

Supporting information

Effects of Morphology and Pore Size of Mesoporous Silicas on Efficiency of Immobilized Enzyme

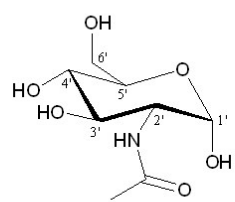
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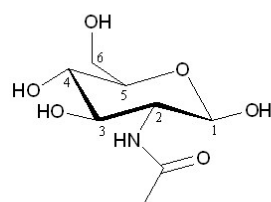
Table S1. Analytic data of different concentrations of *N,N'*-diacetylchitobiose

	The integral value at δ 0 (I.S.)	The integral value of (GlcNAc) ₂ at δ 2.08 and 2.05		The actual concentration of (GlcNAc) ₂ (mM)	(GlcNAc) ₂ conversion value (mM)
1	120.491	4.968	4.819	0.909	0.99705
2	103.170	10.524	10.65	0.681	0.75850
3	110.806	20.455	20.791	0.4545	0.50759
4	100.272	27.589	27.258	0.227	0.27987
5	115.023	40.753	41.764	0.0909	0.11076

(a)

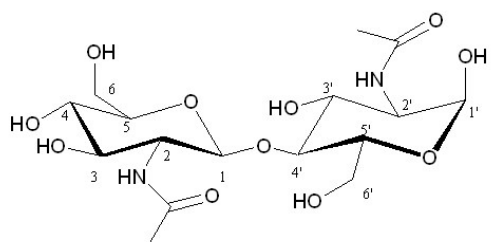


α -form (GlcNAc)



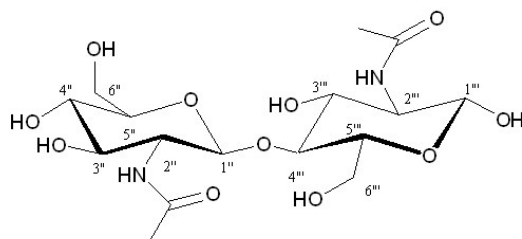
β -form (GlcNAc)

(b)



β -form (GlcNAc)₂

α -form (GlcNAc)₂



β -form (GlcNAc)₂

β -form (GlcNAc)₂

Figure S1. Chemical structures of: (a) GlcNAc and (b) (GlcNAc)₂.

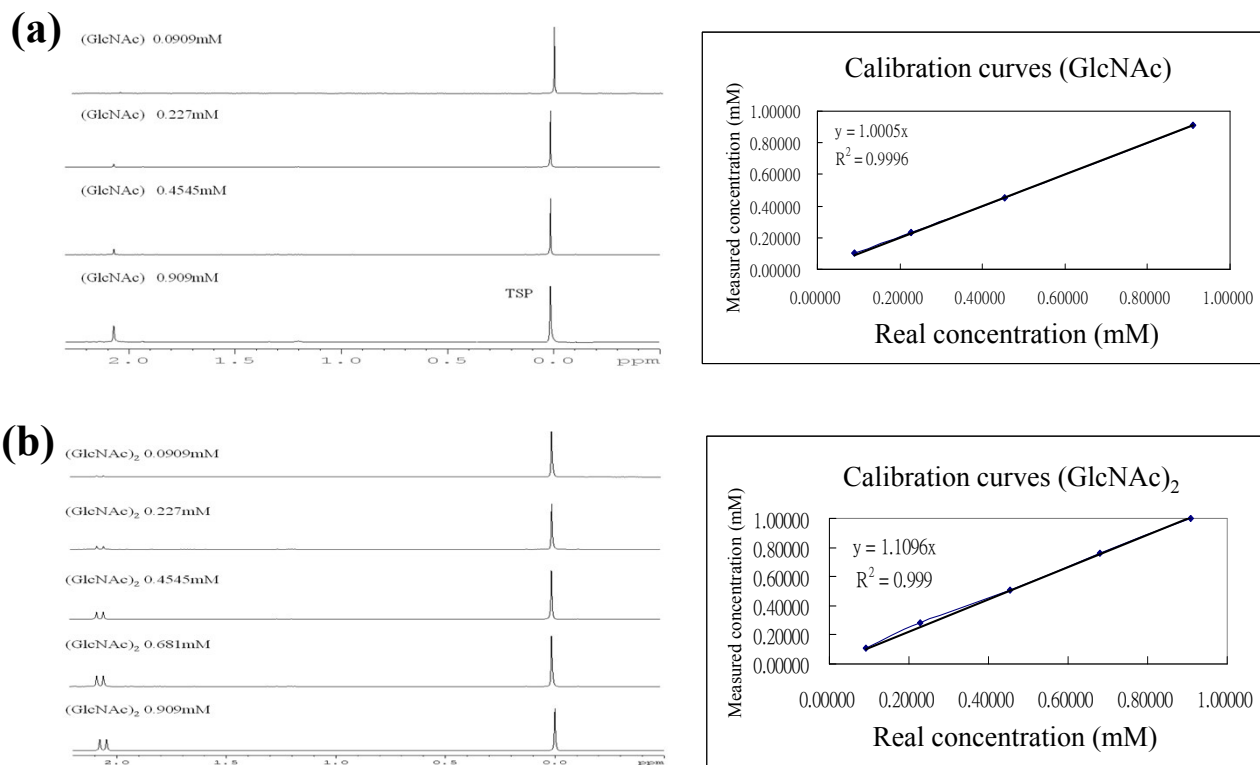


Figure S2. ^1H -NMR quantitative analysis and calibration curves of: (a) (GlcNAc) and (b) $(\text{GlcNAc})_2$ (I.S : Tsp- d_4).

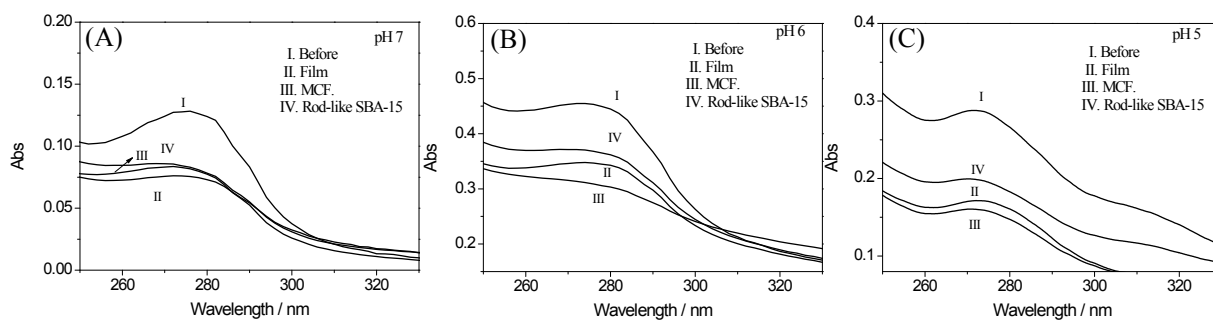


Figure S3. UV-vis spectra of enzyme before and after loading in three different MSs under different pH values.

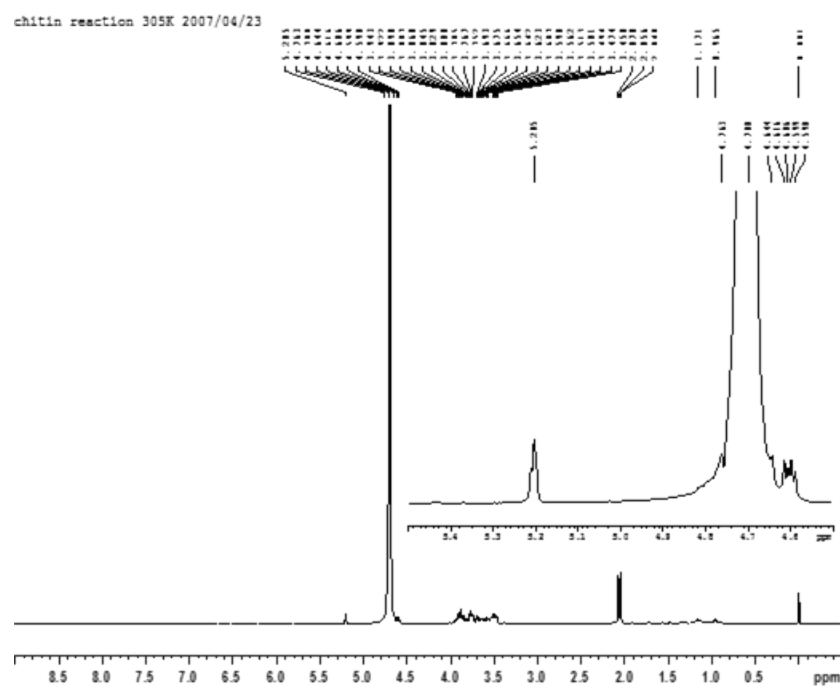


Figure S4. ^1H -NMR signal of chitin hydrolytic product (without nosepr1d program).

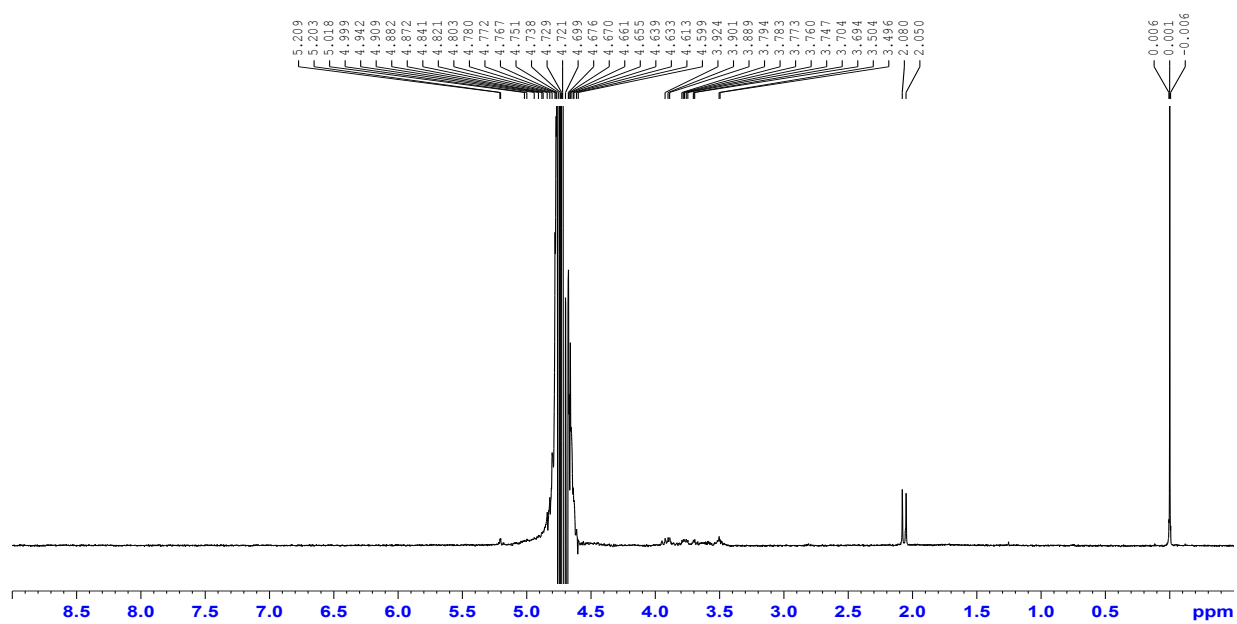


Figure S5. ^1H -NMR signal of chitin hydrolytic product (with nosepr1d program).

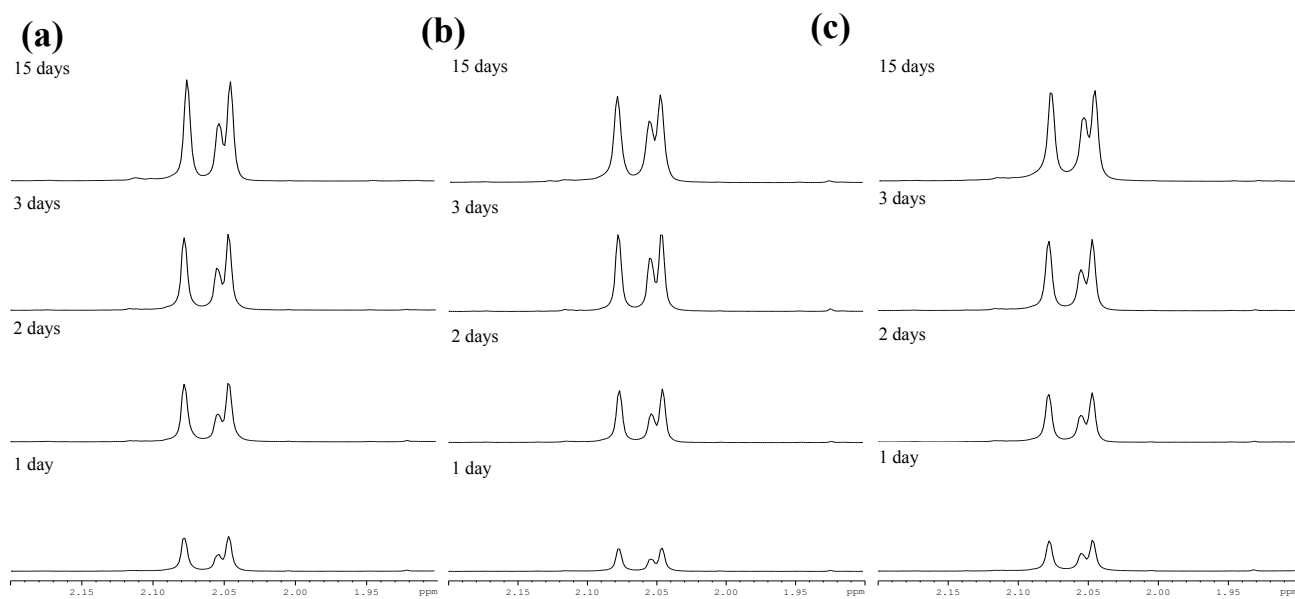


Figure S6. ^1H -NMR spectra of chitin hydrolytic reactions in: (a) pH 7.0, (b) pH 6.0 and (c) pH 5.0 environments with rod-like SBA-15.

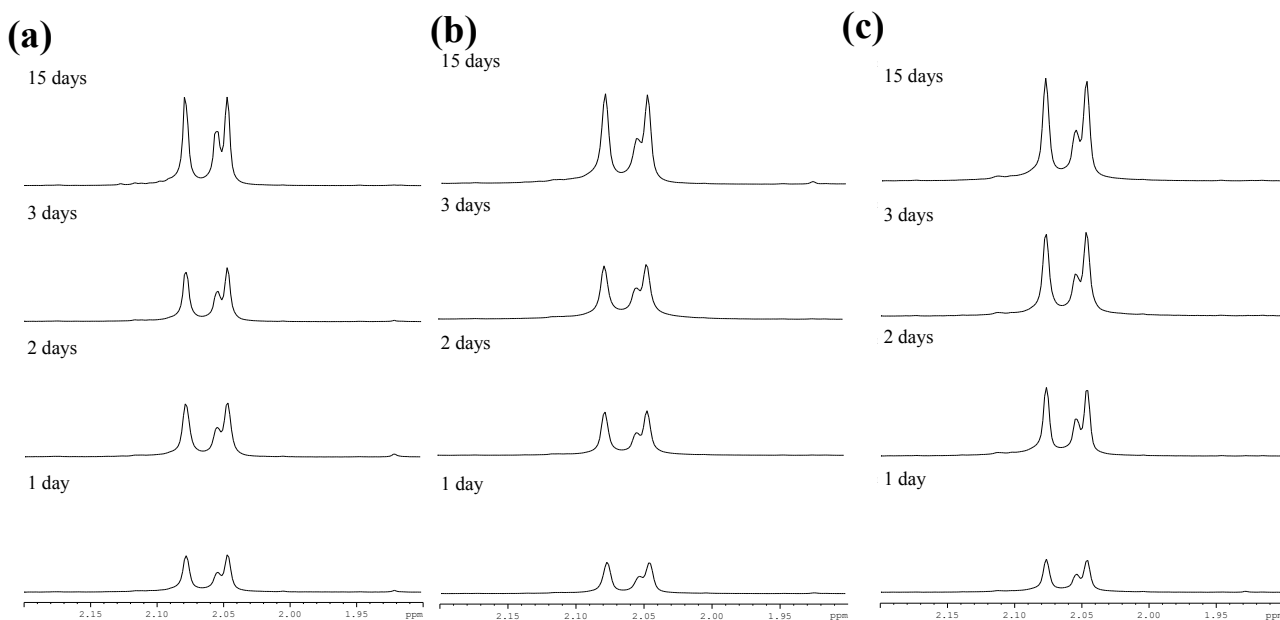


Figure S7. ^1H -NMR spectra of chitin hydrolytic reactions in: (a) pH 7.0, (b) pH 6.0 and (c) pH 5.0 environments with MCF.