

Supporting Information:

Molecular palladium catalyst enabling efficient electrochemical C-C bond cleavage within lignin model compound

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Table of Contents

Fig. S1. SEM image of acid-washed CNTs before loading TCP-Pd.

Fig. S2. Raman spectra of TCP-Pd/CNTs and CNTs and the I_d/I_g of TCP-Pd/CNTs.

Fig. S3. The concentration standard curves of Pd element.

Fig. S4. Image of electrochemical test instrument.

Fig. S5. The GC-FID spectra of the 2-phenoxy-1-phenylethanol and its electrochemical oxidation products.

Fig. S6. The concentration standard curves of 2-phenoxy-1-phenylethanol and its electrochemical oxidation products.

Fig. S7. The instrument to detect the reaction gas phase product and the detection of the CO₂.

Table S1. Comparison of performances of TCP-Pd/CNTs with some typical thermocatalytic and photocatalytic systems for the oxidative cleavage of 2-phenoxy-1-phenylethanol.

References

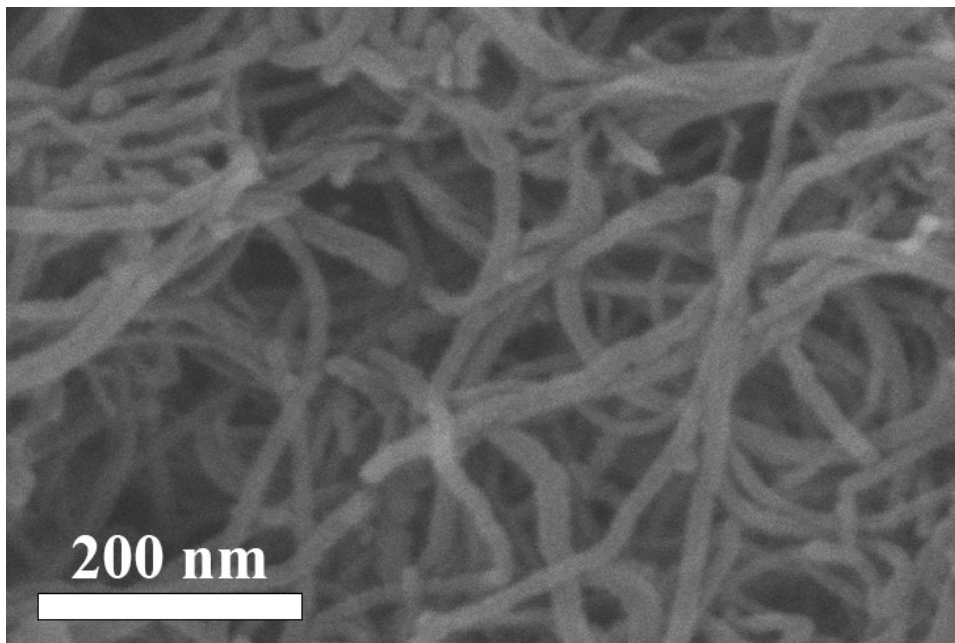


Fig. S1. SEM image of acid-washed CNTs before loading TCP-Pd.

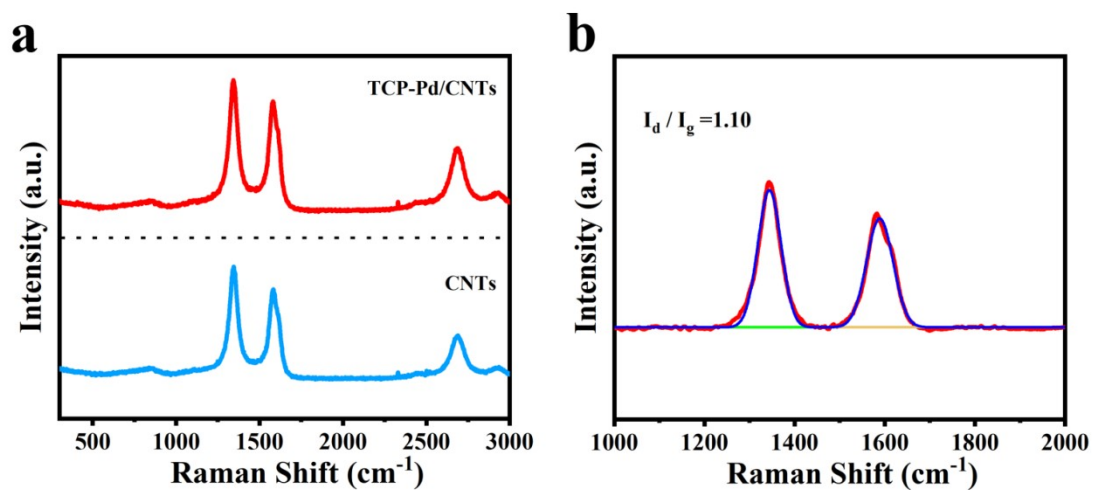


Fig. S2. (a) Raman spectra of TCP-Pd/CNTs and CNTs. (b) The I_d/I_g of TCP-Pd/CNTs.

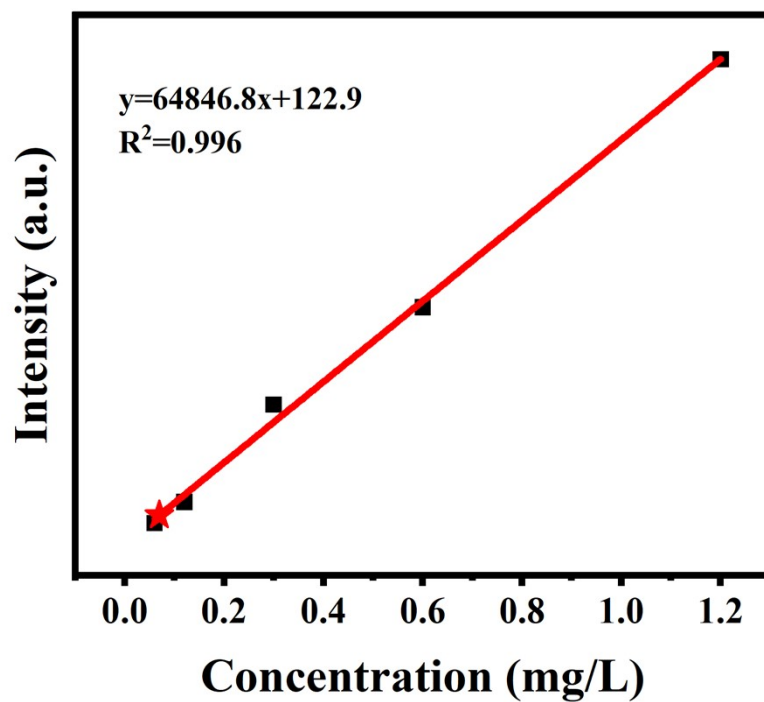


Fig. S3. The concentration standard curves of Pd element.

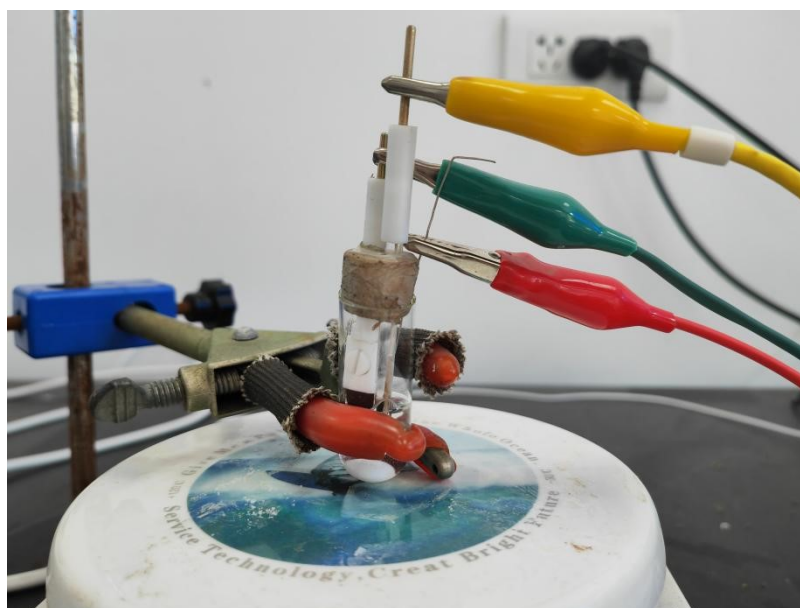


Fig. S4. Image of electrochemical test instrument.

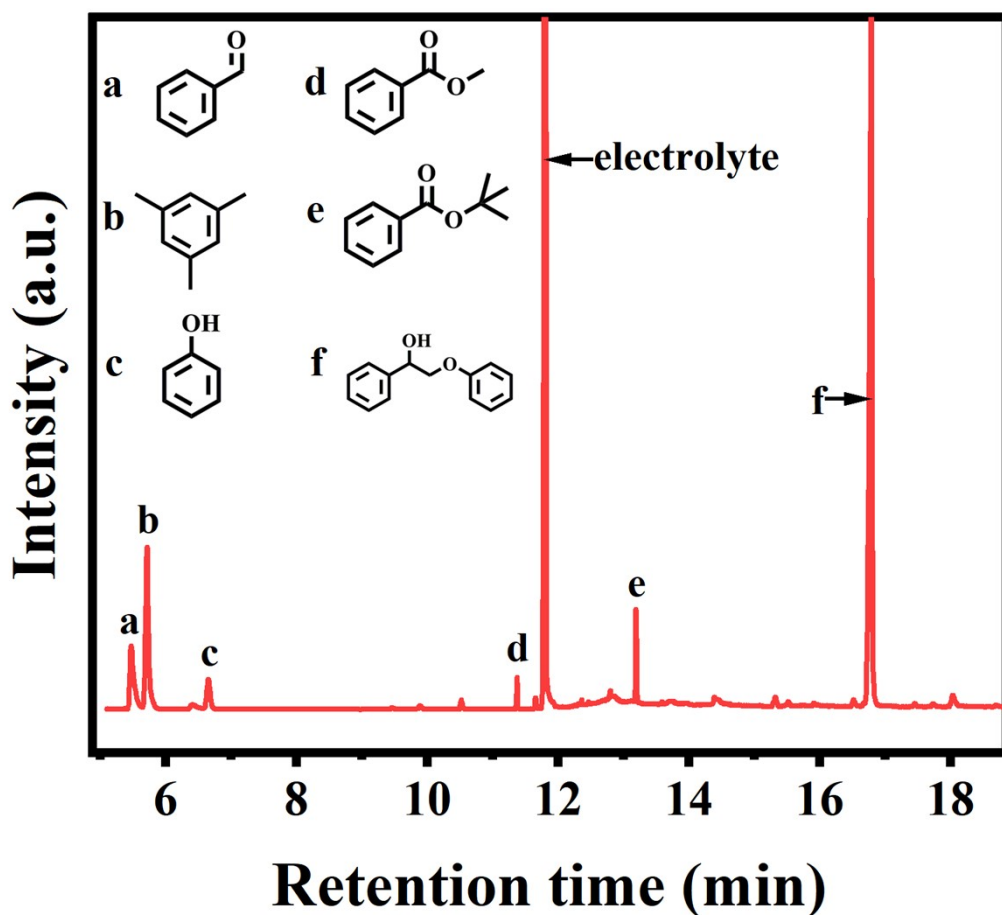


Fig. S5. The GC-FID spectra of the 2-phenoxy-1-phenylethanol and its electrochemical oxidation products. Mesitylene was used as internal standard.

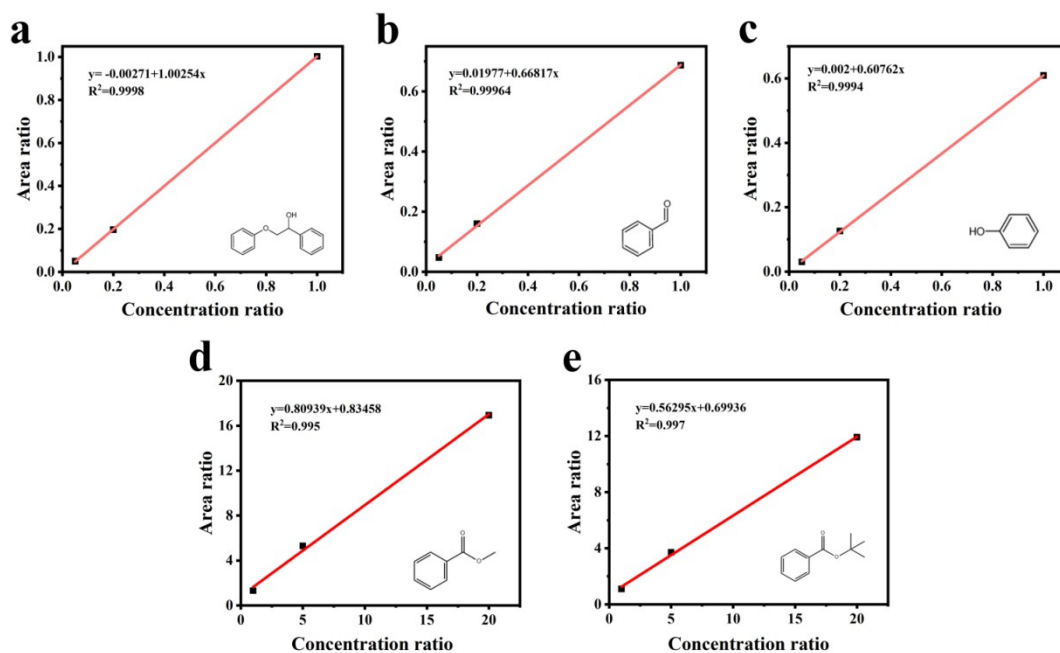


Fig. S6. The concentration standard curves of 2-phenoxy-1-phenylethanol and its electrochemical oxidation products.

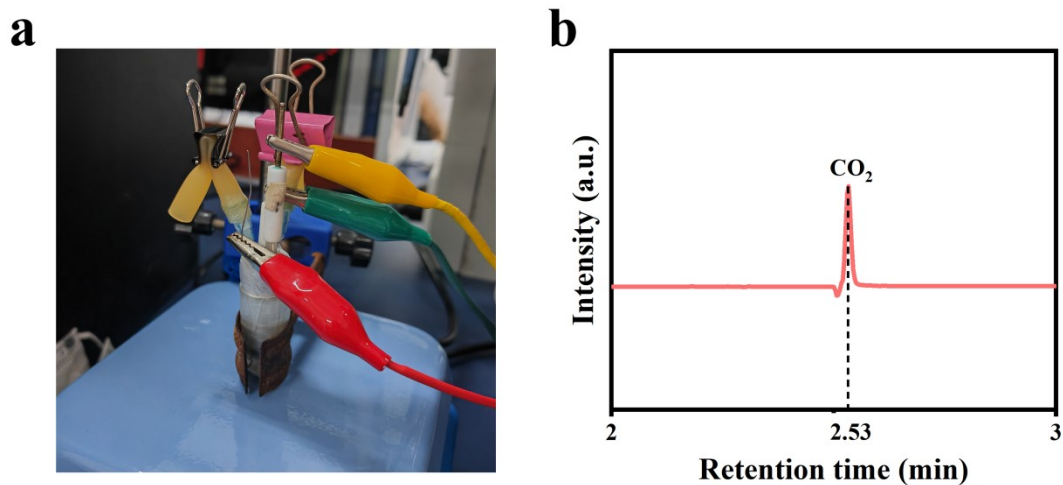
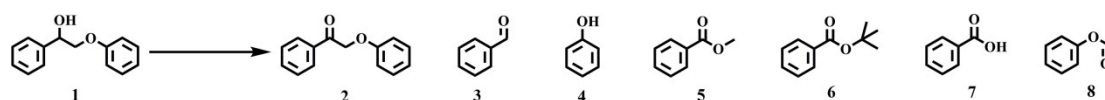


Fig. S7. (a) The instrument to detect the reaction gas phase product. (b) Detection of the CO₂.



Catalyst	Reaction conditions	Con. 1 (%)	Product yield (%)							Ref.
			2	3	4	5	6	7	8	
TCP-Pd/CNTs	RT, air, 15mA, TBHP, 5h	99		32	18	15	5			This work
LCN ^a	120°C, TBHP, 24h	91.8	10.7	0.2	18.3			45.3	0.2	1
Pd/CeO ₂	185°C, 0.1MPa O ₂ , 24h	64	12		48			0.03		2
Au ₁ -Pd _{1.5} -CTFs	160°C, 0.5MPa O ₂ , 4h	96	2		49	17		15		3
mpg-C ₃ N ₄	455nm LED, 0.1MPa O ₂ , 10h	96	7	51				21	30	4
BiVO ₄	AM 1.5 sunlight, 2.0V vs.Ag/AgCl, 20h	30	10	12	5					5

Table S1. Comparison of performances of TCP-Pd/CNTs with some typical thermocatalytic and photocatalytic systems for the oxidative cleavage of 2-phenoxy-1-phenylethanol.

Reference

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