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Supporting Information

Synthesis of Ni/Mesoporous ZSM-5 for Direct Conversion of Cellulose to Hexitols: Modulating Pore Structure and Acidic Sites via Nanocrystalline Cellulose Template

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Table S1. The recipe for synthesis of ZSM-5.

	Silicon source	Aluminium source	Template agent
Sythesis source	Tetraethyl orthorsilicate (TEOS, 10.4 g)	Aluminum isopropoxide ($Al(C_4H_9O)_3$, 0.34 g) Deionied water (H_2O, 20 ml)	Nanocrystalline cellulose (NCC, x g) Tetrapropylammonium hydroxide (TPAOH, 25%wt, 16.1 g)

Table S2. Hydrolytic hydrogenation of cellobiose over micro-ZSM-5 and other carriers supported Ni catalysts.

Entry	Catalyst	Conversion(%)	Yeild(%)			
			Hexitols	Glycerol	Glycol	1,2-PDO
1	Ni/ZSM-5	100	82.1	2.4	1.9	1.2
2	Ni/SiO_2	100	44.4	7.0	3.5	1.7
3	Ni/TiO_2	100	32.3	5.1	4.4	7.1
4	Ni/Al_2O_3	100	28.8	21.3	6.6	10.4
5	Ni/kieselguhr	100	24.5	13.5	5.2	12.6

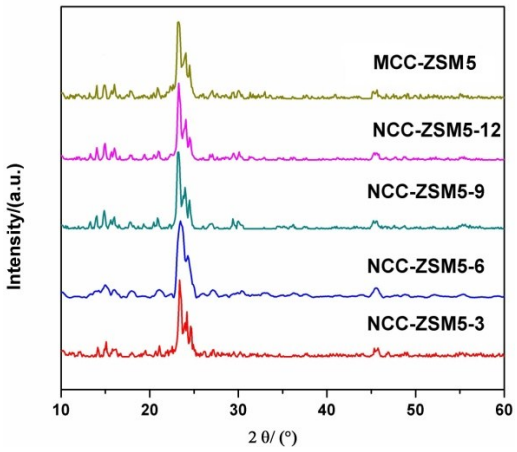

Figure S1. XRD patterns for series of NCC-ZSM5 and MCC-ZSM5.

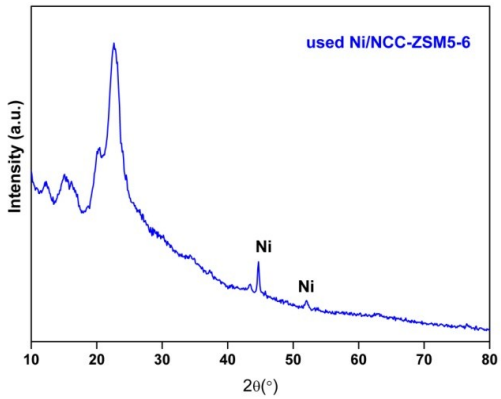

Figure S2. XRD pattern of the used Ni/NCC-ZSM5-6.

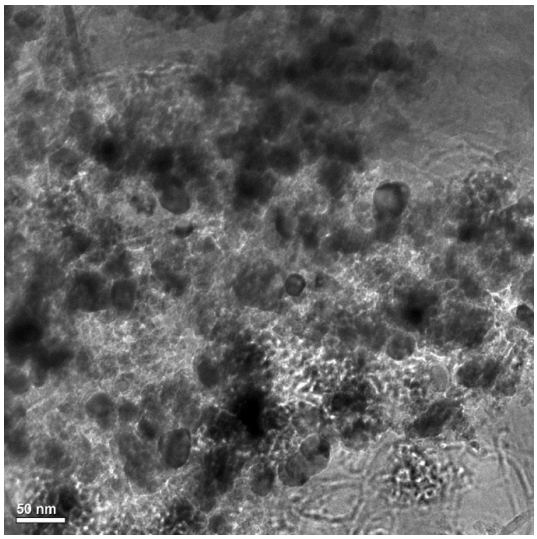

Figure S3. TEM image of the used Ni/NCC-ZSM5-6.

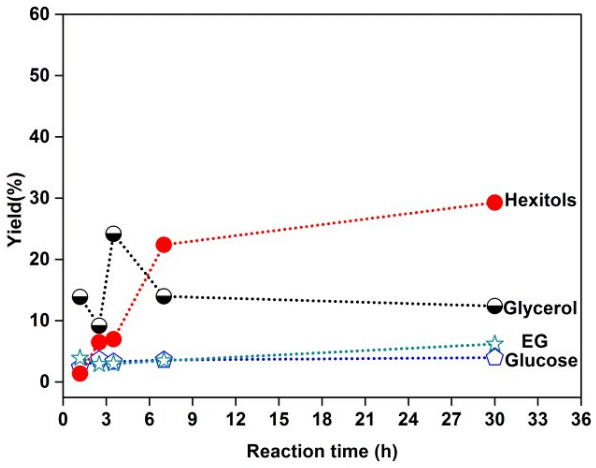

Figure S4. Catalytic conversion of cellulose into hexitols over Ni/NCC-ZSM5-6 catalysts as a function of time.

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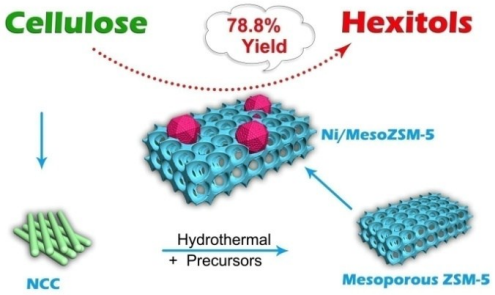

Direct conversion of cellulose to hexitols with high yields was achieved over Ni/Mesoporous ZSM-5 catalysts, in which the pore structures and acidic sites were modulated by the nanocrysalline cellulose template.

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