Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supporting Information

Hierarchical hollow collapsed kippah-shaped silicalite-1 with controllable bimodal pore system by emulsion based steam assisted conversion approach

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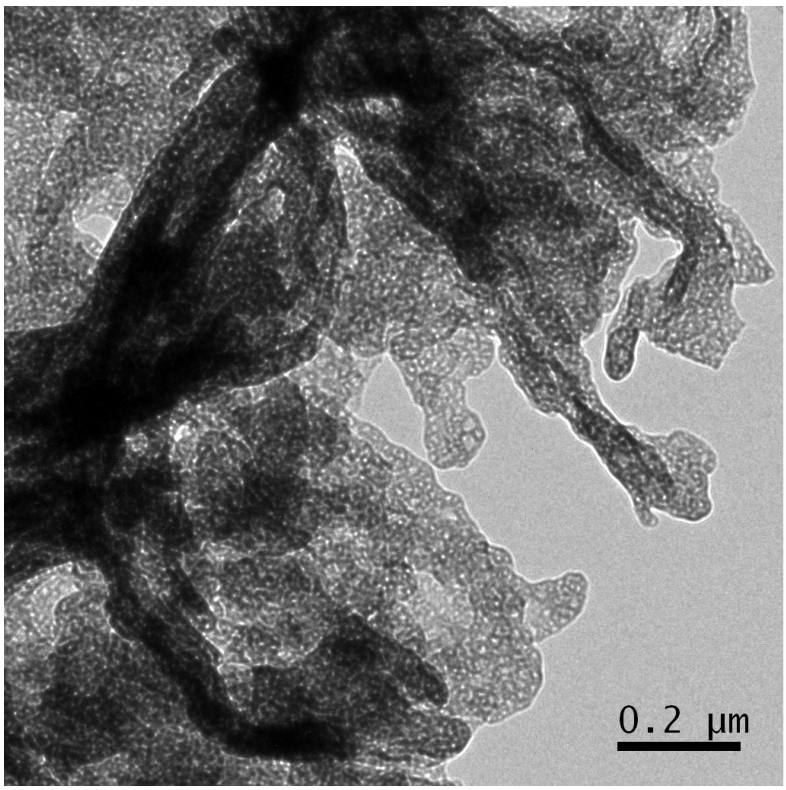

Fig. S1: TEM image of the broken kippah-shaped microstructure of silicalite-1 prepared with the stirring time of 20h *via* ESAC method at 170°C/ 72h.

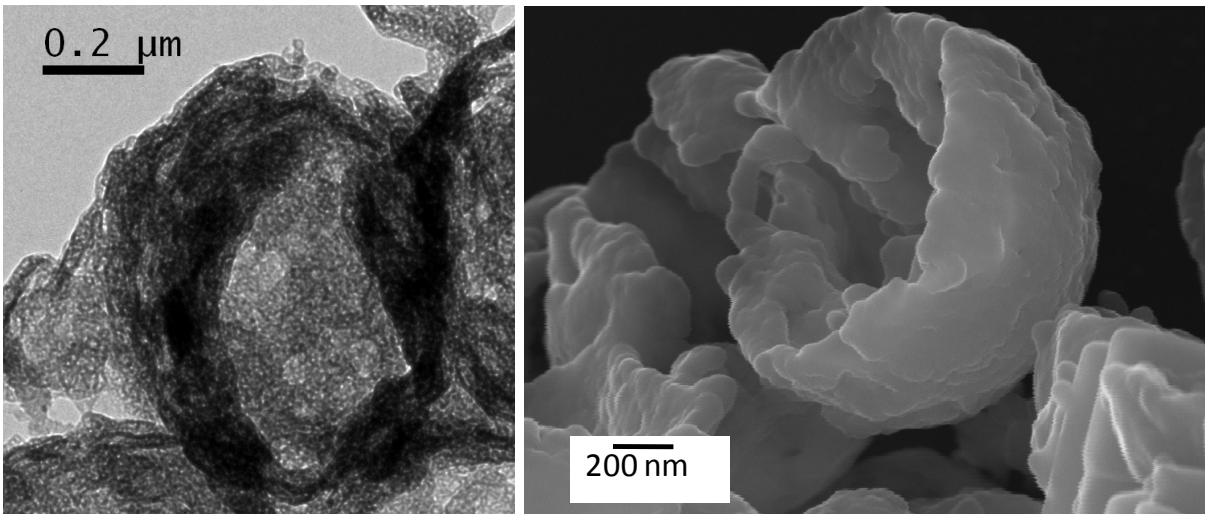

Fig. S2 : (a) TEM and (b) FESEM images of side views of the collapsed kippah silicalite-1 particles prepared with the stirring time of 20h *via* ESAC method at 170°C/ 72h.

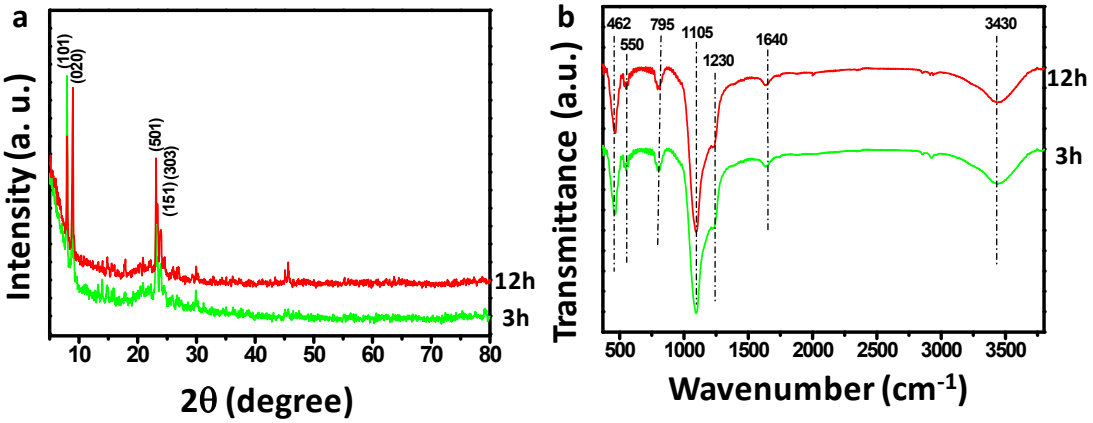

Fig. S3: (a) XRD patterns and (b) FTIR spectra of silicalite-1 prepared with the stirring times of 3h and 12h *via* ESAC method at 170°C/ 72h.

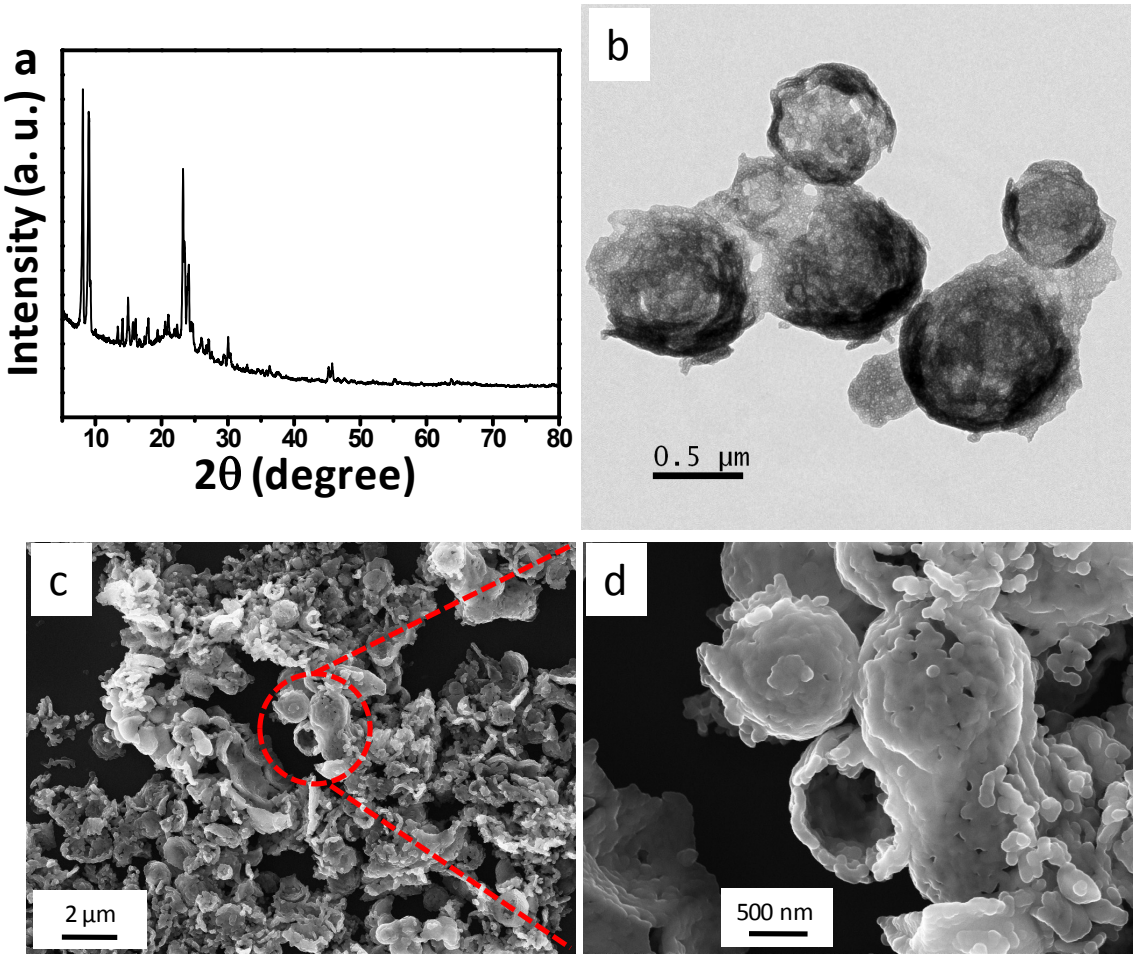

Fig. S4: (a) XRD pattern, (b) TEM and (c,d) FESEM images of silicalite-1 prepared with the stirring time of 30h *via* ESAC method at 170°C/ 72h.

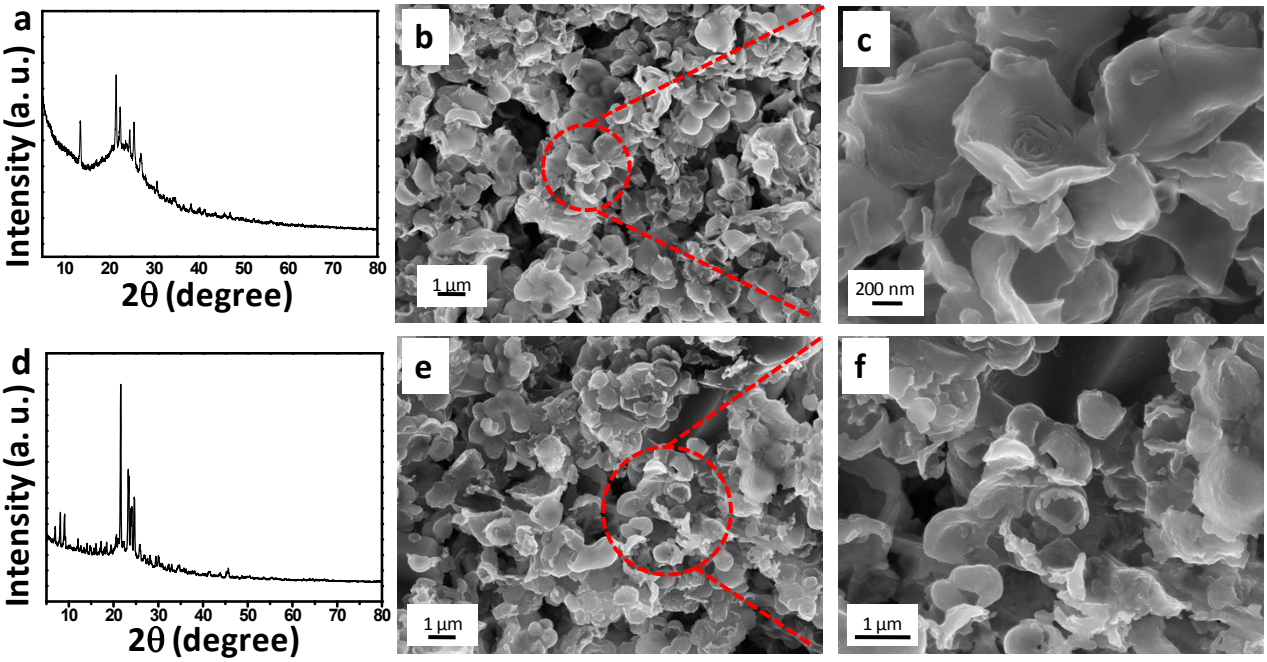

Fig. S5 : (a,d) XRD and (b,c,e,f) FESEM images of samples prepared with the stirring time of 20h, (a,b,c) before autoclaving (silica) and (d,e,f) after autoclaving (silicalite-1), respectively.

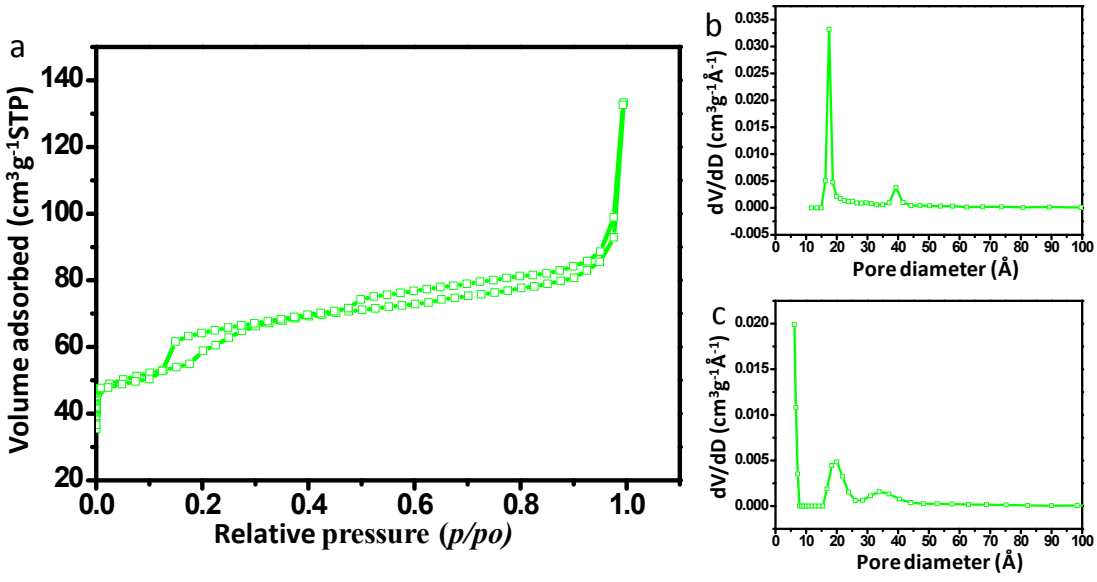

Fig. S6: (a) N_2 adsorption and desorption isotherms, pore size distributions (PSD) by (b) BJH and (c) DFT method of silicalite-1 prepared with the stirring time of 3h *via* ESAC method at 170°C/ 72h.

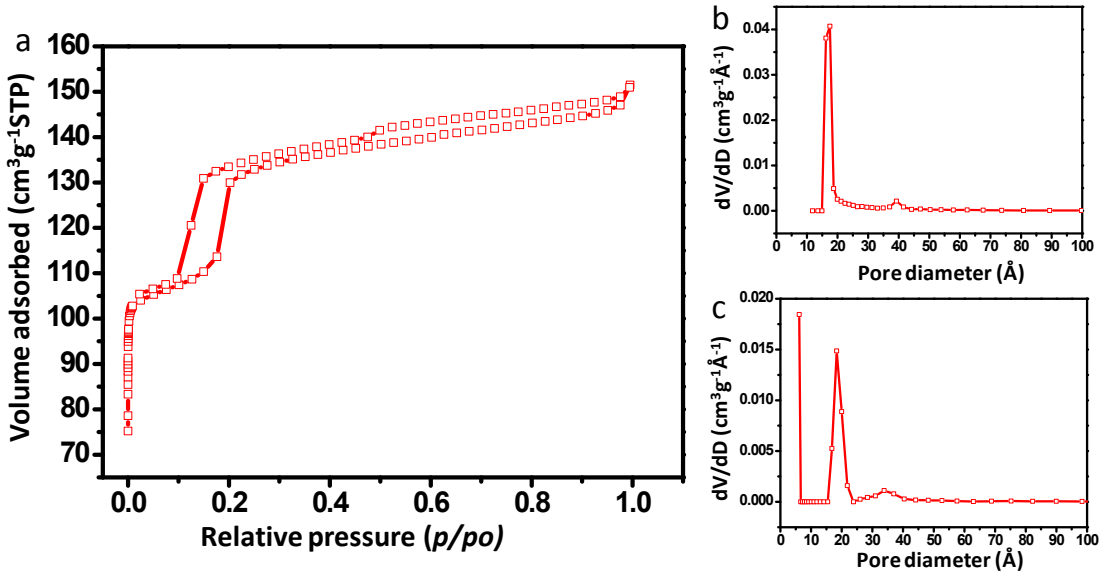

Fig. S7: (a) N_2 adsorption and desorption isotherms, pore size distributions (PSD) by (b) BJH and (c) DFT method of silicalite-1 prepared with the stirring time of 12h *via* ESAC method at 170°C/ 72h.

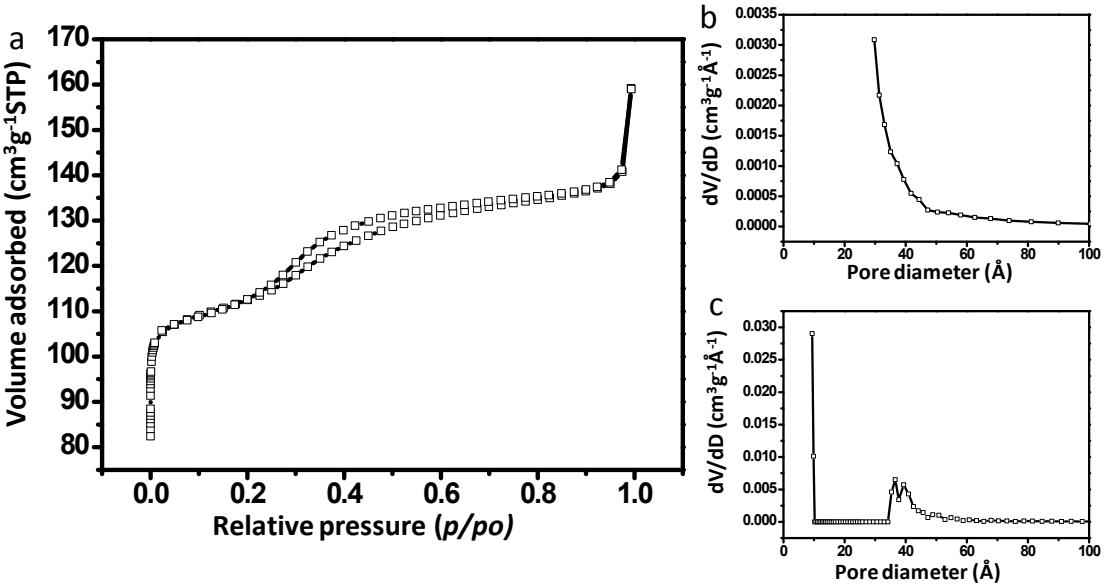

Fig. S8: (a) N_2 adsorption and desorption isotherms, pore size distributions (PSD) by (b) BJH and (c) DFT method of silicalite-1 prepared with the stirring time of 30h *via* ESAC method at 170°C/ 72h.

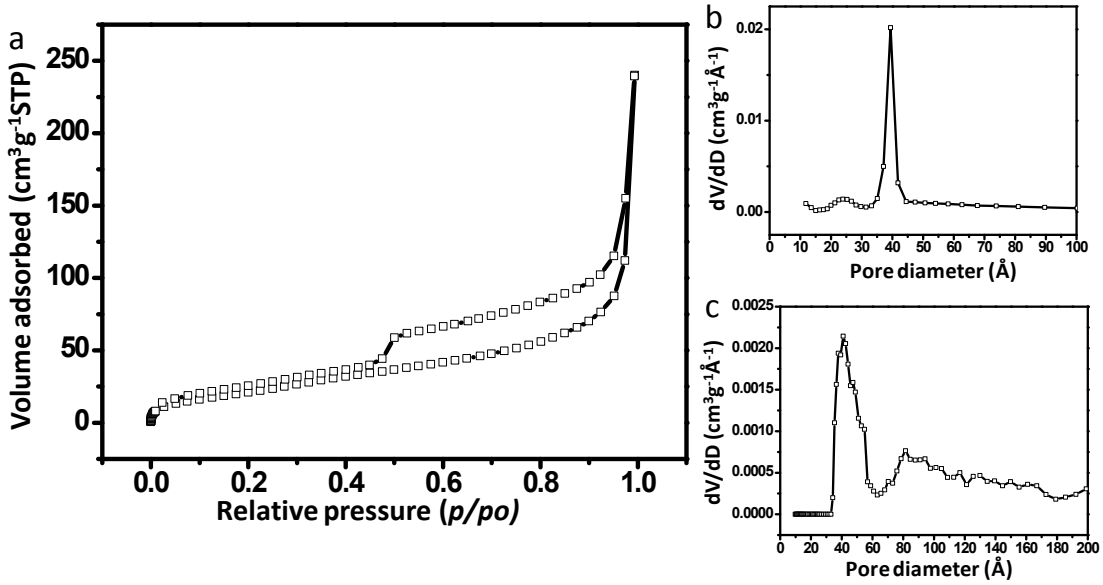

Fig. S9: (a) N_2 adsorption and desorption isotherms, pore size distributions (PSD) by (b) BJH and (c) DFT method of sample prepared with the stirring time of 20h before autoclaving.

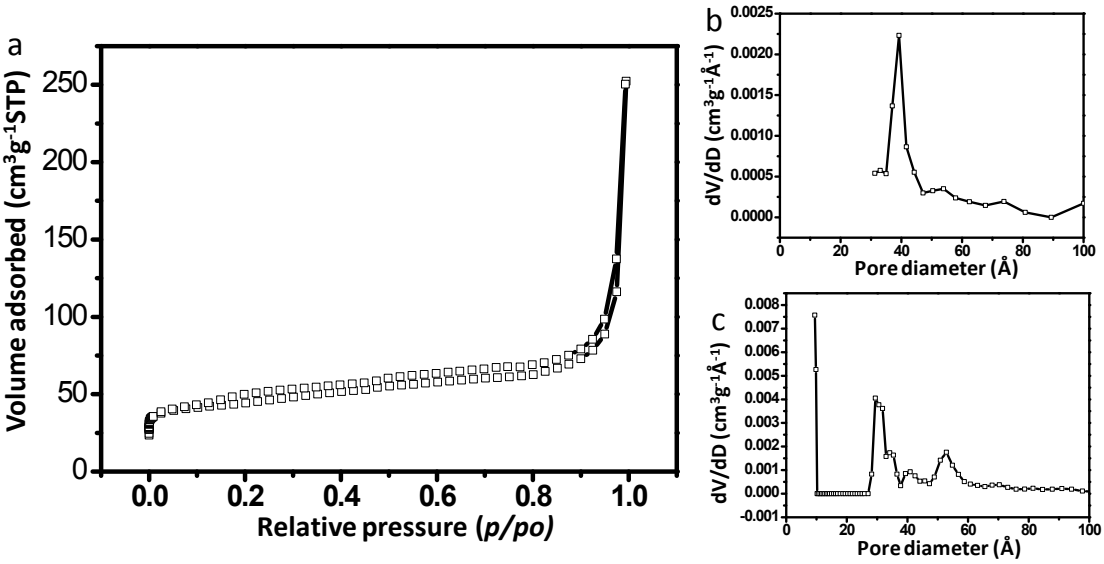

Fig. S10: (a) N_2 adsorption and desorption isotherms, pore size distributions (PSD) by (b) BJH and (c) DFT method of sample prepared with the stirring time of 20h after autoclaving.

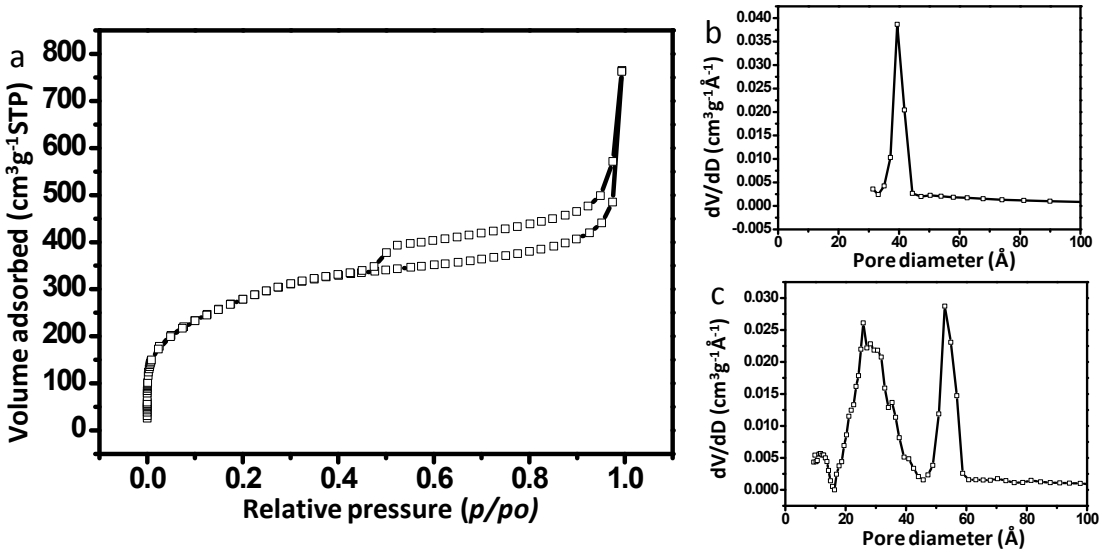

Fig. S11: (a) N_2 adsorption and desorption isotherms, pore size distributions (PSD) by (b) BJH and (c) DFT method of 550 °C calcined sample with the stirring time of 20h before autoclaving.

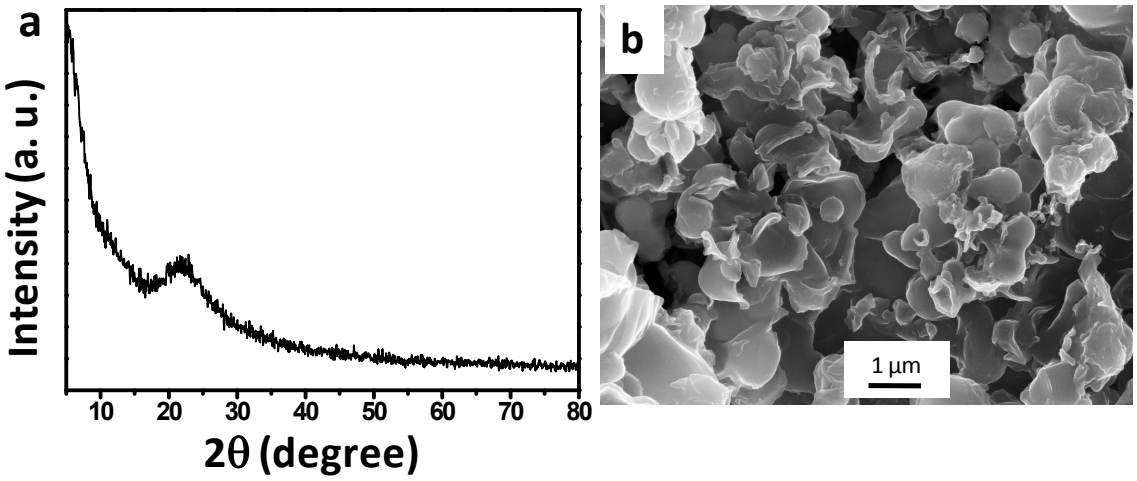

Fig. S12: (a) XRD and (b) FESEM image of the calcined sample at 550 °C with the stirring time of 20h before autoclaving step.

Table S1: The textural properties of S-20g, Z-20g, Z-20 and S-20

Sample Id	S_{BET} $(m^2g^{-1})^a$	$S_{Micropore}$ $(m^2g^{-1})^b$	$S_{external}$ $(m^2g^{-1})^c$	$V_{p\text{-}total}$ $(cm^3g^{-1})^d$	d_P $(Å)^e$
S-20g	80	-	80	0.37	184
Z-20g	159	58	101	0.39	98
Z-20	404	336	67	0.243	24
S-20	1017	528	487	1.18	46

[a] BET surface area. [b] Micropore surface area. [c] External surface area. [d] Total pore volume. [e] Average pore size.