

Supplemental Materials

Shielding of Enzyme by Stable and Protective Organosilica Layer on Monolithic Scaffolds for Continuous Bioconversion

*Jiafu Shi^{a,c,d}, Yu Tian^{a,d}, Hua Liu^b, Dong Yang^{a,b,c}, Shaohua Zhang^{b,c}, Yizhou Wu^{b,c},
Zhongyi Jiang^{b,c,*}*

^a Tianjin Engineering Center of Biomass-derived Gas and Oil, School of Environmental Science and Engineering, Tianjin University, Tianjin 300072, China

^b Key Laboratory for Green Chemical Technology of Ministry of Education, Key Laboratory of Bioengineering of Ministry of Education, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China

^c Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin, 300072, China

^d Key Laboratory of Biomass-based Oil and Gas (Tianjin University), China Petroleum and Chemical Industry Federation, Tianjin 300072, China

* Corresponding author: Zhongyi Jiang, zhyjiang@tju.edu.cn

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Table S1. Enzyme activity recovery of PGA@PDA/CH-OSi prepared with different organosilane polycondensation time and curing time.

Curing time	Polymerization time		
	4.5 h	9.5 h	15 h
12 h	93.08%	66.69%	45.31%
24 h	88.90%	66.70%	61.15%

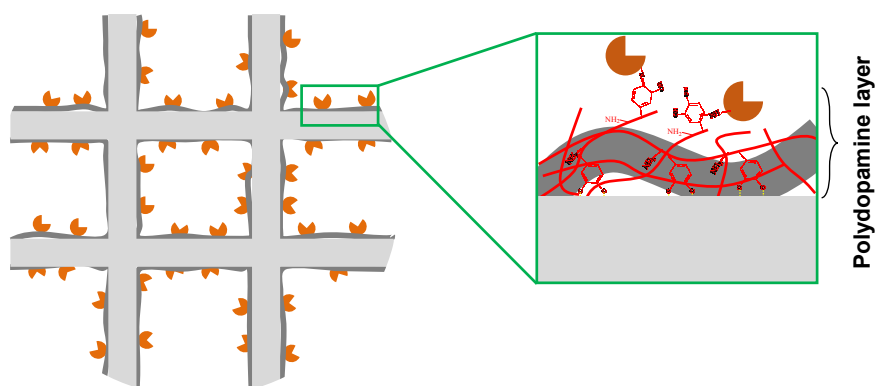


Figure S1. Surface chemical structure of PGA@PDA/Cordierite-H.

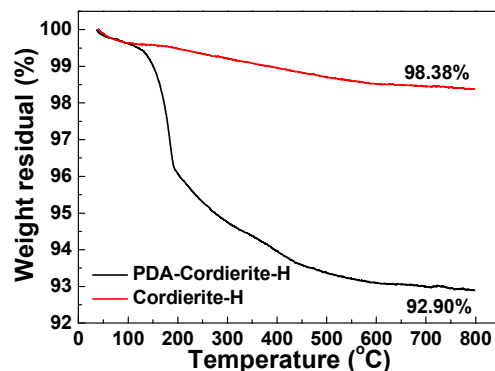


Figure S2. Thermogravimetric curves of Cordierite-H and PDA-Cordierite-H.

The thermogravimetric analysis of Cordierite-H and PDA-Cordierite-H was conducted. As shown in **Figure S2**, the contents of inorganic compound in Cordierite-H and PDA-Cordierite-H were, respectively, 98.38% and 92.90%. Then, the content of polydopamine ($W_{\text{PDA-in-PDA-Cordierite-H}}$) in PDA-Cordierite-H was calculated to be 5.57% based on the following equation:

$$W_{\text{PDA-in-PDA-Cordierite-H}} = 1 - W_{\text{Inorganic-in-PDA-Cordierite-H}} / W_{\text{Inorganic-in-Cordierite-H}}$$

Where $W_{\text{Inorganic-in-Cordierite-H}}$ and $W_{\text{Inorganic-in-PDA-Cordierite-H}}$ were the contents of inorganic compound in Cordierite-H and PDA-Cordierite-H, respectively.

In our experiment, one piece of Cordierite-H (~1706.6 mg) was added in dopamine solution (2 mg mL⁻¹, 60 mL tris-HCl buffer) for surface modification/functionalization. The mass ratio of (dopamine) to (dopamine plus Cordierite-H) was about 6.57% that was higher than $W_{\text{PDA-in-PDA-Cordierite-H}}$, which indicated some dopamine or polydopamine was still in solution without adhering onto the Cordierite-H.