

Supporting information

Hydrodeoxygenation of vanillin as bio-oil model over carbonaceous microspheres-supported Pd catalysts in aqueous phase and Pickering emulsions

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Contents:

1. TEM images and Pd size distribution of the catalysts.
2. XPS Pd 3d peak analyses for the catalysts.
3. C1s XPS spectra of the catalysts.
4. The XPS survey scan of Pd/CM180 catalyst.
5. Pd3d XPS spectra of the fresh and the used Pd/CM180A catalysts
6. TEM images of the used Pd/CM180A catalysts.
7. The oil-water contact angles for the catalysts.
8. A typical GC spectrum of the ethyl acetate extracts.

1. TEM images and Pd size distribution of the catalysts.

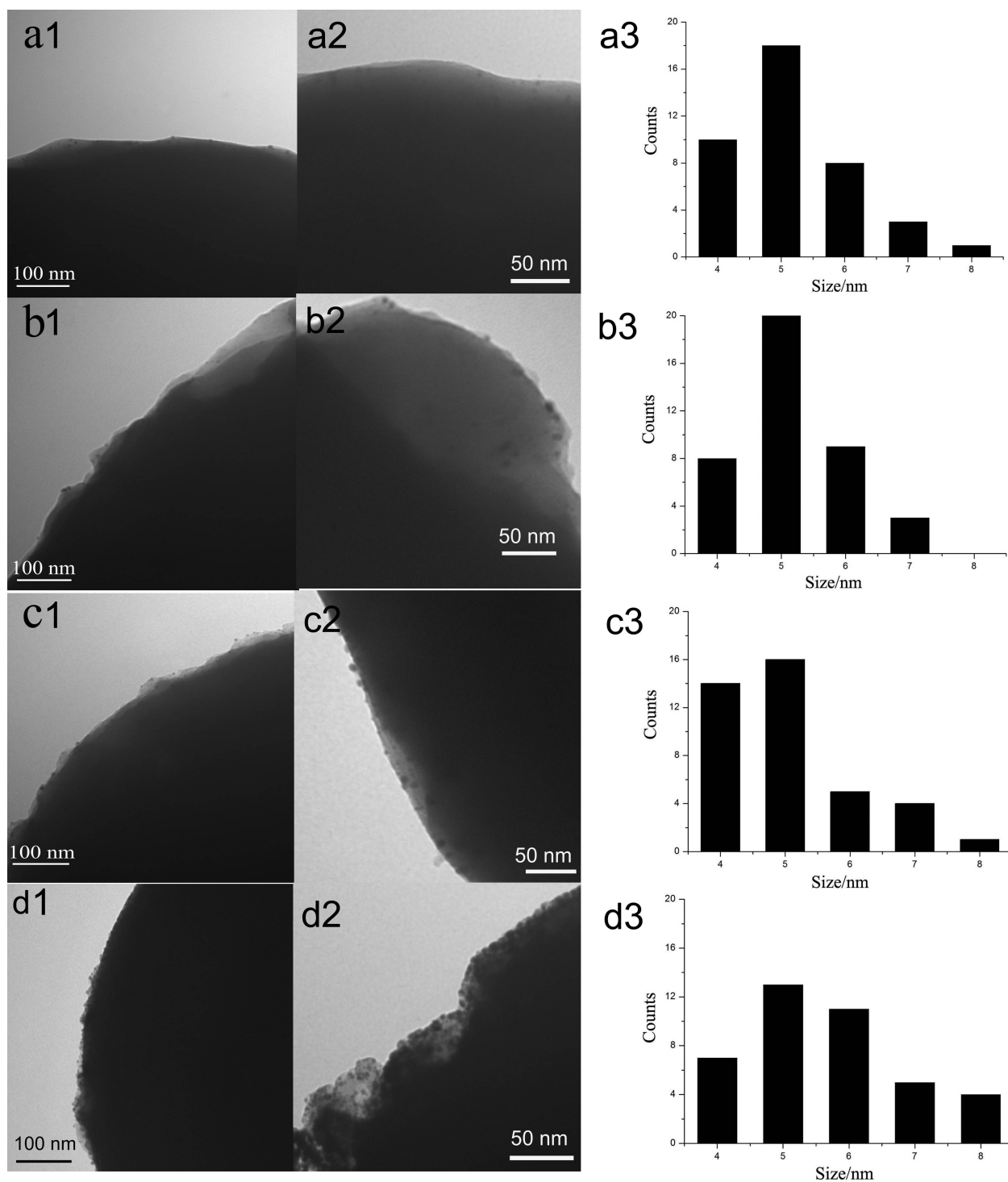


Fig. S1 TEM images and Pd size distribution of (a1-a3)Pd/CM170, (b1-b3)Pd/CM180, (c1-c3)Pd/CM210, (d1-d3)Pd/CM230.

2. XPS Pd 3d peak analyses for the catalysts.

Table S1. XPS Pd 3d peak analyses for the catalysts.

Entry	Catalysts	XPS Pd 3d Peak ^a	
		Pd (0)	Pd (II)
1	Pd/CM170	72%	28%
2	Pd/CM180	65%	35%
3	Pd/CM210	63%	37%
4	Pd/CM230	65%	35%
5	Pd/CM180A	66%	34%
6	Pd/CM180A ^b	71%	29%

^a The binding energy was calibrated to the C1s at 285.0 eV. ^b The data was obtained after reaction.

3. C1s XPS spectra of the catalysts.

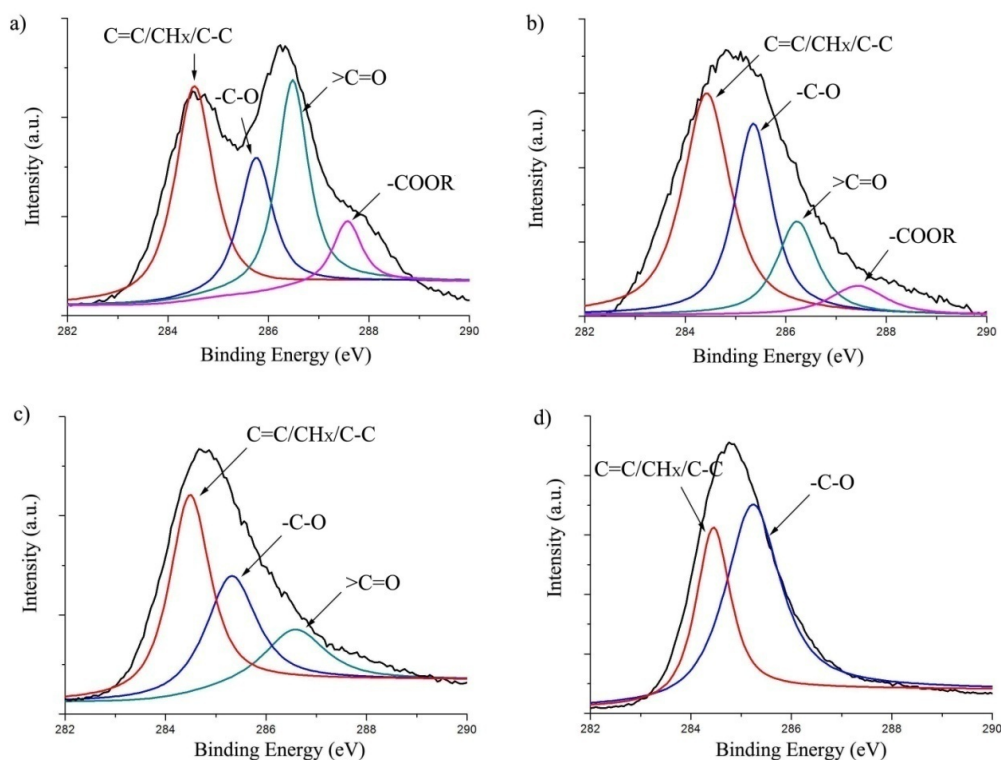


Fig. S2 C1s XPS spectra of a) Pd/CM170, b) Pd/CM180, c) Pd/CM210, d) Pd/CM230.

4. The XPS survey scan of Pd/CM180 catalyst.

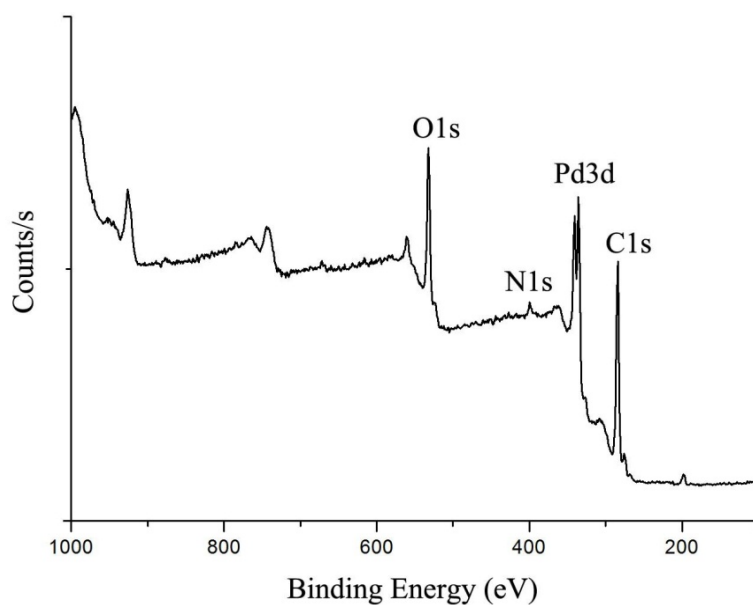


Fig. S3 The XPS survey scan of Pd/CM180 catalyst.

5. Pd3d XPS spectra of the fresh and the used Pd/CM180A catalysts.

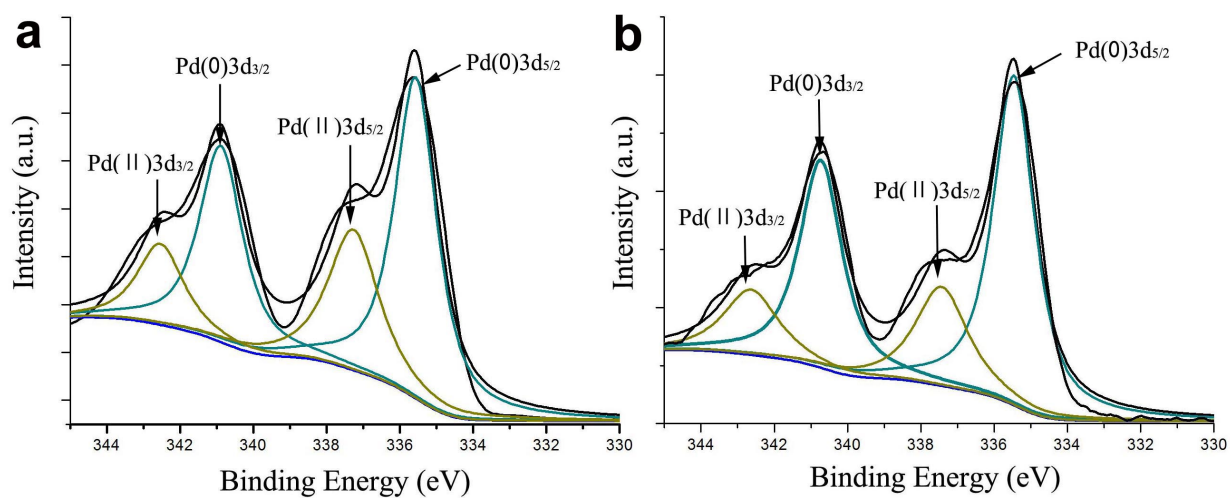


Fig. S4 Pd3d XPS spectra of (a) the fresh and (b) the used Pd/CM180A catalysts.

6. TEM images of the used Pd/CM180A catalysts.

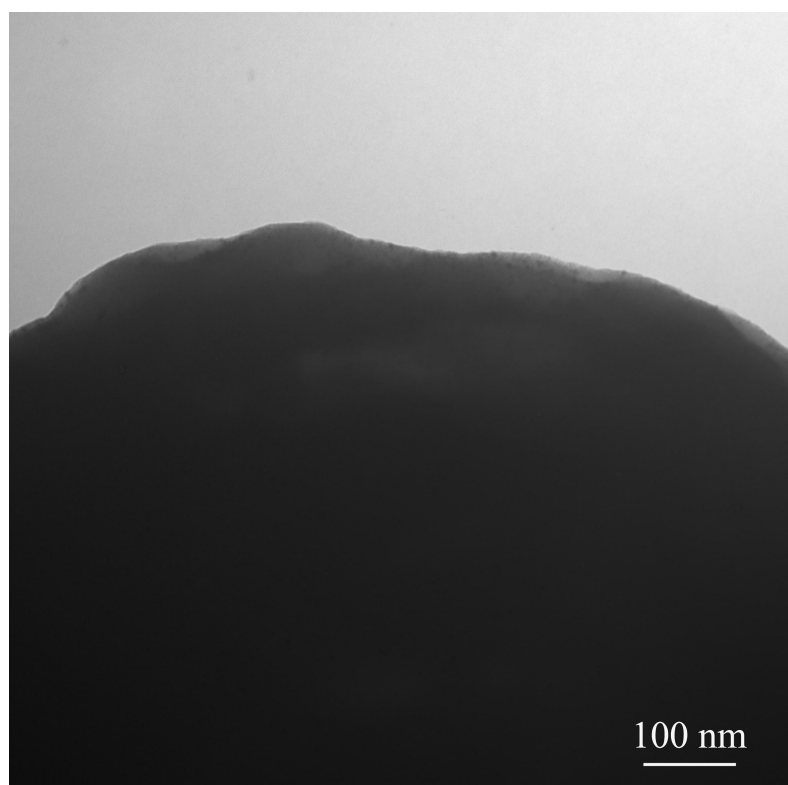


Fig. S5 TEM images of the used Pd/CM180A catalysts.

7. The oil-water contact angles for the catalysts.

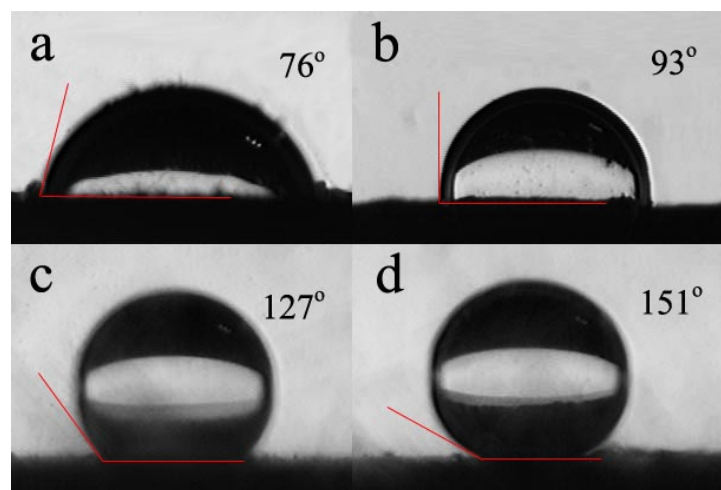


Fig. S6 The oil-water contact angles for (a) Pd/CM170, (b) Pd/CM180, (c) Pd/CM210 and (d) Pd/CM230 catalysts.

8. A typical GC spectrum of the ethyl acetate extracts.

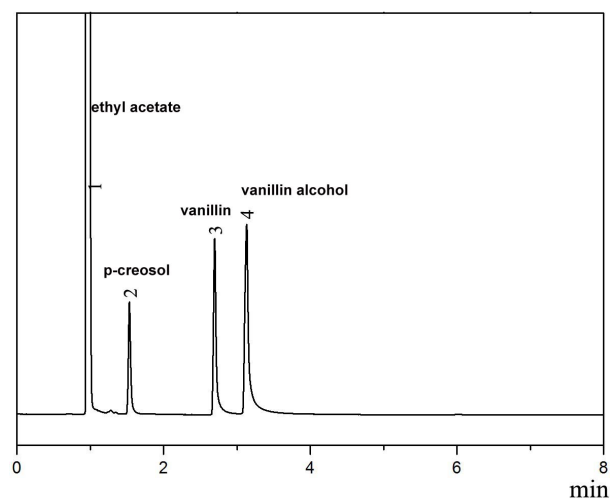


Fig. S7 A typical GC spectrum of the ethyl acetate extracts.