Supporting Information for:

Ru/Hydroxyapatite as a Dual-Functional Catalyst for Efficient Transfer Hydrogenolytic Cleavage of Aromatic Ether Bonds without Additional Bases

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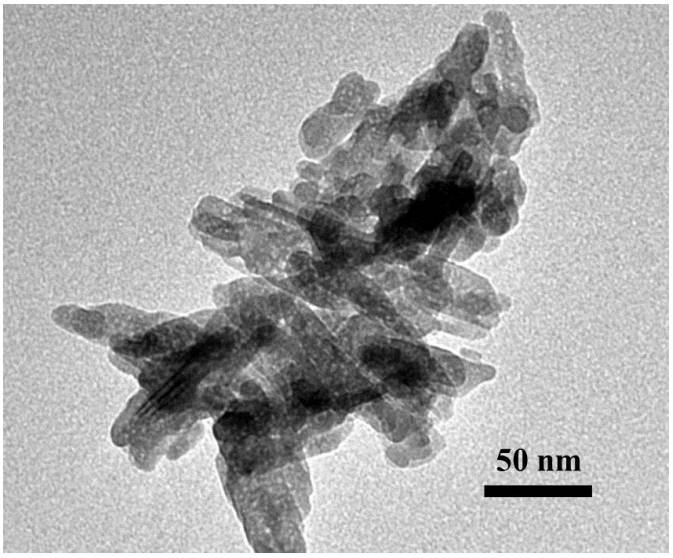


Fig. S1. The TEM image of hydroxylapatite.

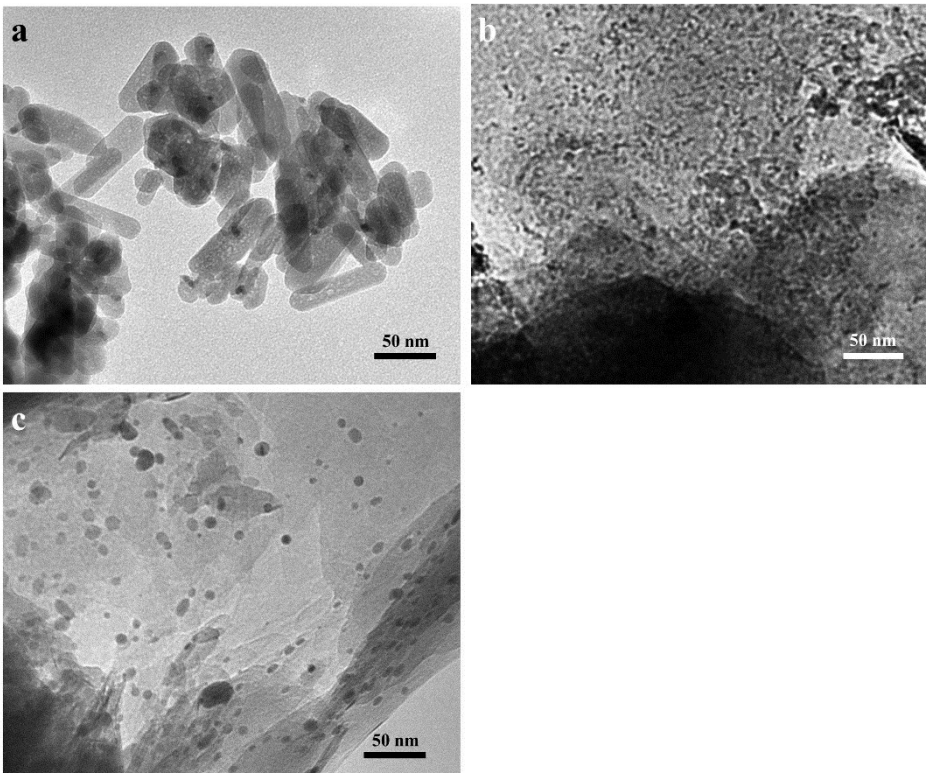


Fig. S2. The TEM images of Pd/hydroxylapatite (a), Ru/montmorillonite (b) and Pd/montmorillonite (c).

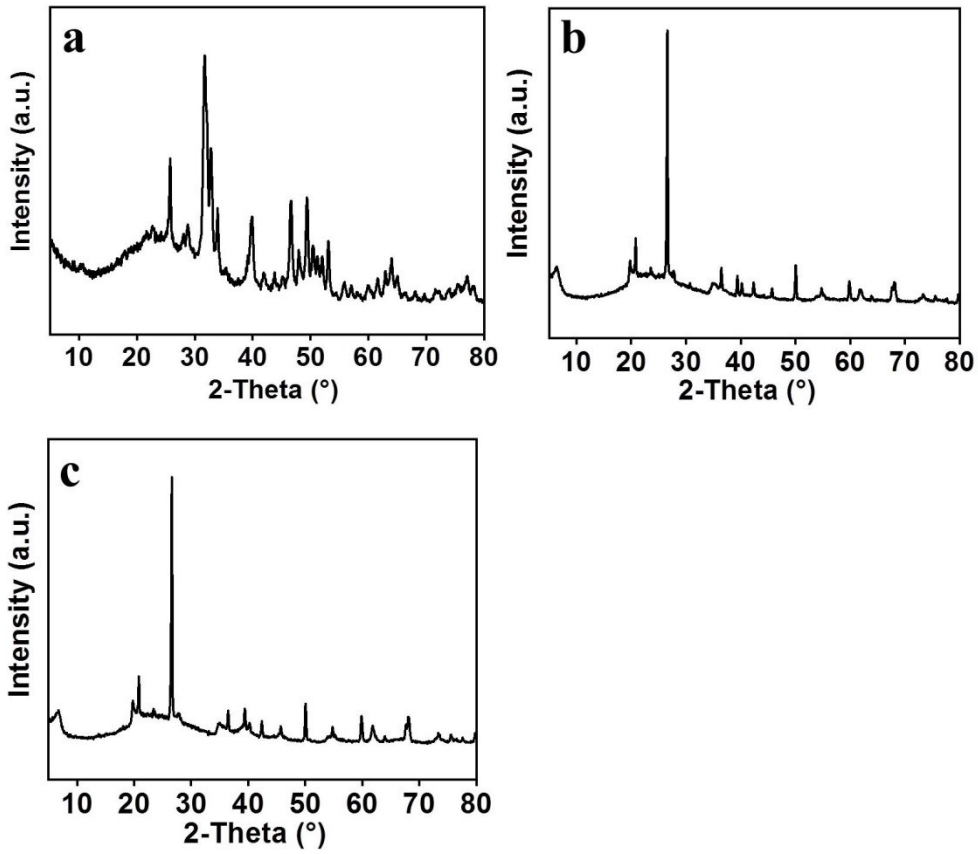


Fig. S3. XRD patterns of Pd/hydroxylapatite (a), Ru/montmorillonite (b) and Pd/montmorillonite (c).

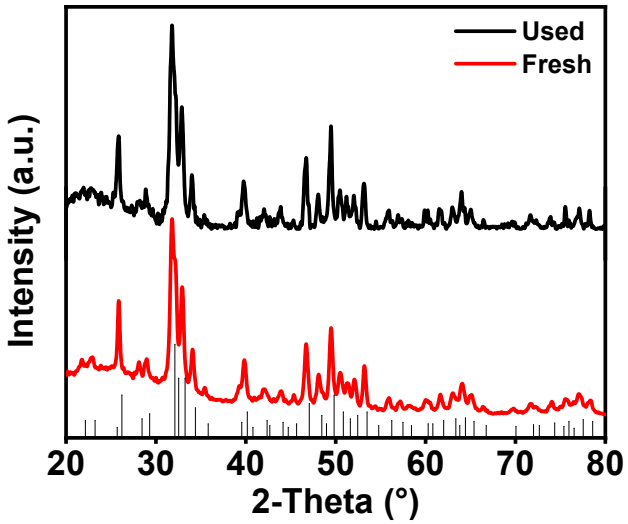


Fig. S4. XRD patterns of the fresh and used Ru/hydroxyapatite.

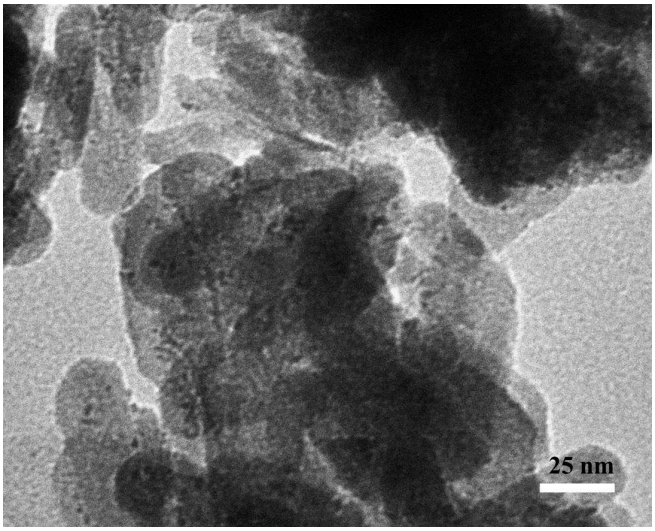


Fig. S5. TEM image of the used Ru/hydroxyapatite.

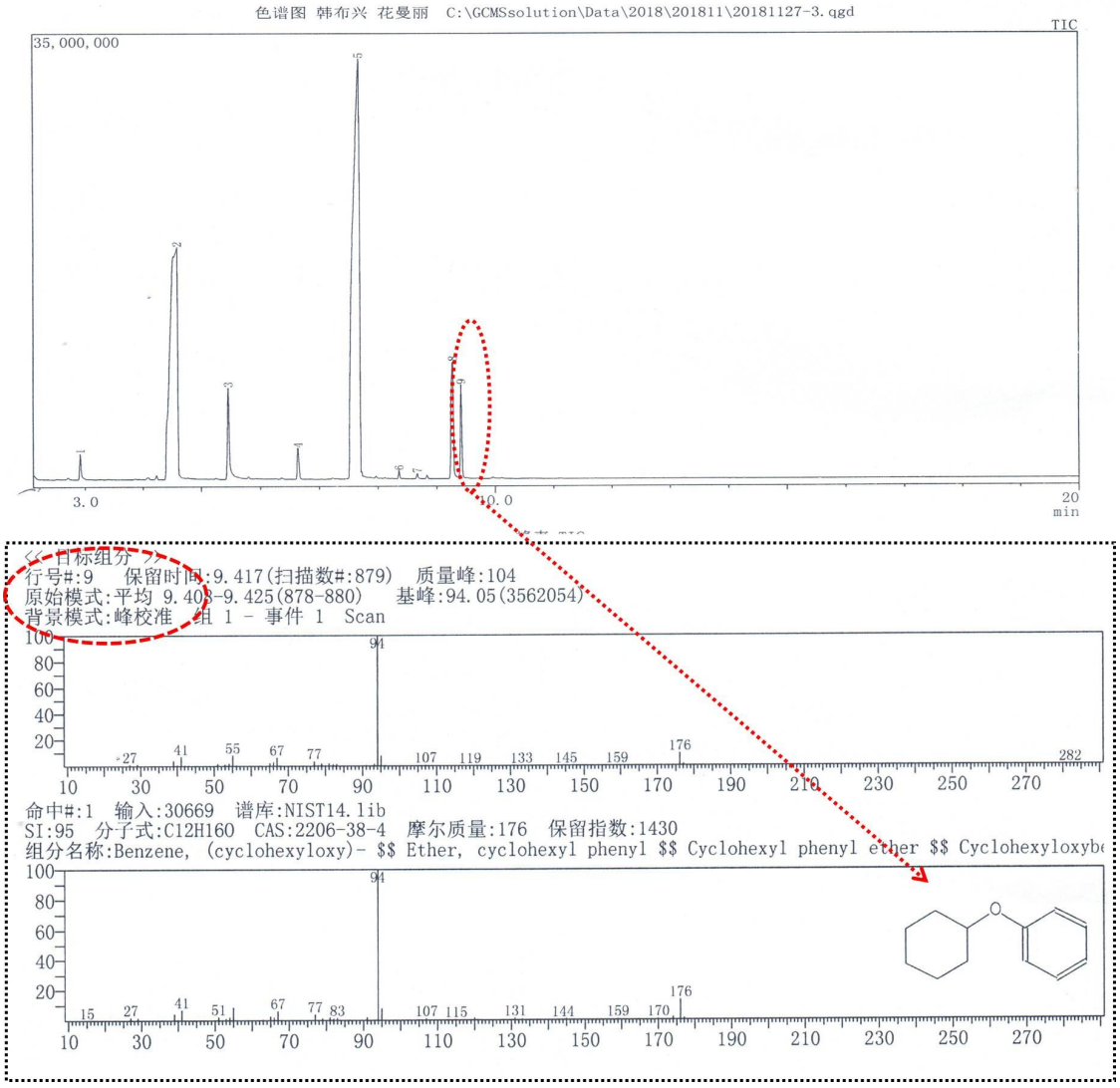
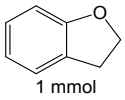
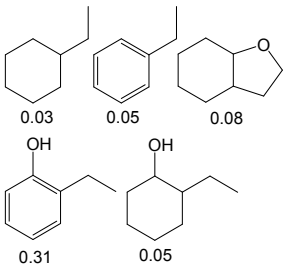
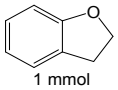
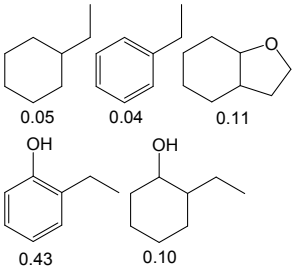
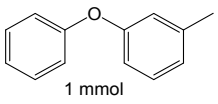
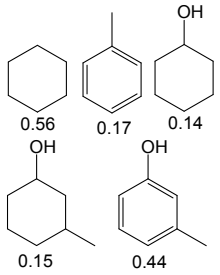
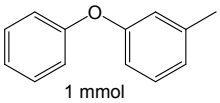
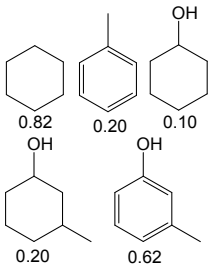
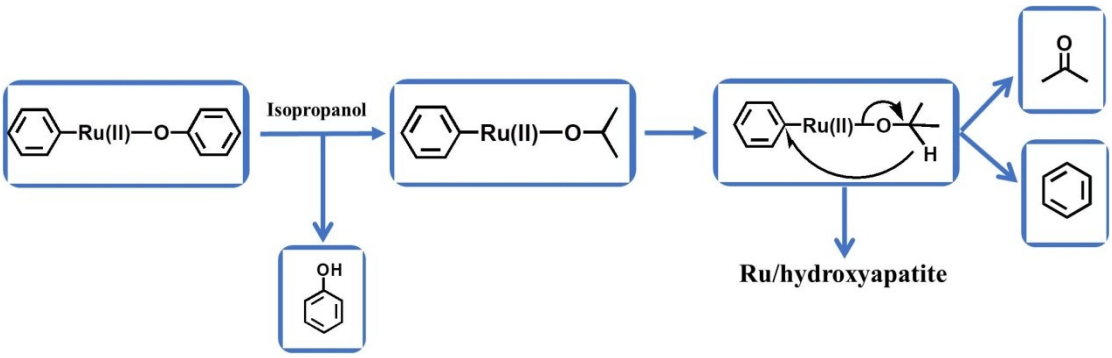


Fig. S6. GC-MS of cyclohexyl phenyl ether in reaction mixture. Reaction conditions: Ru/hydroxyapatite, 0.05 g (0.8 mol% Ru); diphenyl ether, 1 mmol; isopropanol, 4.0 g (66 mmol); reaction time, 4 h; reaction temperature, 150 ^{o}C.

Table S1. The comparison of the catalytic activity for commercial Ru/C and Ru/hydroxyapatite.

Entry	Substrate	Catalyst[a]	t (h)[a]	T (°C)[a]	C (%)[a]	Y (mmol)[a]
1	 1 mmol	Ru/C	10	150	55	 0.03 0.05 0.08 OH OH 0.31 0.05
2	 1 mmol	Ru/hydroxyapatite	10	150	100	 0.05 0.04 0.11 OH OH 0.43 0.10
3	 1 mmol	Ru/C	10	150	81	 OH 0.56 0.17 0.14 OH OH 0.15 0.44
4	 1 mmol	Ru/hydroxyapatite	10	150	100	 OH 0.82 0.20 0.10 OH OH 0.20 0.62

[a]The amount of Ru/C and Ru/hydroxyapatite (with the same Ru usage, 0.8 mol%) was 15 and 50 mg, respectively. t = reaction time, T = reaction temperature, C = conversion, and Y = Yields of major products. The values under the corresponding products were their generated amount.



Scheme S1. The generation of benzene and phenol from the phenyl phenoxyl Ru(II) complex with the assistant of isopropanol.