

Supplementary data

Evaluation of contact time and fiber morphology on bacterial immobilization for development of novel surfactant degrading nanofibrous webs

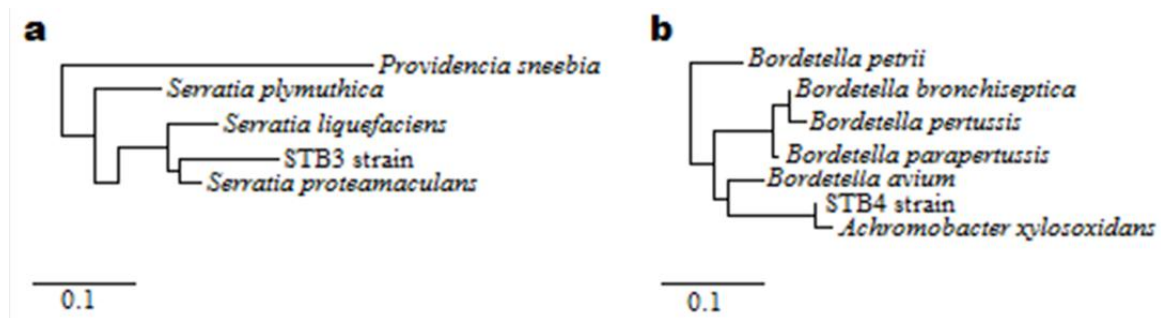
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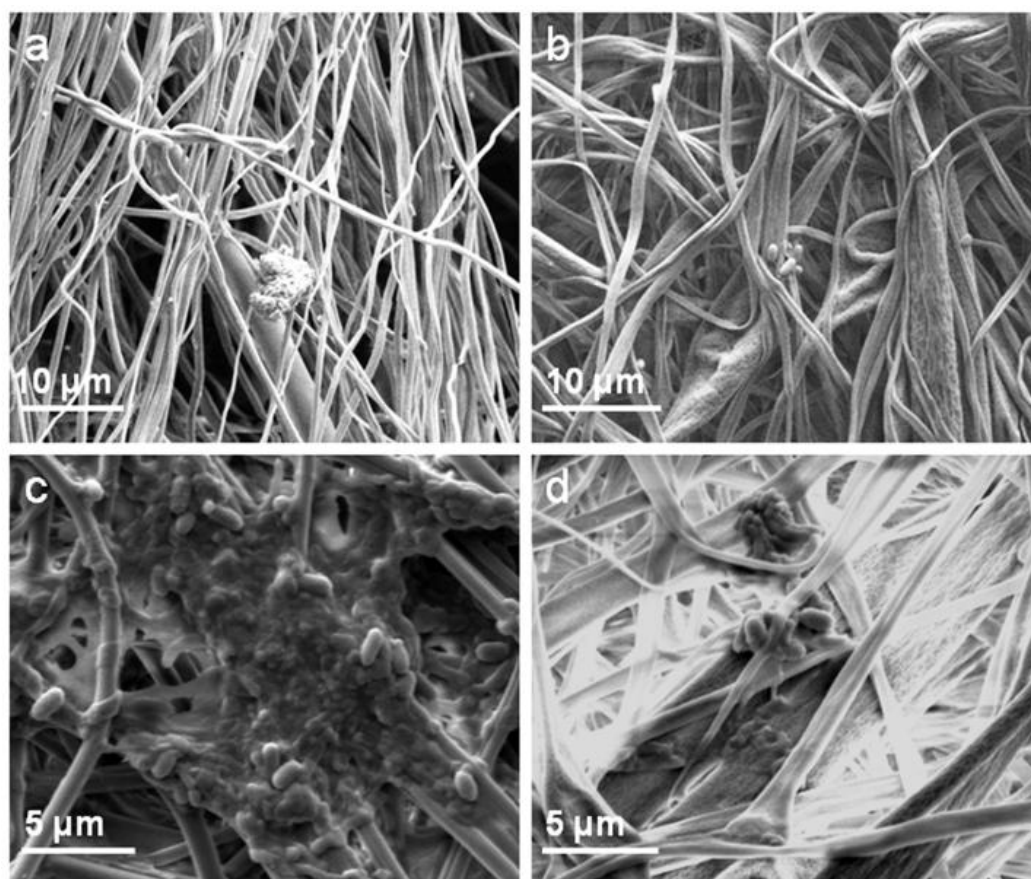
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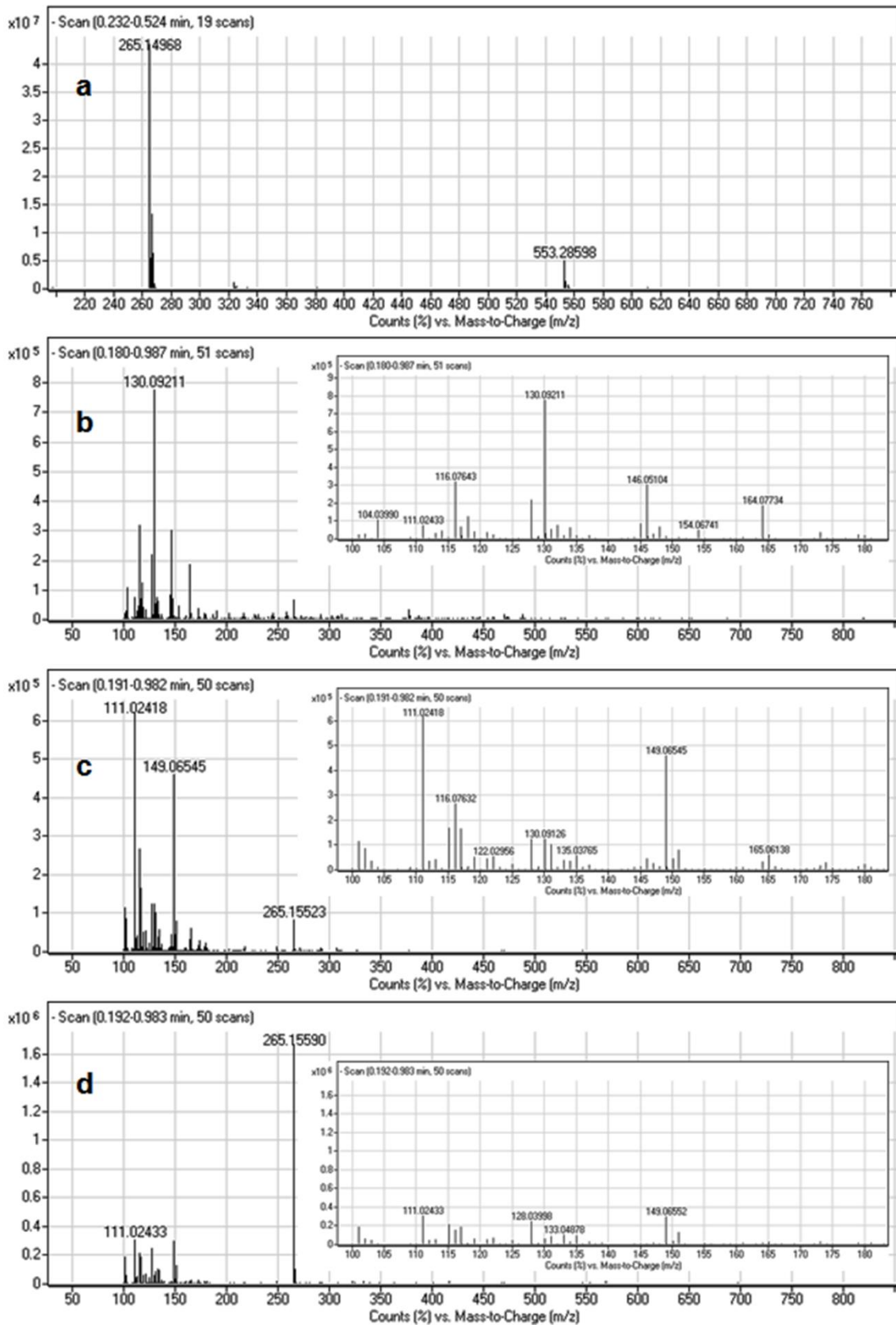
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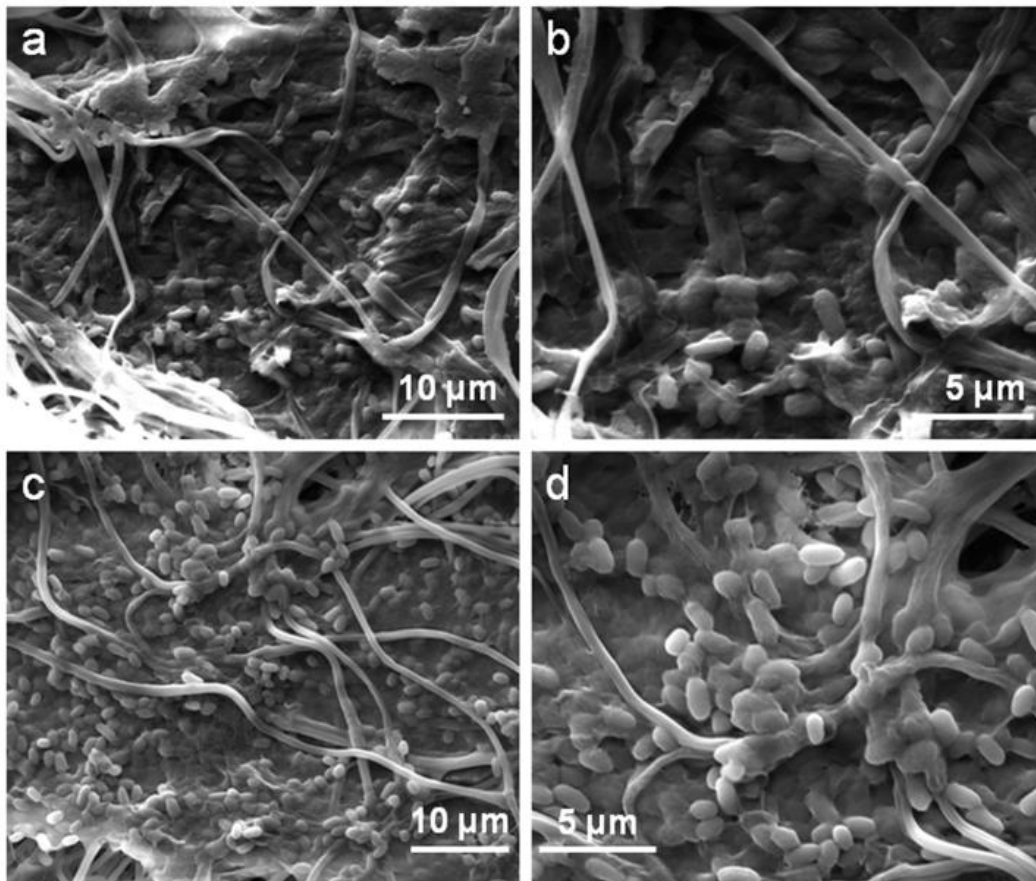
Supplementary Figure 1. Phylogenetic trees of (a) STB3 and (b) STB4 strains according to 16S rRNA gene sequencing analysis.



Supplementary Figure 2. SEM micrographs of (a-c) nCA and (b-d) pCA nanofibers showing immobilization of STB3 cells onto (a) nCA nanofibers and (b) pCA nanofibers; and immobilization of STB4 cells onto (c) nCA nanofibers and (d) pCA nanofibers after 7 days of incubation.



Supplementary Figure 3. LC-MS spectra of (a) SDS solution in water at 100 mg/L (b) nutrient broth in water (c) STB3 sample having 100 mg/L initial SDS after incubation and suspension of bacterial cells (d) STB4 sample having 100 mg/L initial SDS after incubation and suspension of bacterial cells.



Supplementary Figure 4. SEM micrographs of (a-b) STB3 immobilized pCA webs and (c-d) STB4 immobilized pCA webs after the reusability test, showing strong bacterial attachments.

Supplementary Table 1. Adsorption kinetics coefficients of STB3/pCA and STB4/pCA webs for each isotherm model.

Samples	Isotherm	Parameters	Values	Ry ² value
STB3/pCA	Freundlich	Kf	184.98	0.991
		1/n	0.555	
	Langmuir	Q _{max}	3367	0.992
		b	0.057	
	Toth	Q _{max}	3023	0.992
		b	0.06	
n		4.9		
STB4/pCA	Freundlich	Kf	76.78	1.000
		1/n	0.48	
	Langmuir	Q _{max}	1464	1.000
		b	0.032	
	Toth	Q _{max}	1350	1.000
		b	0.031	
n		4.58		

Supplementary Table 2. The R² values of zero, first, second and third order plots for the removal of SDS by STB3/pCA and STB4/pCA webs.

Samples	Model	R ² values
STB3/pCA	zero order	0.9319
	first order	0.8583
	second order	0.6515
	third order	0.6246
STB4/pCA	zero order	0.8531
	first order	0.7414
	second order	0.6434
	third order	0.6249