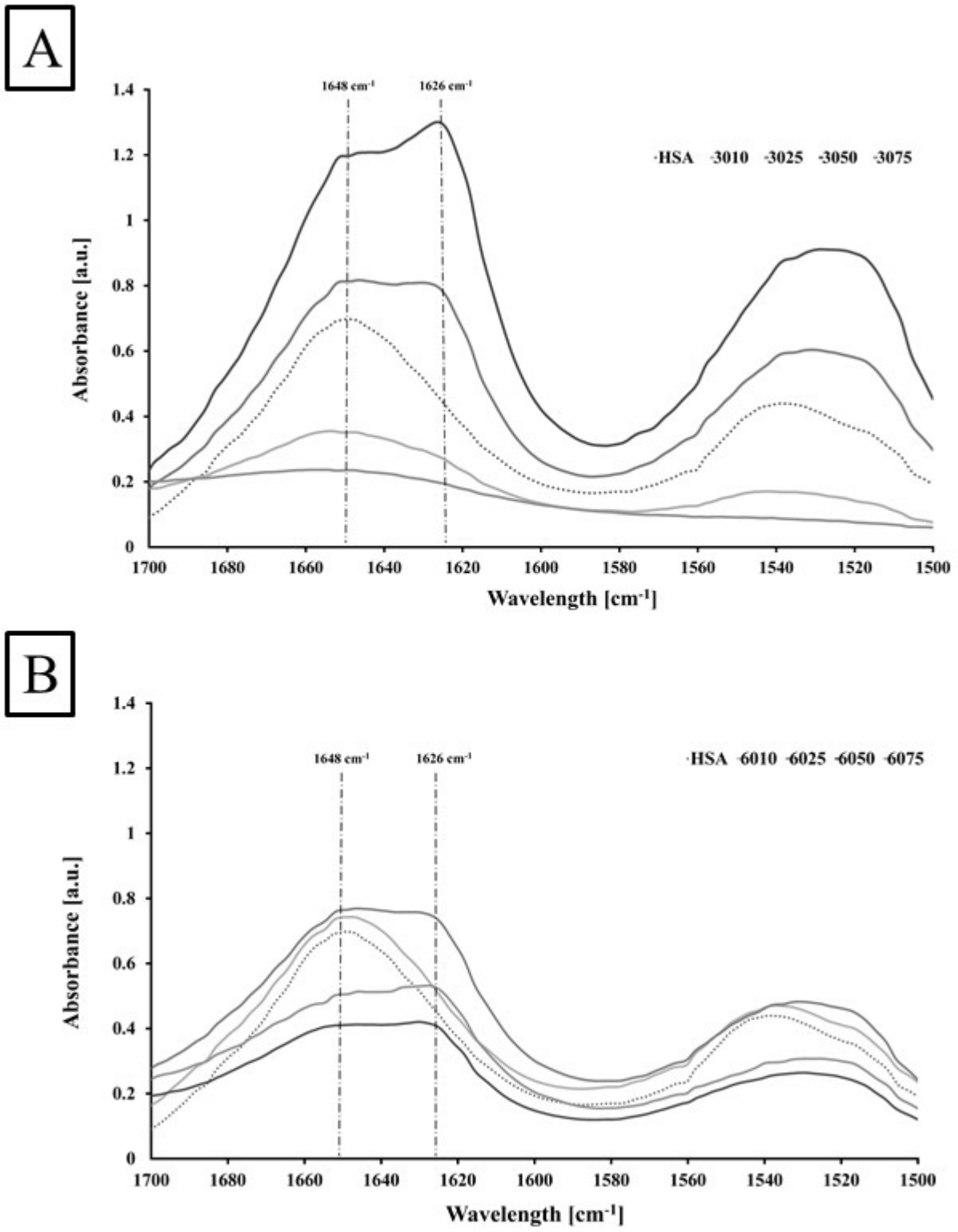

Figure S1: ATR-FTIR spectra of the amide I region (β: 1626 cm^{-1}; α: 1648 cm^{-1}) of eugenol loaded HSA and HSA/SF nanocapsules normalized between 650 and 1200 cm^{-1} and baseline corrected[36].

Table S3. Dynamic light scattering based hydrodynamic radius data in nm over time for a measurement period of 30 min of eugenol loaded HSA/SF nanocapsules consisting of two different degradation degrees of SF (30 or 60 mb) and different concentrations of SF (10-75%) evaluated for the initial 10 min (t1), the measurement time between 10-30 min (monodisperse phase, t2) and the complete measurement time (t3).

	t_1		t_2		t_3	
	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ
	[nm]					
HSA	328.78	46.79	400.92	65.86	438.62	108.70
3010	1120.71	44.15	574.00	92.76	796.63	5.60
3025	677.67	65.56	347.75	40.95	448.71	23.15
3050	762.92	39.05	369.97	3.64	499.01	28.69
3075	378.85	14.34	319.73	17.50	345.03	17.95
6010	1277.90	156.18	504.41	35.91	845.10	201.19
6025	655.15	78.53	403.11	50.36	447.87	85.24
6050	477.74	4.29	303.77	0.75	341.51	31.73
6075	401.87	25.95	350.76	28.81	365.16	35.18

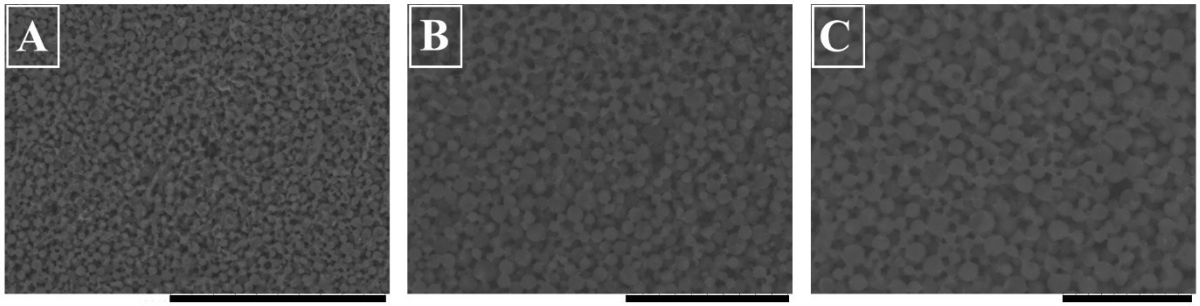

Figure S2: Scanning electron microscope images of eugenol loaded HSA/SF nanocapsules consisting of 25% SF with lower degradation degree of 30 mb (3025) with (A) 1000x (B) 1500x (C) 2000x magnifications obtained with a SEM equipped with a cryo chamber at -20 °C.

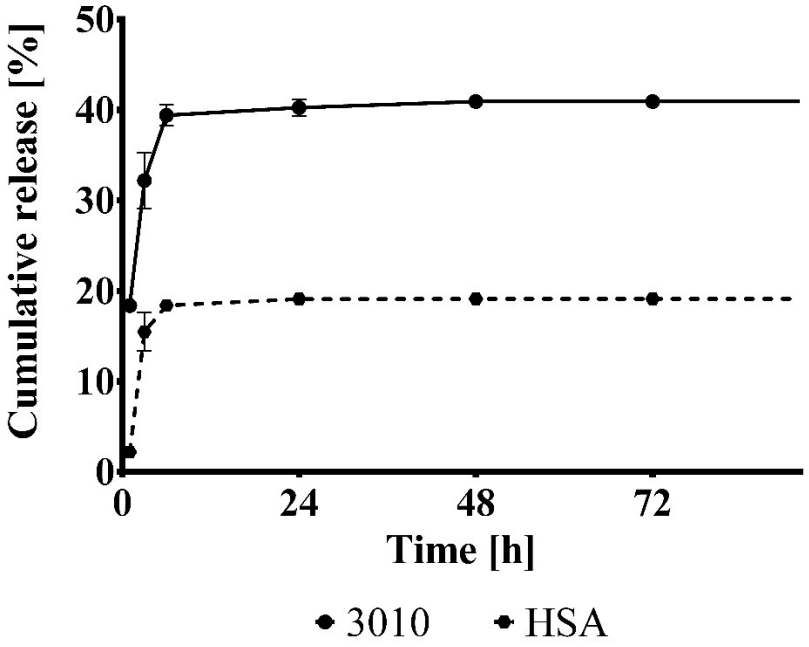

Figure S3. Cummulative release of eugenol from HSA and HSA/SF nanocapsules with lower degradation degree (30 mb) and 10 SF over a time period of 168 h in artificial salivas prepared as described in the paper of Callewaert *et al.*[29] (EN pH 6.0).

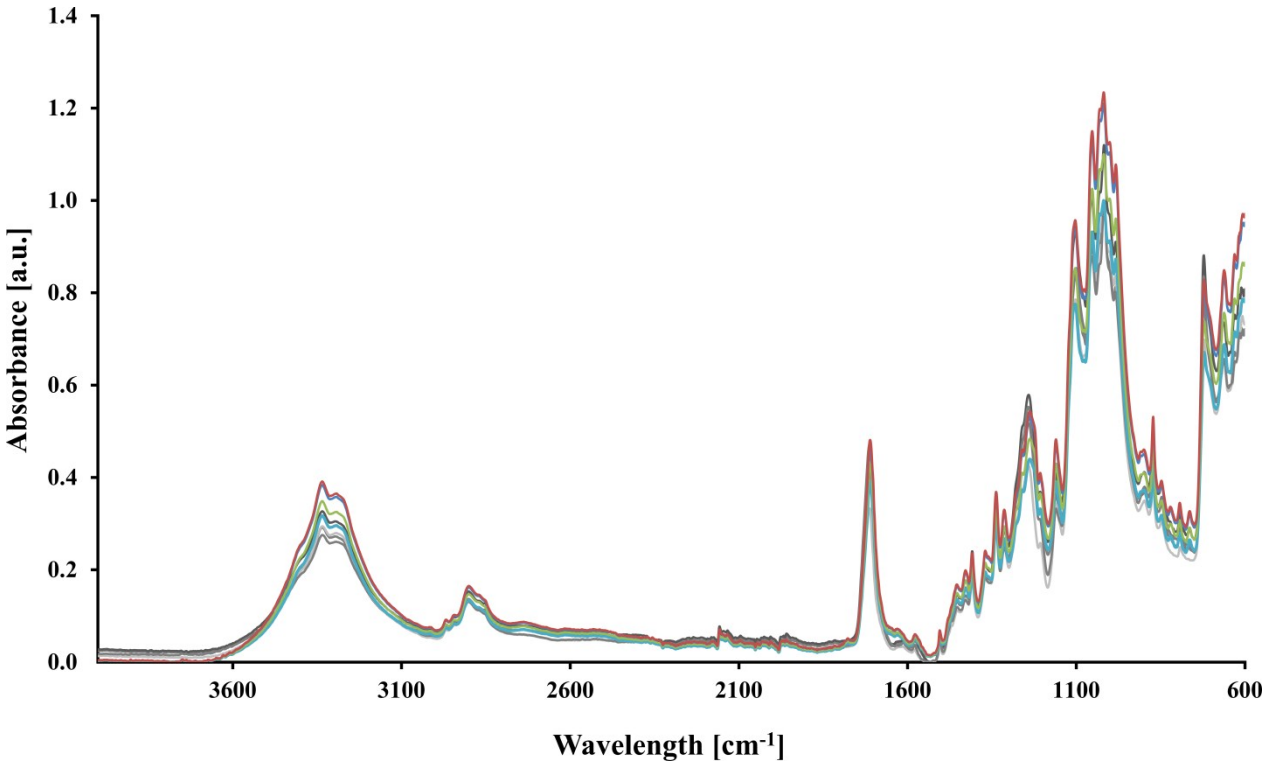

Figure S4. FTIR spectroscopy of cotton/polyester blend with immobilized HSA/SF nanocapsules. Reaction I (black line); Reaction II (grey line); Reaction III (dark grey dash line); Reaction IV (dark grey dash line); Reaction V (cyano dash line); Reaction VI (green line); Reaction VII (blue line); Reaction VIII (red line).Spectra were baseline corrected and normalized in the range of 2500-2000 cm^{-1}.[34]

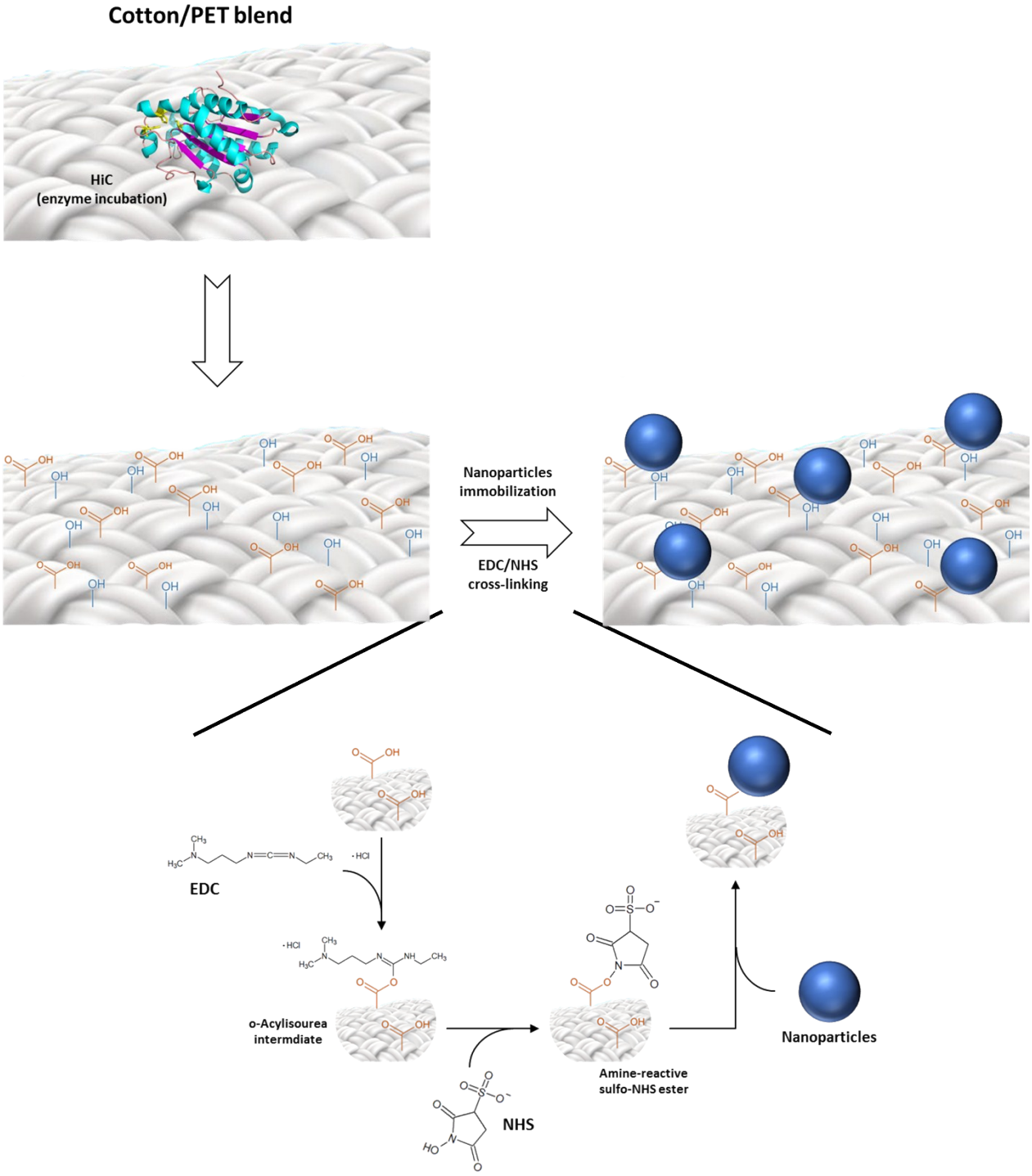

Figure S5. Reaction scheme of the proposed coupling.

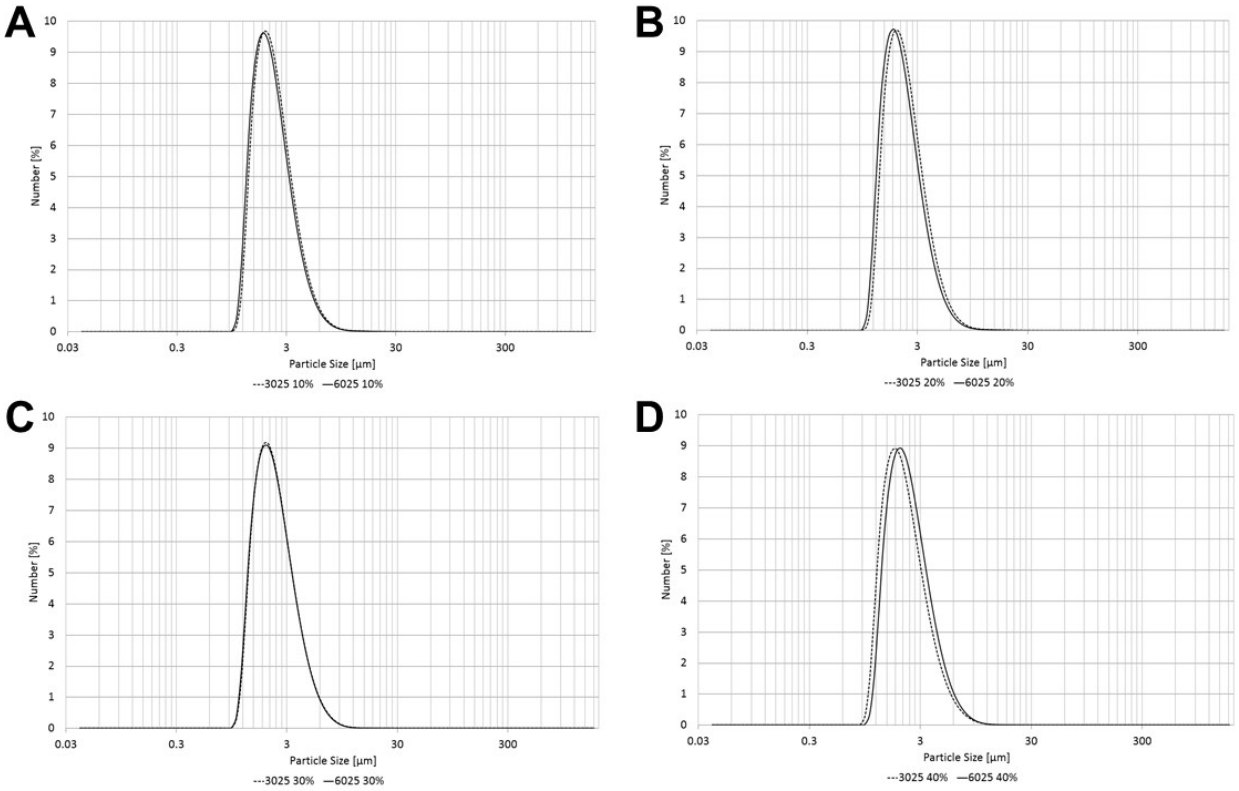

Figure S6. Comparison of particle size obtained using a laser diffraction-based particle analyser (Beckman Coulter, Inc. LS13320, US) of sonochemically produced HSA/SF nanocapsules consisting of 25% silk fibroin with high (6025) and low (3025) degradation degree using different amplitude settings of (A) 10%, (B) 20%, (C) 30% and (D) 40%. No significant affect of changed amplitude settings on particle size were determined.