

# Non-Solvent Synthesis of a Robust Potassium-Doped PdCu-Pd-Cu@C Nanocatalyst for High Selectively Tandem Reactions

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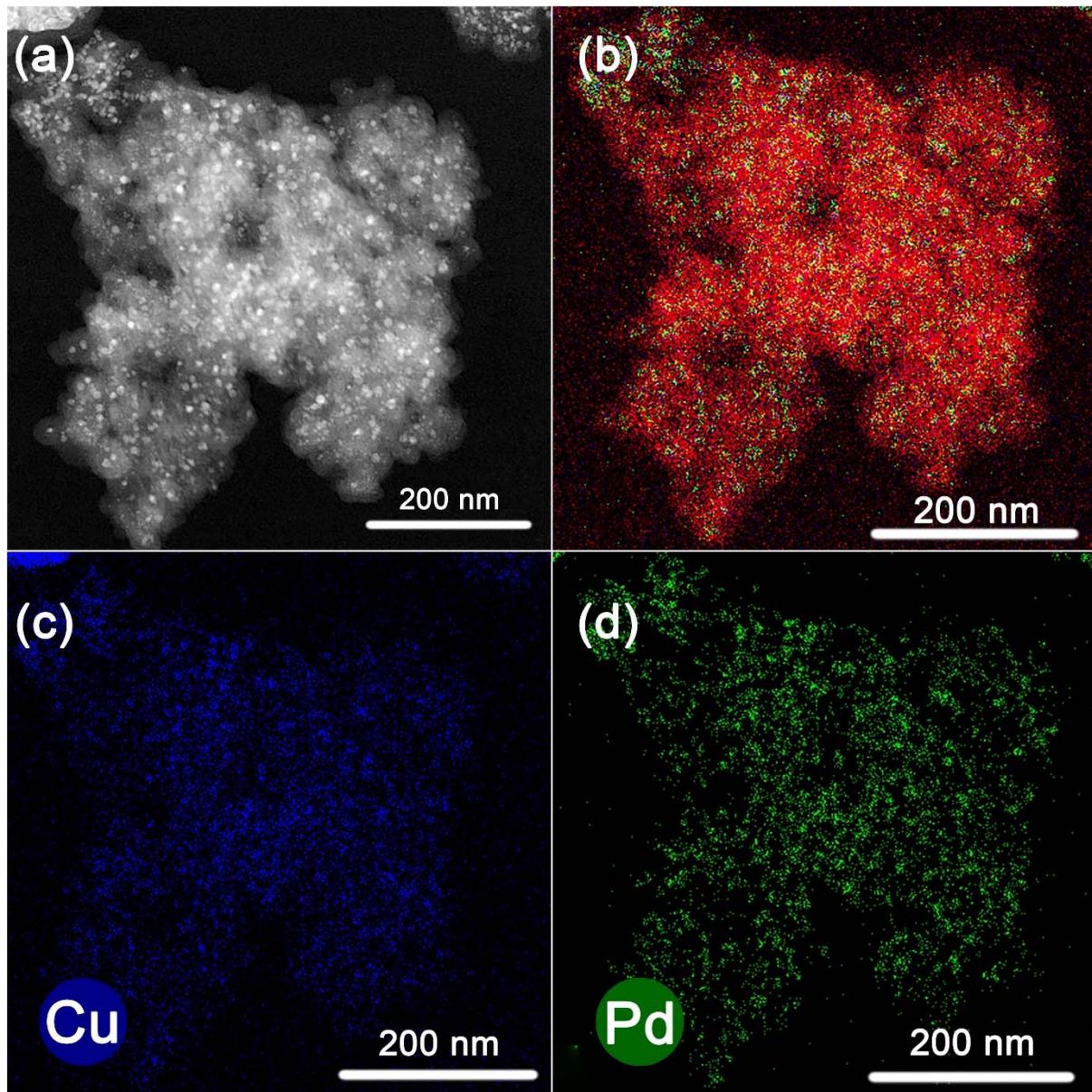
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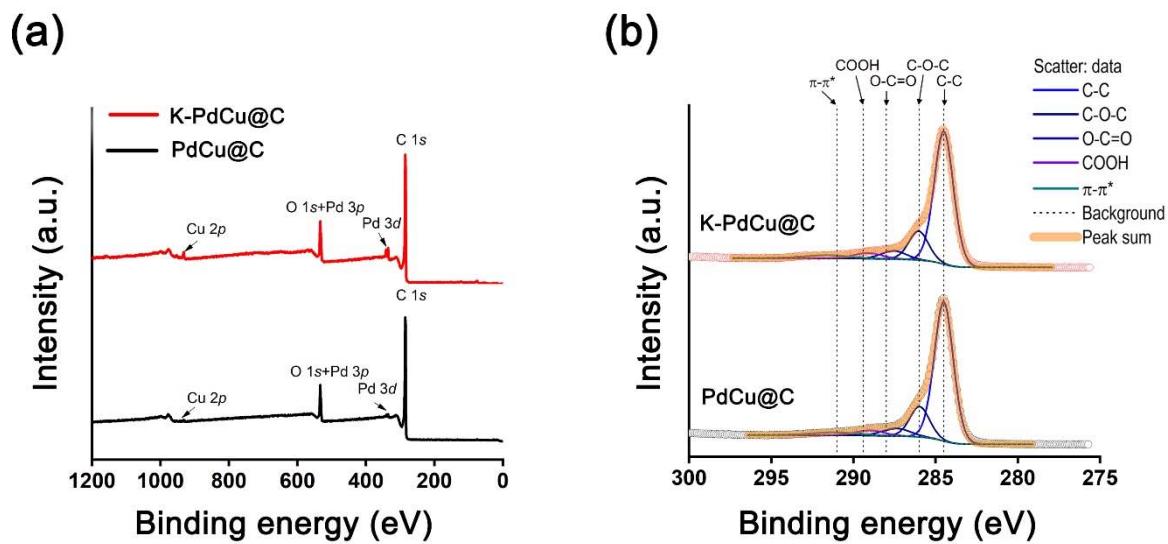
† These authors contributed equally to this work.

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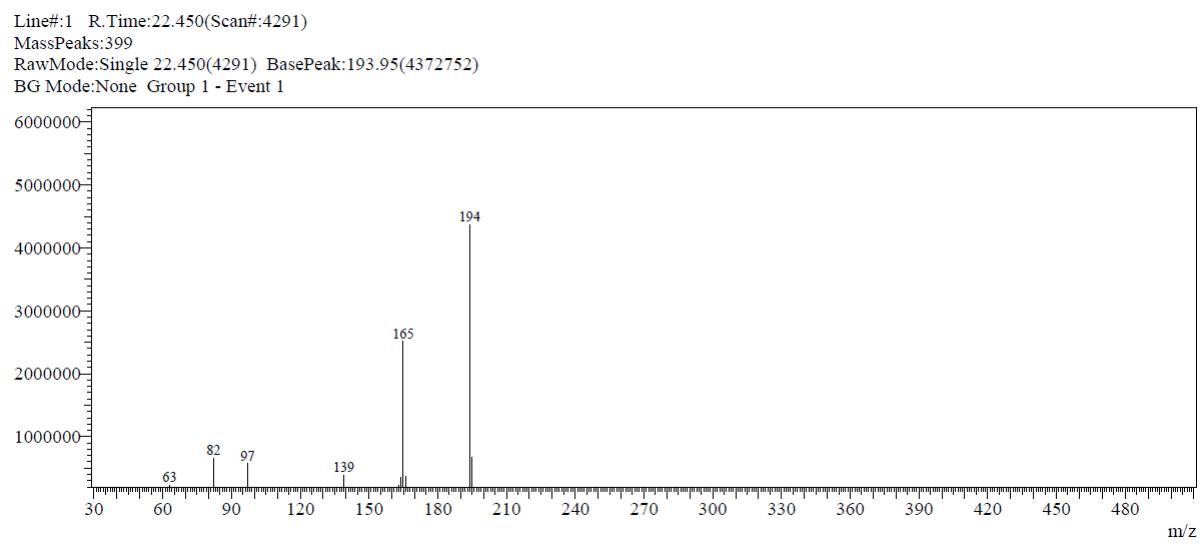
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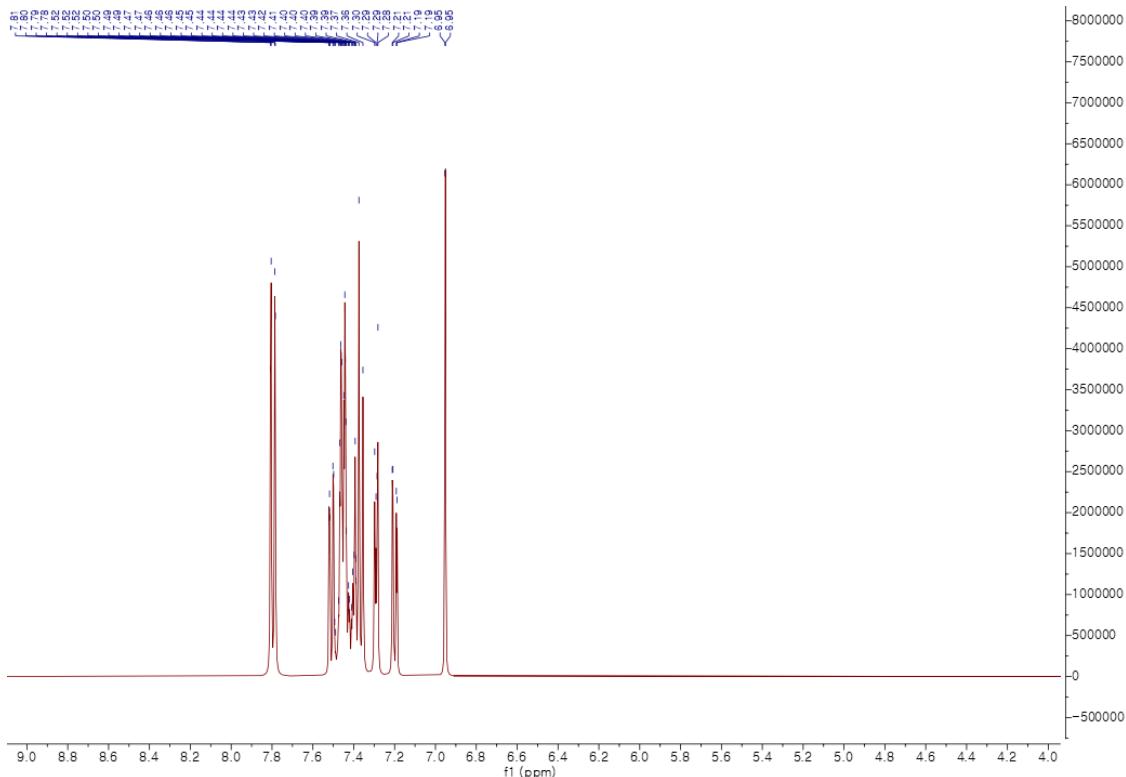
**Figure S1.** HAADF-STEM images of (a) PdCu@C nanocatalyst. Elemental mapping image of (b) total element (red: carbon), (c) copper (blue), and (d) palladium (green), respectively.



**Figure S2.** Core level X-ray photoelectron spectrum of (a) survey scan and (b) C 1s. The vertical dotted lines indicate the reference peak positions. The solid curves indicate deconvolution results.



**Figure S3.** Mass spectra of 2-phenylbenzofuran.



**Figure S4.** Proton NMR spectra of 2-phenylbenzofuran.

**Table S1.** Complementary analysis of elements in PdCu@C and K doped PdCu@C nanocatalysts using inductively coupled plasma optical emission spectrometers.

	Palladium (wt%)	Copper (wt%)	Potassium (wt%)
PdCu@C	21.8	13.5	0
K doped PdCu@C	19.9	13.3	0.47

**Table S2.** Complementary analysis of elements in after 5 times recovered K doped PdCu@C nanocatalyst using inductively coupled plasma optical emission spectrometers

	Palladium (wt%)	Copper (wt%)	Potassium (wt%)
Reusable K doped PdCu@C	23.1	17.4	0.59