

Molecular recognition and cell surface response of

Bacillus thuringiensis on triphenyltin

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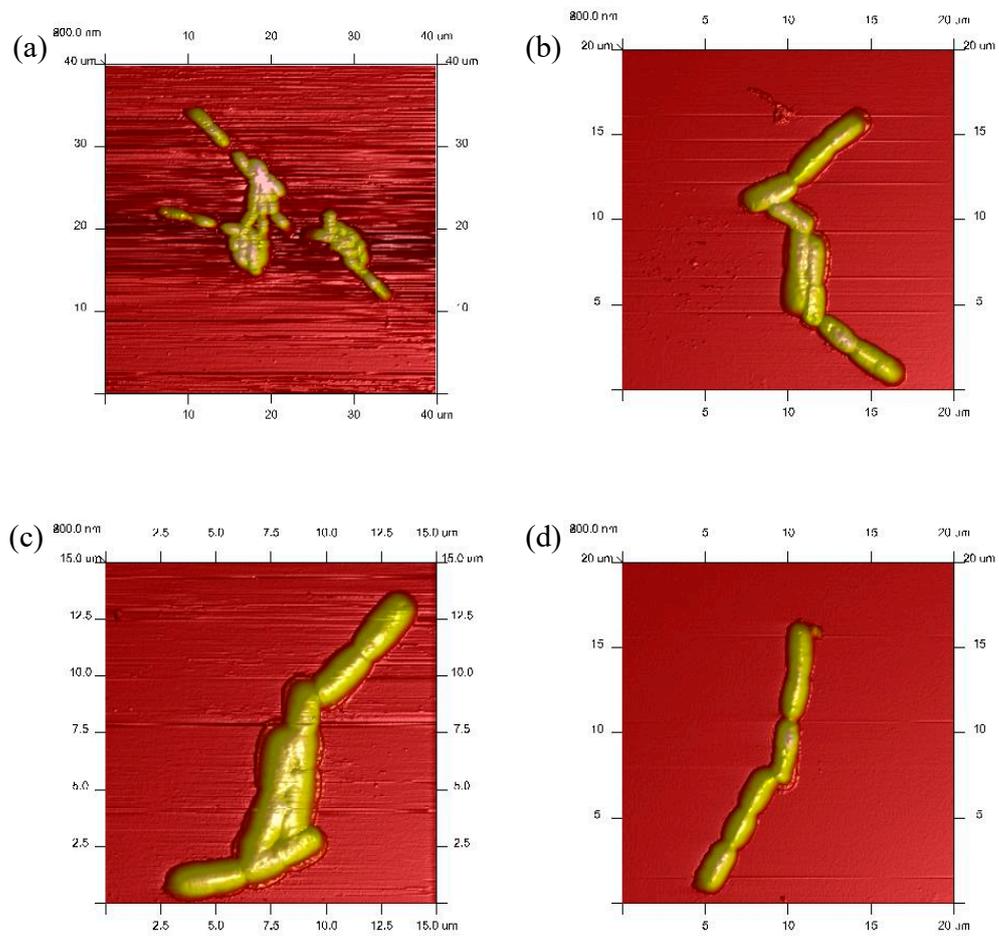


Figure S1. Morphology of *B. thuringiensis* during the quick contact process. (a) Control; (b) PBS; (c) TPT solution; (d) 50 mg·L⁻¹ Tween 80 solution.

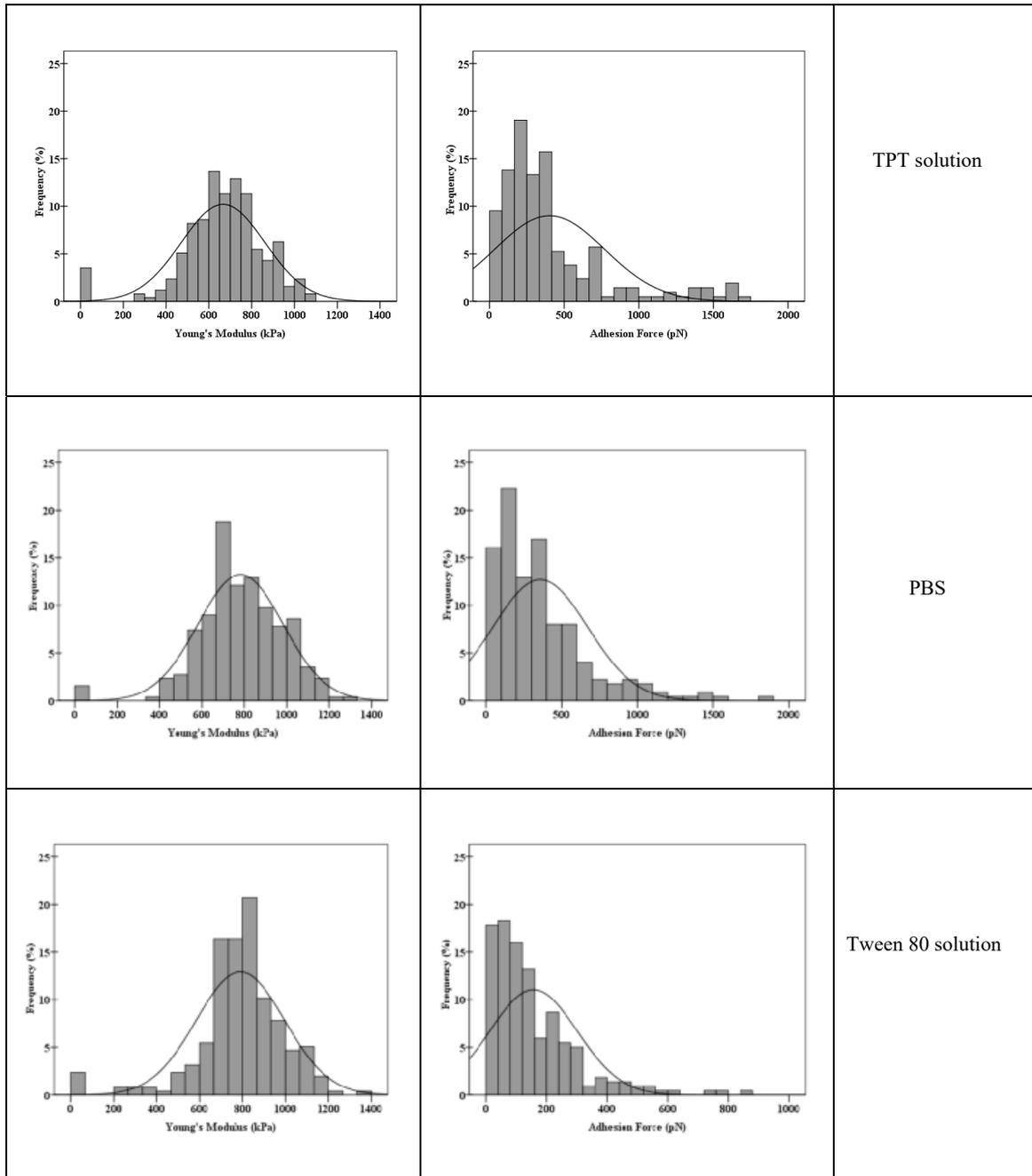
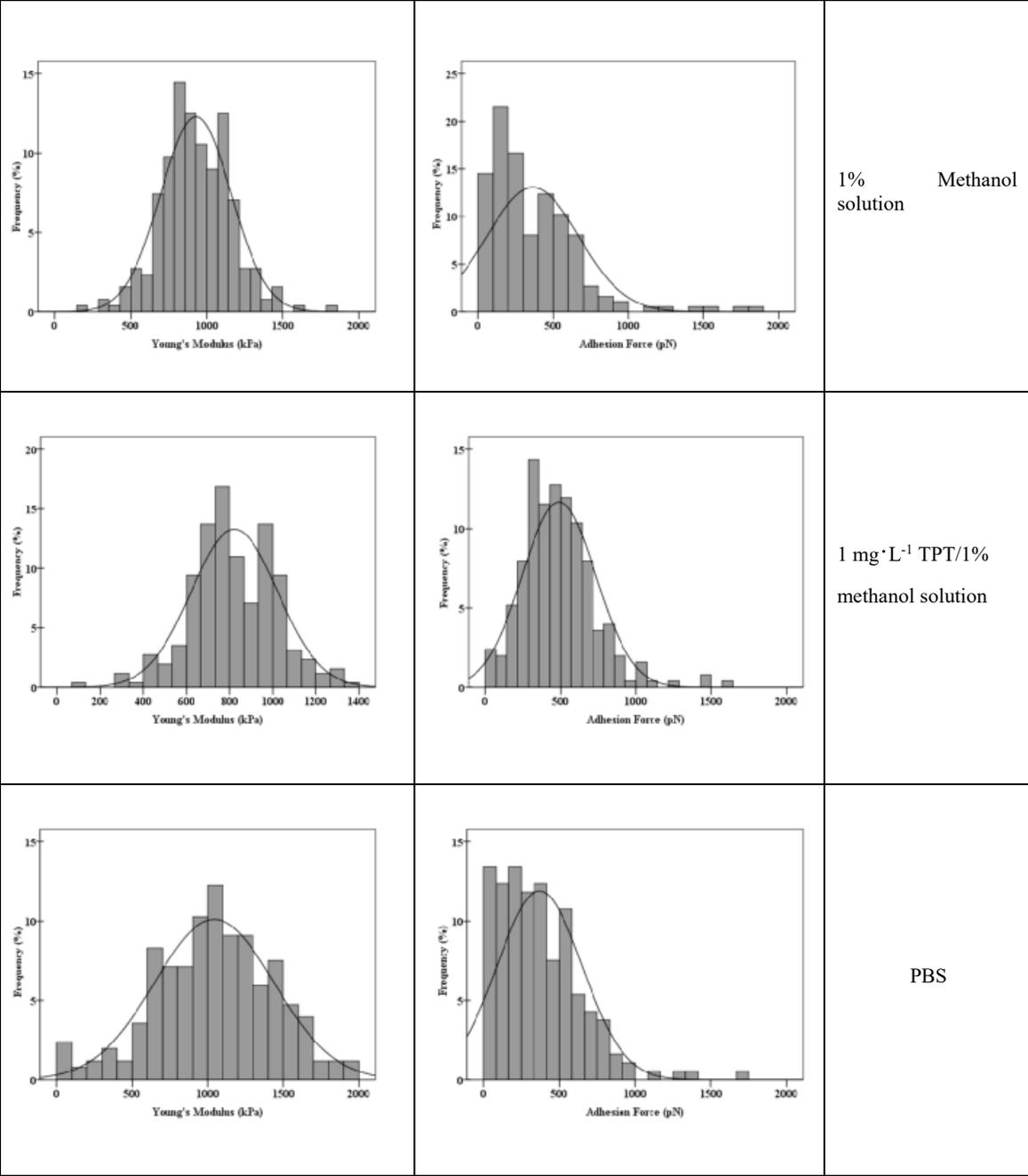


Figure S2. Histogram of Young's modulus and adhesion force frequency distribution of *B. thuringiensis* during the quick contact process.



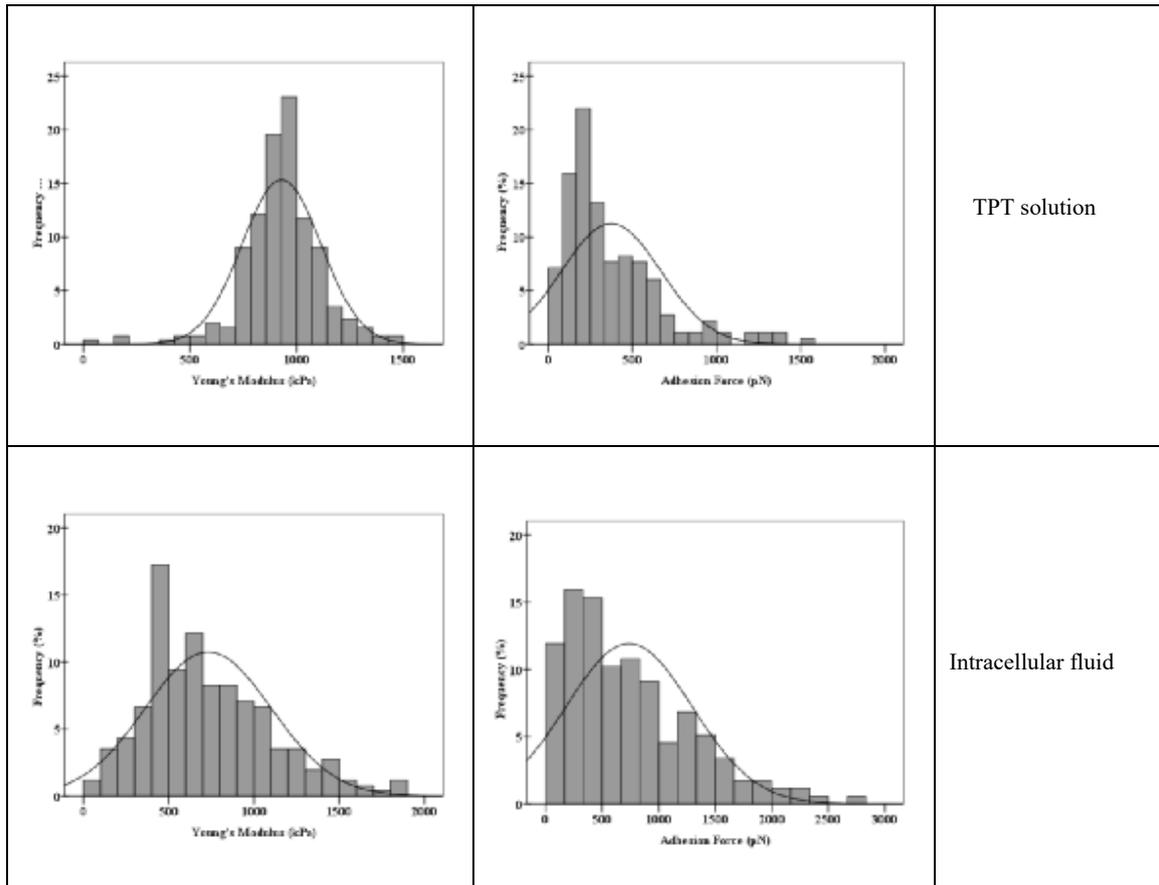


Figure S3. Histogram of Young's modulus and adhesion force frequency distribution of *B. thuringiensis* during the conventional contact process.

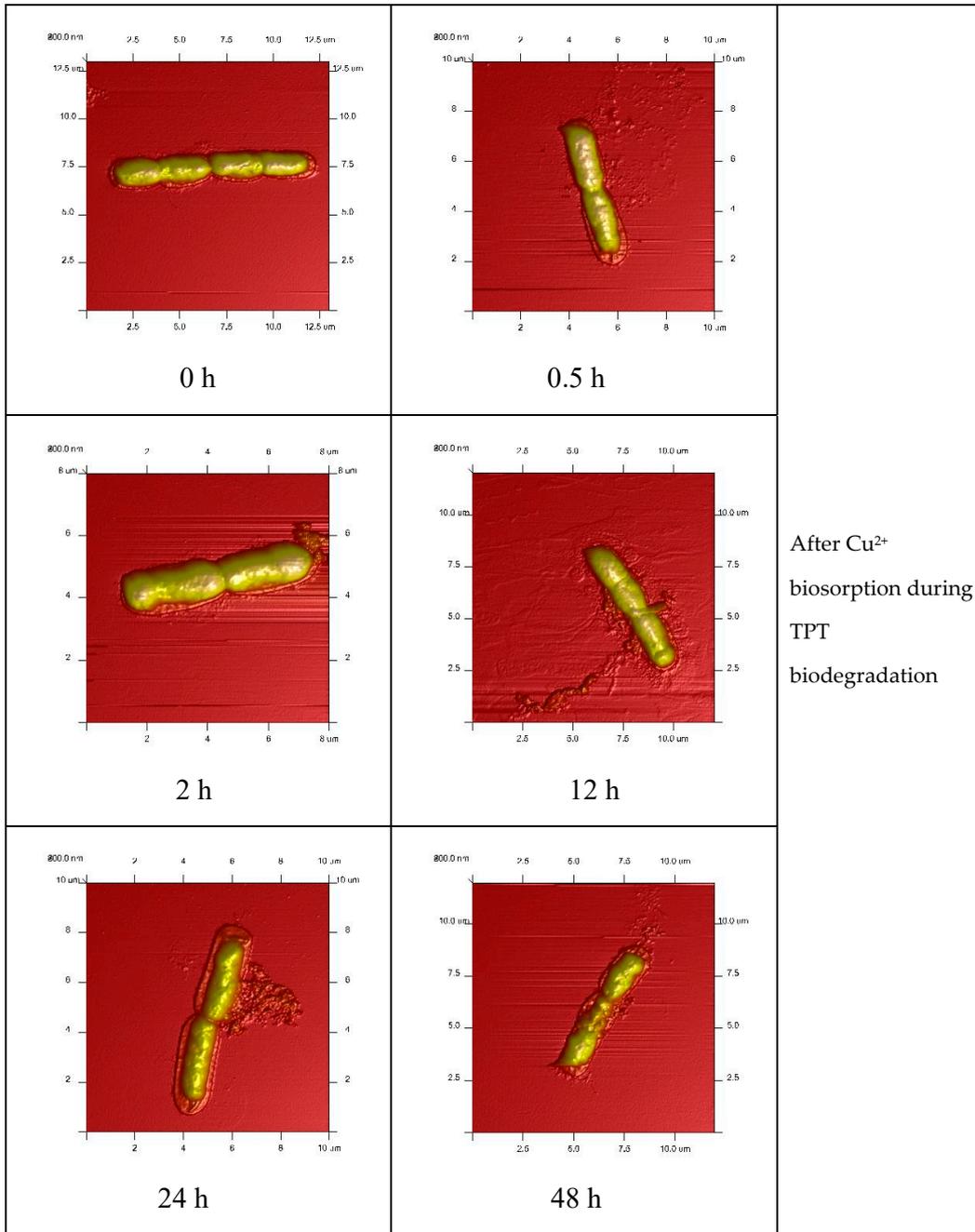


Figure S4. Surface morphology of *B. thuringiensis* after Cu^{2+} biosorption during TPT biodegradation.

Table S1. Effect of time on degradation and removal of TPT.

	0 h	12 h	24 h	48 h
Removal (%)	/	72	68	76
Degradation (%)	/	38	57	64
Adsorption (%)	/	34	11	12
Adsorption TPT (mg/g)	/	0.34	0.11	0.12
OD ₆₀₀	0.08	0.42	0.5	0.6

Table S2. Correlation between adhesion force of *B. thuringiensis* and PT degradation.

	TPT degradation rate and adhesion force	DPT degradation rate and adhesion force	MPT degradation rate and adhesion force	TPT adhesion force and Cu ²⁺ biosorption
Indexes	0.948*	0.972**	0.967**	0.966**

*Correlation is significant at the 0.05 level (two-tailed)

** Correlation is significant at the 0.01 level (two-tailed)

Table S3. Correlation between adhesion force, molecular weight, and molecular size.

Indexes	Molecular weight	Molecular size	Twist angle	Adhesion force 0.5 h	Adhesion force 2 h	Adhesion force 12 h	Adhesion force 24 h	Adhesion force 48 h
Molecular weight	1							
Molecular size	1.000**	1						
Twist angle	0.87	0.87	1					
Adhesion force 0.5 h	0.94	0.94	0.65	1				
Adhesion force 2 h	0.934	0.934	0.637	1.000**	1			
Adhesion force 12 h	0.894	0.894	0.557	0.993	0.995	1		
Adhesion force 24 h	0.891	0.891	0.55	0.992	0.994	1.000**	1	
Adhesion force 48 h	0.896	0.896	0.56	0.994	0.995	1.000**	1.000**	1

*Correlation is significant at the 0.05 level (two-tailed).

** Correlation is significant at the 0.01 level (two-tailed).

Table S4. Functional proteins related to copper in *B. thuringiensis*

abbreviation	Protein name
Sco1	Cytochrome oxidase biogenesis protein
CutC	Cytoplasmic copper homeostasis protein
CopZ	Copper chaperone