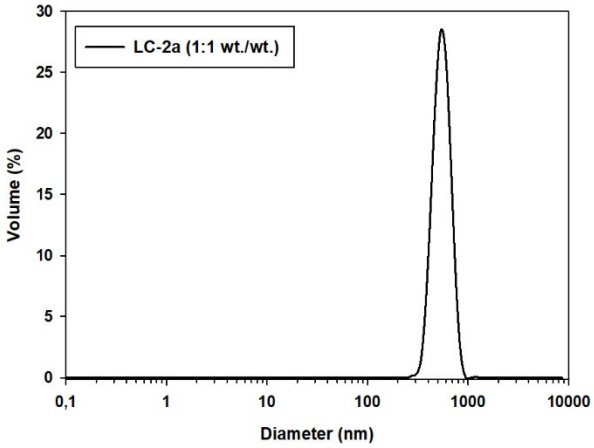
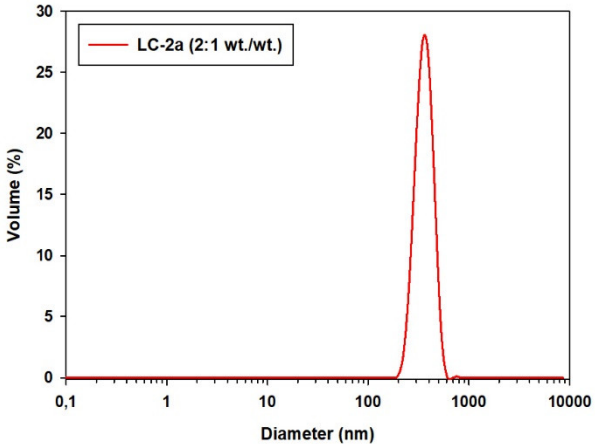
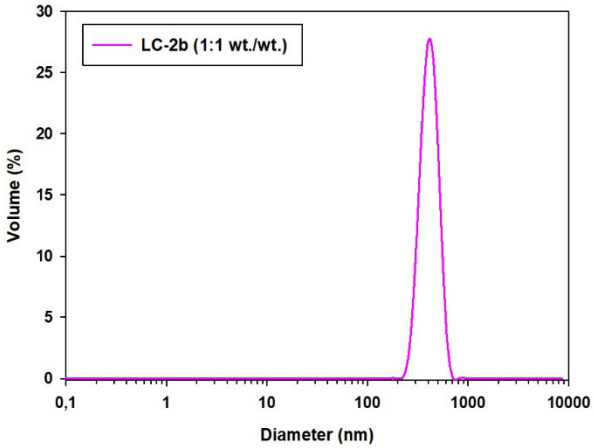
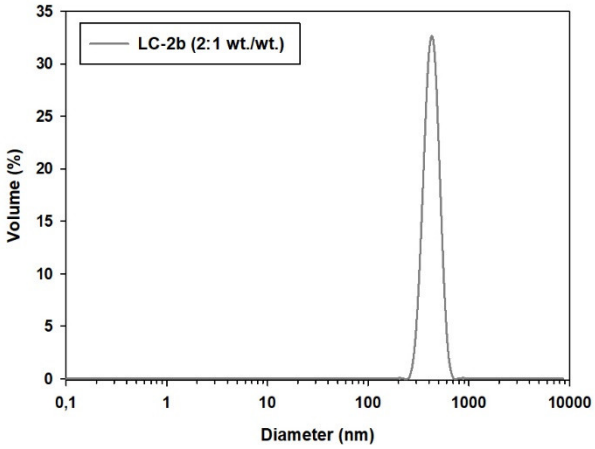
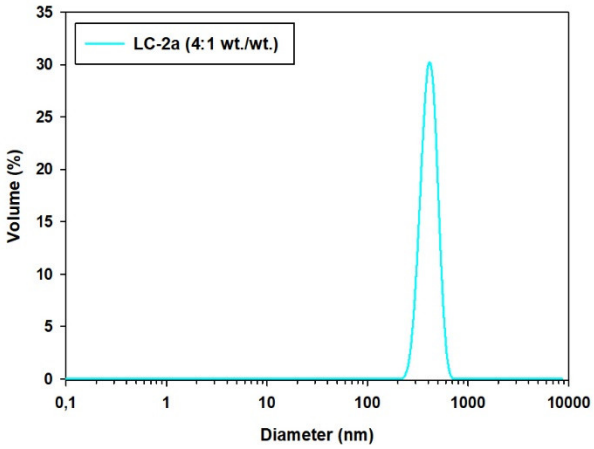
Supplementary Materials:

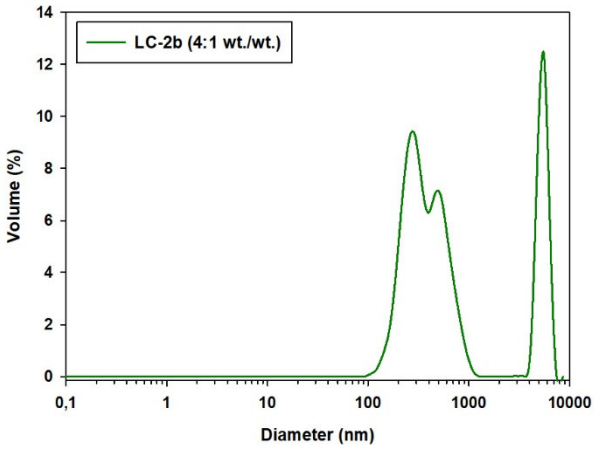












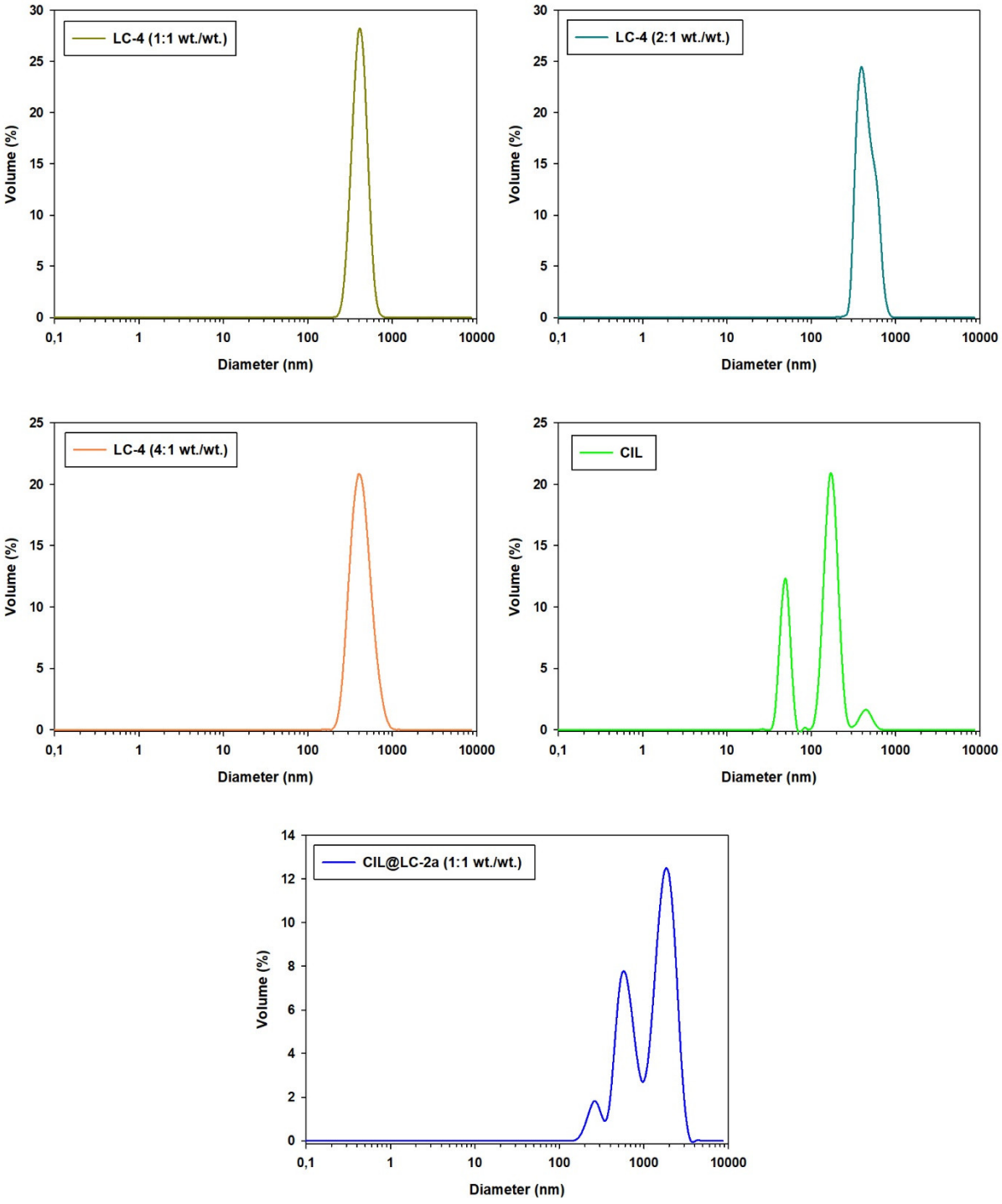


Figure S1. Particle size distributions of LC-2a (1:1 wt./wt.), LC-2a (2:1 wt./wt.), LC-2a (4:1 wt./wt.), LC-2b (1:1 wt./wt.), LC-2b (2:1 wt./wt.), LC-2b (4:1 wt./wt.), LC-4 (1:1 wt./wt.), LC-4 (2:1 wt./wt.) and LC-4 (4:1 wt./wt.). The sample was dispersed in propan-2-ol (Cp = 0.05%).

Table S1. Validation parameters of the proposed method.

Linearity parameters		
Parameters	**CIL@Lignin-CTAB-2a (1:1 wt./wt.)**	**CIL *in pure***
Linearity range (mg/mL)	0.04 – 0.4	0.04 – 0.4
Regression equations	y = ac + b	
Slope a ± Δa	4.842 ± 0.217	4.821 ± 0.247
SD_a	1.017	1.019
*Intercept b ± Δb	0.0209 ± 0.0067	0.0211 ± 0.0087
SD_b	0.0222	0.0229
Regression coefficient	0.999	0.999
SD_y	0.0341	0.0361
LOD (mg/mL)	0.023	0.025
LOQ (mg/mL)	0.070	0.075

Precision and recovery data for the proposed method				
	Concentration (mg/mL)	Amount found	% Recovery	Mean % Recovery ± SD
CIL@Lignin-CTAB-2a (1:1 wt./wt.)	Intra-day precision			
	0.1000	0.1001	100.10 ± 0.48	100.18 ± 0.49
	0.3000	0.3010	100.33 ± 0.99	
	0.4000	0.4004	100.10 ± 0.59	
	Inter-day precision			
	0.1000	0.1006	100.60 ± 0.36	100.20 ± 0.63
	0.3000	0.2999	99.96 ± 0.47	
	0.4000	0.4002	100.05 ± 0.45	

*intercept b from equation y = ac + b was statistically insignificant (t-Student test, $\alpha = 0.05$); SD_a, SD_b, SD_y standard deviation of slope a, intercept b and y, respectively. The regression parameters: y = ac + b, a ± Δa, b ± Δb, the correlation coefficient r and standard errors SD_a and SD_b were calculated with a use of the least square's method.

Table S2. The thermodynamic and kinetic data for stability of cilazapril *in pure* and CIL@Lignin-CTAB-2a (1:1 wt./wt.).

Temperature (°C/K)	**k ± Δk (1/s)**	**r**	**Linear Arrhenius relationship f(1/T) = lnK**	**Thermodynamic parameters**
Cilazapril *in pure*				
65/338	$(1.217 \pm 0.059)\ 10^{-7}$	-0.998	a = -20025.29 ± 2500.30 s_a= 785.75 b = 44.21 ± 7.22 s_b = 2.26 r = 0.998	E_a = 166.49 ± 20.83 (kJ/mol) ΔH = 1664.02 ± 23.32 (kJ/mol) ΔS = 122.68 ±185.11 (J/mol·K)
70/343	$(7.607 \pm 0.418)\ 10^{-7}$	-0.998		
80/353	$(1.662 \pm 0.129)\ 10^{-6}$	-0.994		
85/358	$(2.963 \pm 0.202)\ 10^{-6}$	-0.994		
90/363	$(1.941 \pm 0.106)\ 10^{-5}$	-0.997		
CIL@Lignin-CTAB-2a (1:1 wt./wt.)				
65/338	$(2.230 \pm 0.119)\ 10^{-9}$	-0.996	a = -36538.78 ± 7522.82 s_a = 2709.96 b = 87.70 ± 21.45 s_b = 7.72 r = 0.991	E_a = 303.79 ± 62.51 (kJ/mol) ΔH = 306.26 ± 65.04 (kJ/mol) ΔS = 484.25 ±66.98 (J/mol·K)
70/343	$(2.259 \pm 0.406)\ 10^{-8}$	-0.996		
80/353	$(6.199 \pm 0.701)\ 10^{-8}$	-0.992		
85/358	$(4.169 \pm 0.601)\ 10^{-7}$	-0.993		
90/363	$(3.880 \pm 0.117)\ 10^{-6}$	-0.999		

Parameters: k – degradation rate constants, $\Delta H^{\neq}$ – enthalpy of activation, $\Delta S^{\neq}$ – entropy of activation and E_a – energy of activation.