Supplementary Material (ESI) for Journal of Materials Chemistry

【Electronic Supplementary Information】

The selective immobilization of curcumin on the inner surface of mesoporous hollow silica paticles by covalent bonding and its controlled release

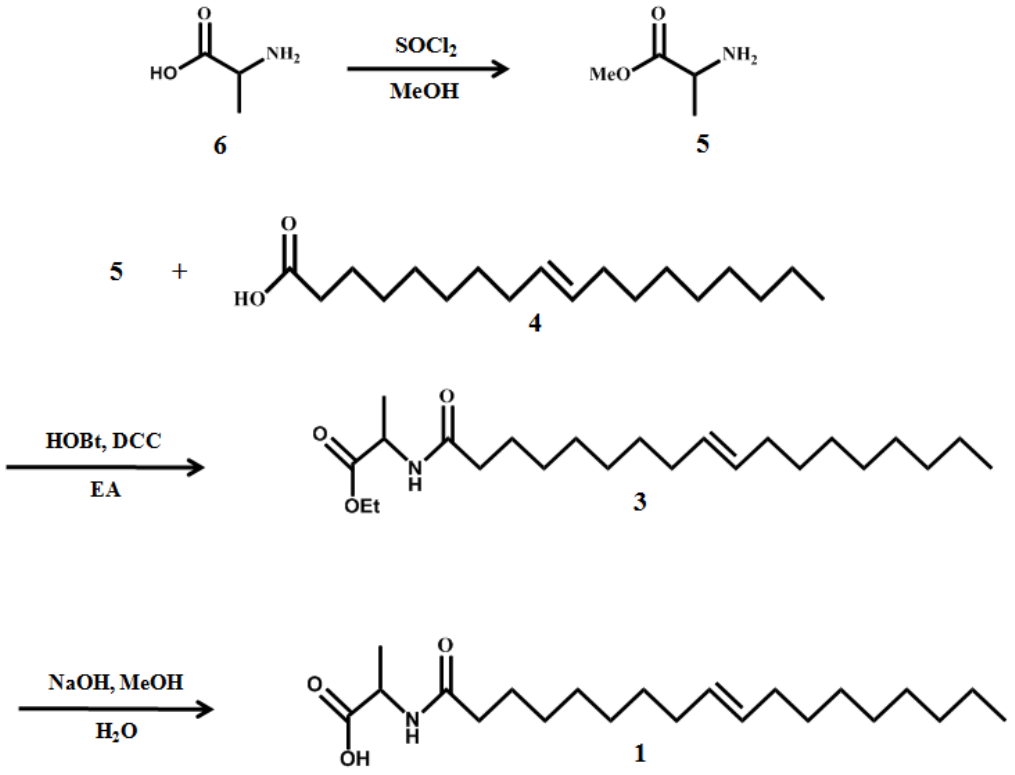
Dalsaem Jin,[a] *Kyeong-Won Park,*[a] *Ji Ha Lee,*[a] *Kyung Song,*[b] *Jin-Gyu Kim,*[b] *Moo Lyong Seo,*[a] *and*

*Jong Hwa Jung**[a]

[a]Department of Chemistry and Research Institute of Natural Sciences and Environmental Biotechnology National Core Research Center, Gyeongsang National University, Jinju 660-701, Korea

[b]Division of Electron Microscopic Research, Korea Basic Science Institute, Daejeon 305-333, Korea

* To whom correspondence should be addressed. E-mail: jonghwa@gnu.ac.kr



Scheme S1. Synthetic route for **1**.

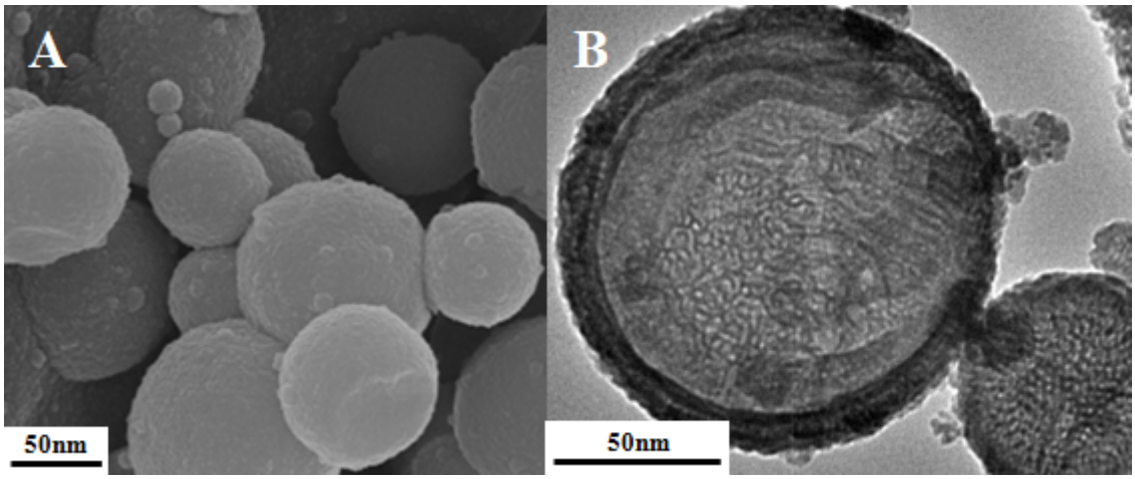


Fig. S1 (A) SEM and (B) TEM images of mesoporous hollow silica particles (**MHSP**) after removal of **1** by washing with ethanol.

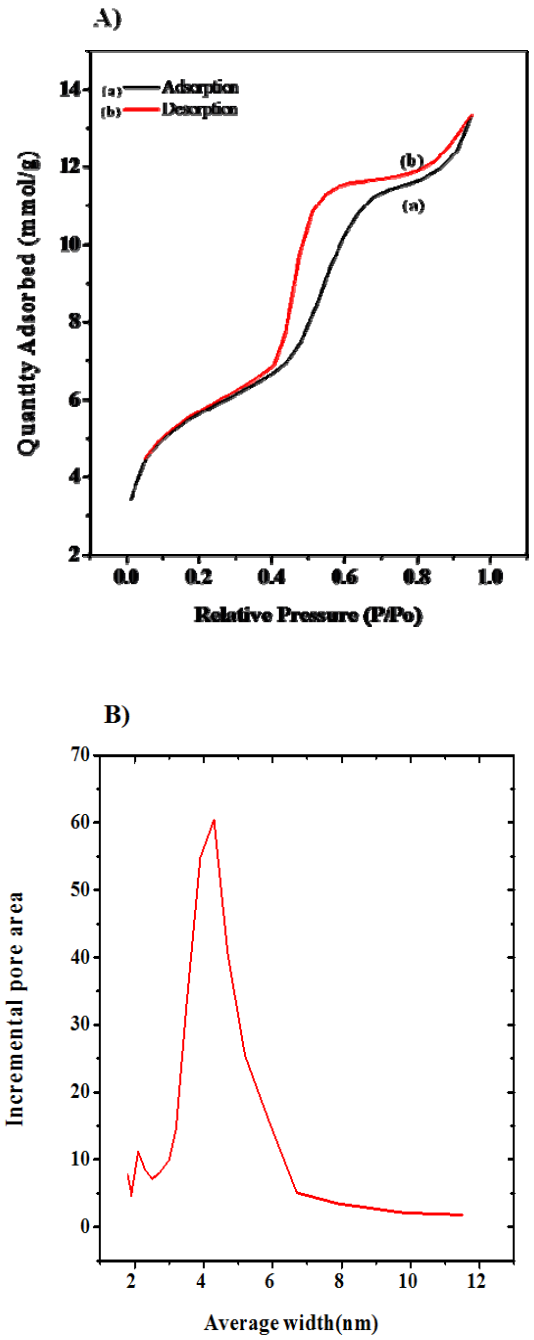


Fig. S2 (A) N_2 adsorption-desorption isotherms and (B) pore size distribution of **MHSP**.

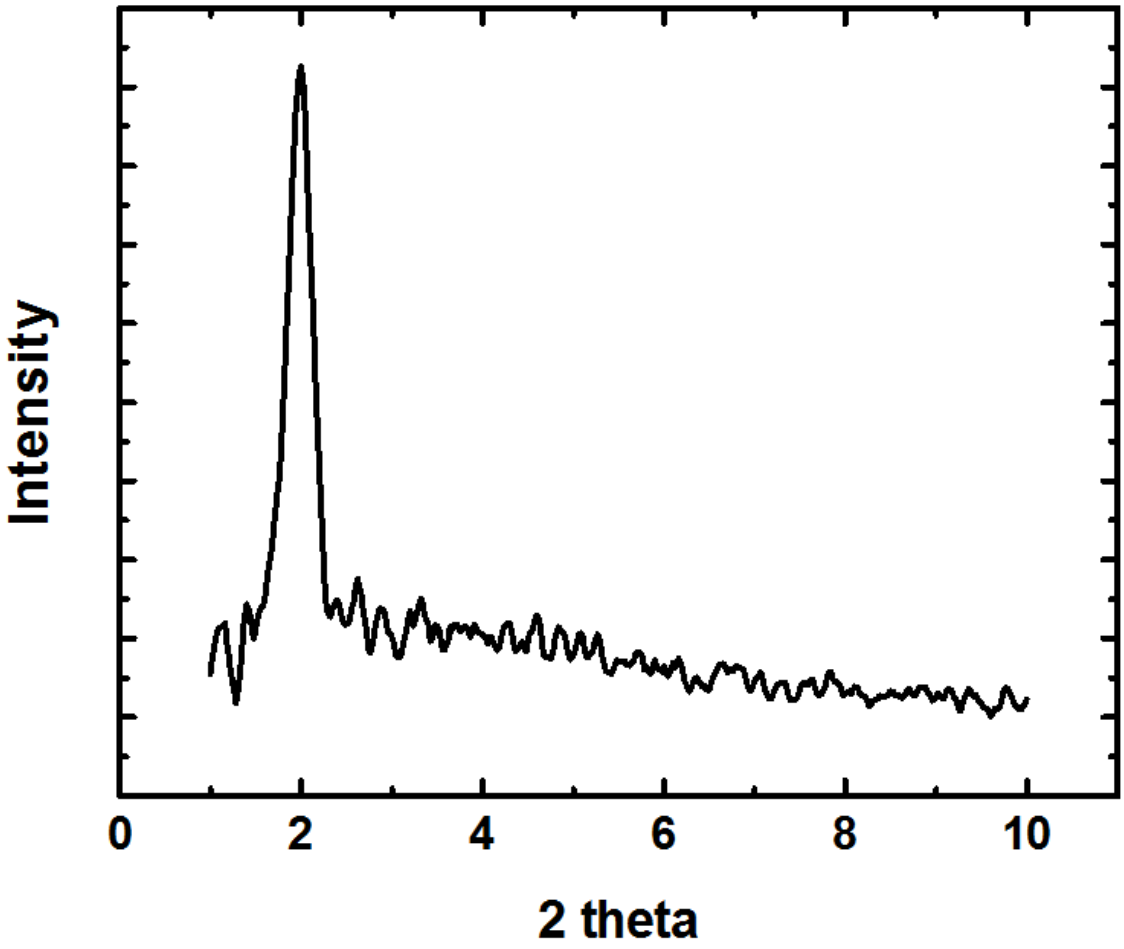


Fig. S3 PXRD pattern of **MHSP** after remove the self-assembled **1**.

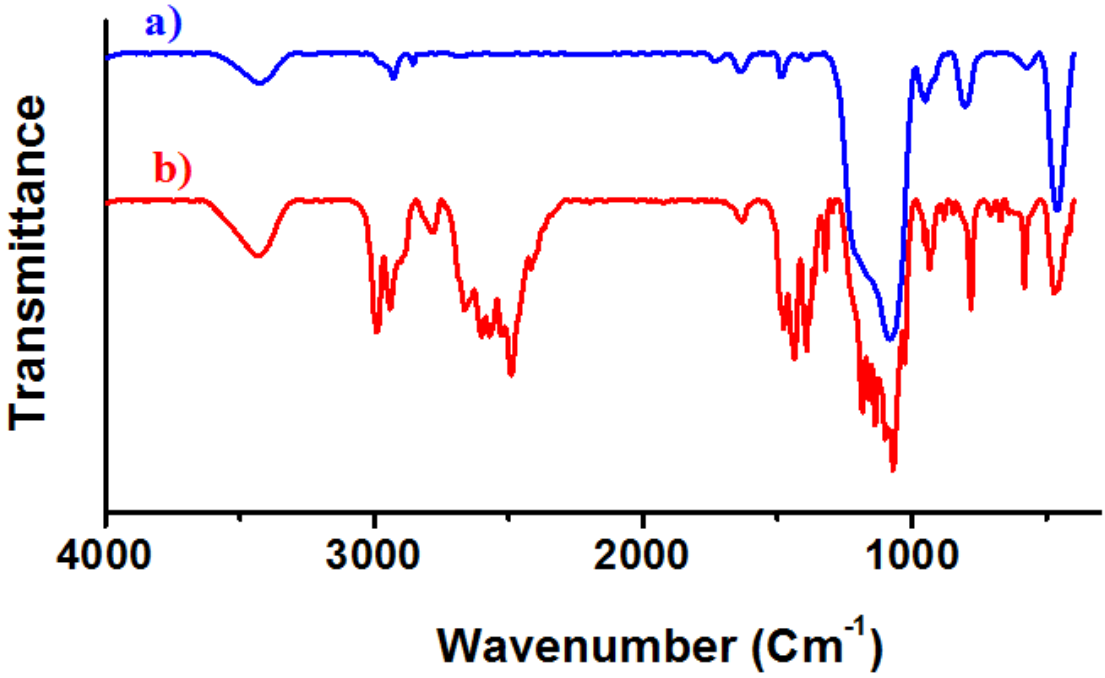


Fig. S4 FT-Infrared spectra of (a) **MHSP** and (b) curcumin-immobilized mesoporous hollow silica particles (**C-MHSP**).

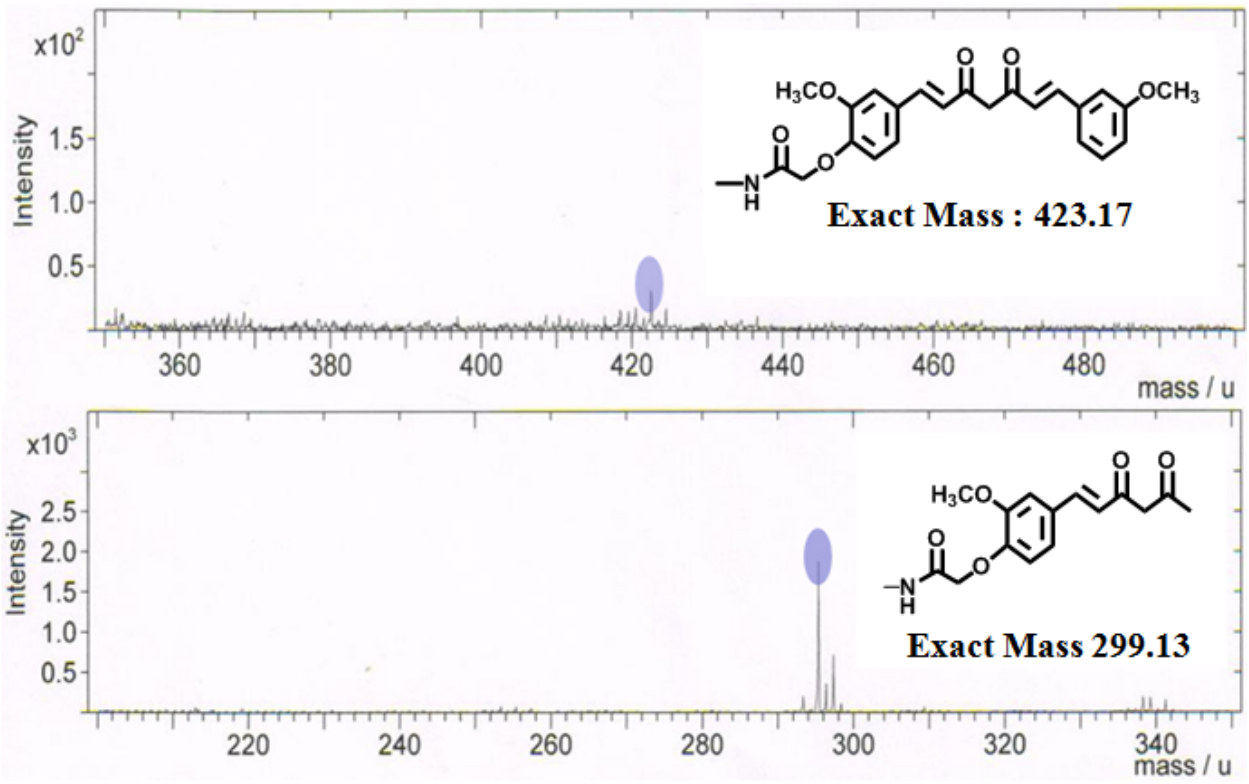


Fig. S5 TOF-SIMS spectra of **C-MHSP**.

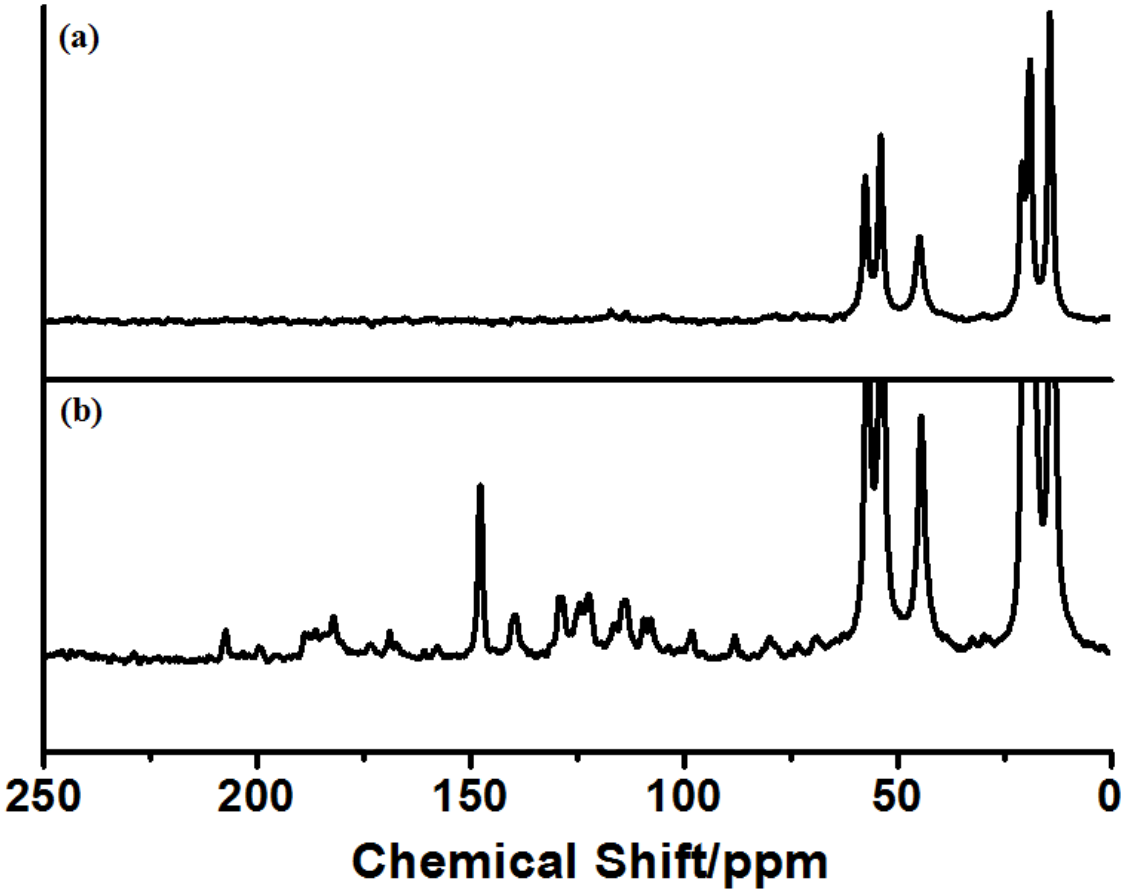


Fig. S6 ^{13}C CP/MAS NMR spectra of (a) **MHSP** containing acetylchloride as a linker and (b) **C-MHSP**.

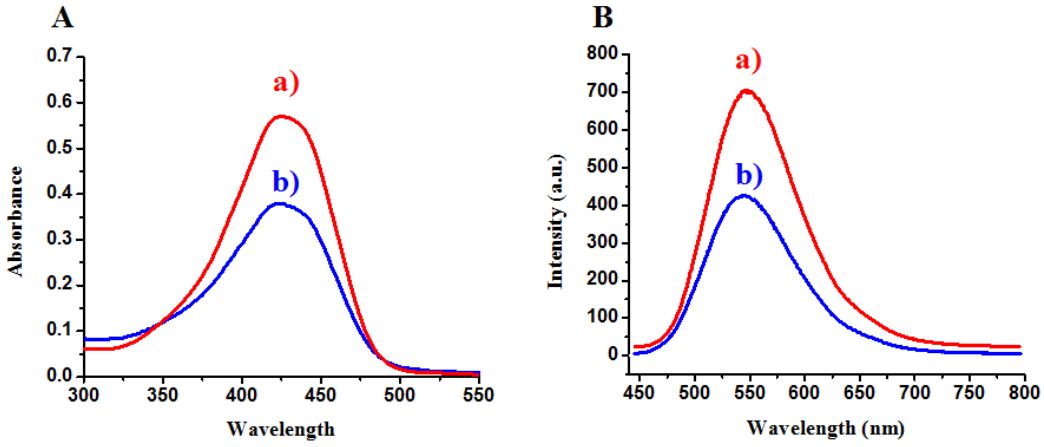


Fig. S7 A) Absorption spectra of (a) curcumin (1.0 x 10^{-4} M) and (b) aqueous dispersion of **C-MHSP (**1.0 mg**)**. B) Fluorescence spectra of (a) curcumin (2.0 x 10^{-6} M) and (b) aqueous dispersion of **C-MHSP** (1.0 mg).

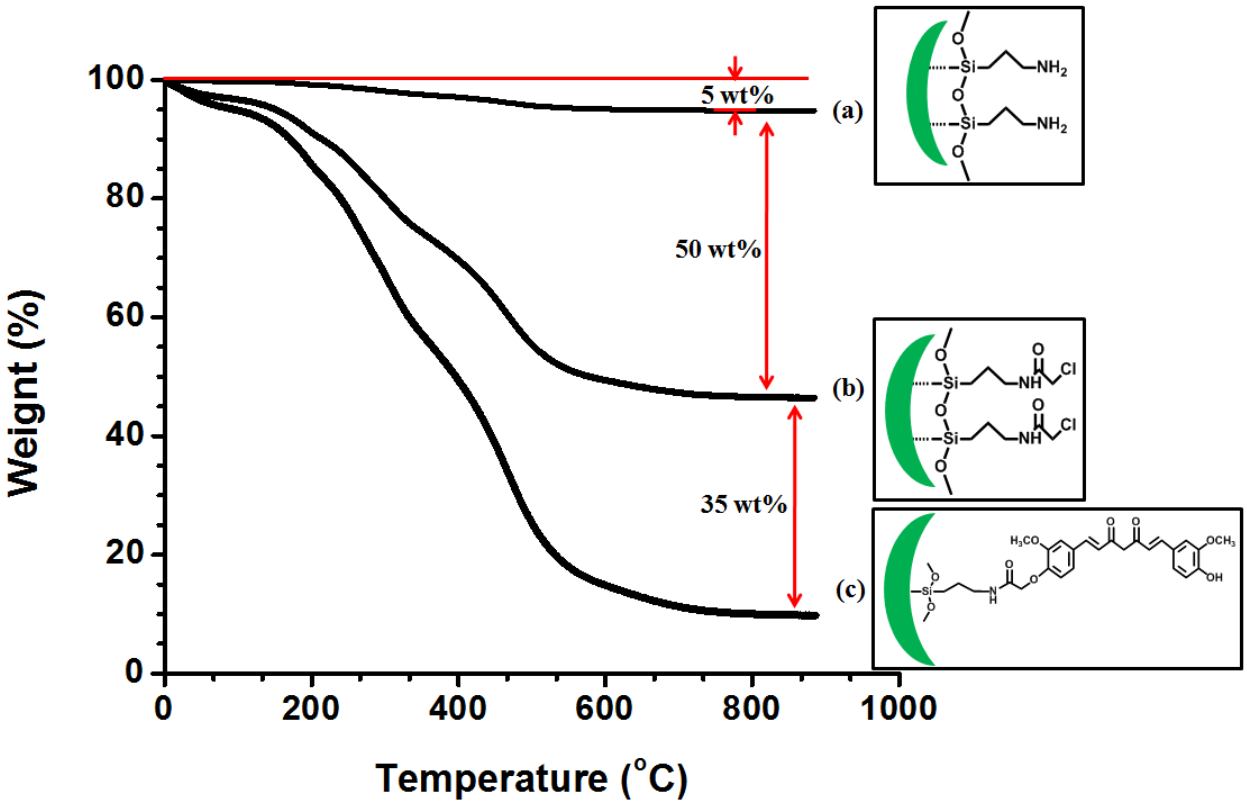


Fig. S8 TGA thermograms of (a) **MHSP**, (b) acetylchloride-appended **MHSP** and (c) **C-MHSP**.

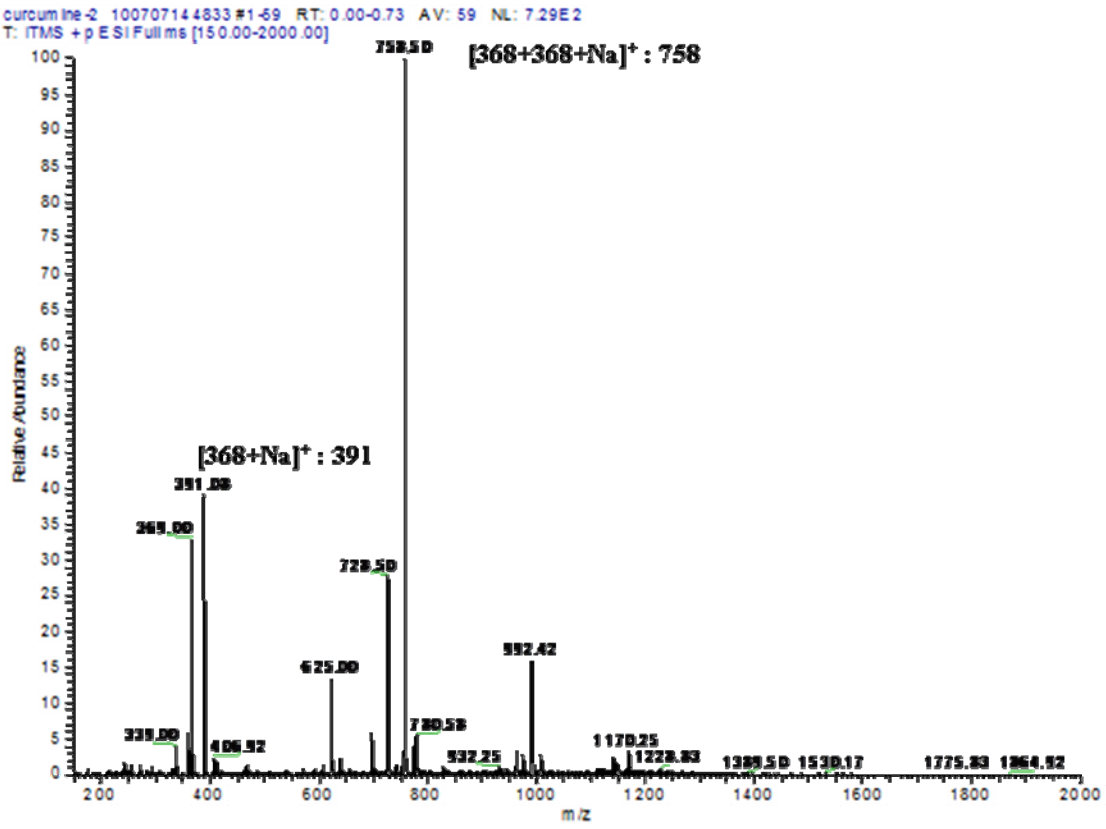


Fig. S9 ESI-MS spectrum of the product released from **C-MHSP** by treatment of NaOH.