Electronic Supplementary Material (ESI) for Journal of Materials Chemistry
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Electronic Supplementary Information

Organotemplate-free and one-pot fabrication of nano-rods assembled plate-like micro-sized mordenite crystals

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Synthesis of MOR-C: In a typical run, 1.076 g of $NaAlO_2$ solid were dissolved in 6.684 ml of deionized water, then 0.172 g of NaOH solid was added into above solution. After stirring for 30 minutes, 10.5 ml of silica sol were added dropwise into the solution. This gel has the same chemical composition as that of the gel for synthesizing MOR-N at $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$. After stirring for 2 h, this gel was transferred into an autoclave for crystallization at 180 ºC for 96 h.

Synthesis of Fe-MOR-N: In a typical run, 1.028 g of $NaAlO_2$ was dissolved in 6.684 mL of deionized water, followed by addition of 1.38 mL of MOR seeds solution. After stirring for 1 h, 10 mL of silica sol (31.5 wt%) were added dropwise. Then, 0.768 g of $Fe(NO_3)_3{\cdot}9H_2O$ was added, stirring for 1 h. After further stirring for 2 h, the final gel with a chemical composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O/0.15Fe_2O_3$ was transferred into an autoclave for crystallization at 180 ºC for 5-7 days.

Supplementary Figures Captions:

Fig. S1 XRD pattern of MOR-N crystallized at 180 ºC for 48 h in the presence of 1.38 mL of MOR seeds solution.

Fig. S2 SEM images of MOR-N in Run 3 (Table 1) after ultrasonic treatment for 1 h.

Fig. S3 SEM images of MOR-N (Run 3, Table 1) crystallized for 24h with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$.

Fig. S4 SEM images of MOR-C with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$.

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Fig. S5 SEM images of MOR-N in repeated Run 3 (Table 1) with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$.

Fig. S6 SEM images of MOR-N with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$ in Run 2 (a and b) and Run 4 (c and d) in Table 1.

Fig. S7 XRD patterns for MOR-C crystallized at 0 (bottom), 24, 48, 72 and 96 h (top), respectively.

Fig. S8 UV-Vis spectra of as synthesized Fe-MOR-N products with Si/Fe ratio at 44 (a) and 27 (b) in the products.

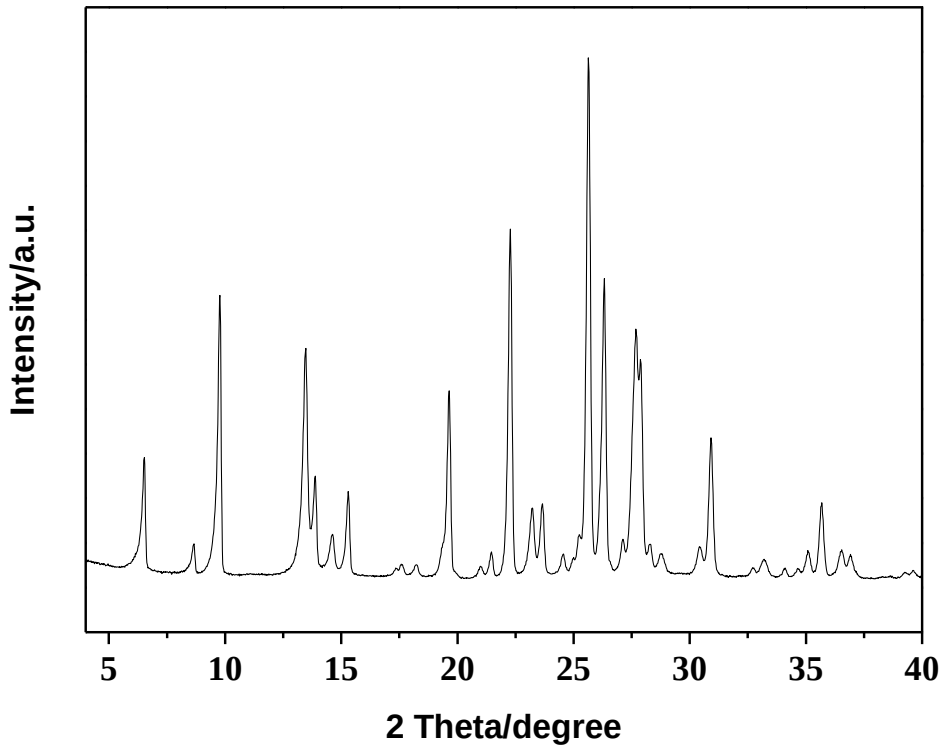

Fig. S1. XRD pattern of MOR-N crystallized at 180 ºC for 48 h in the presence of 1.38 mL of MOR seeds solution.

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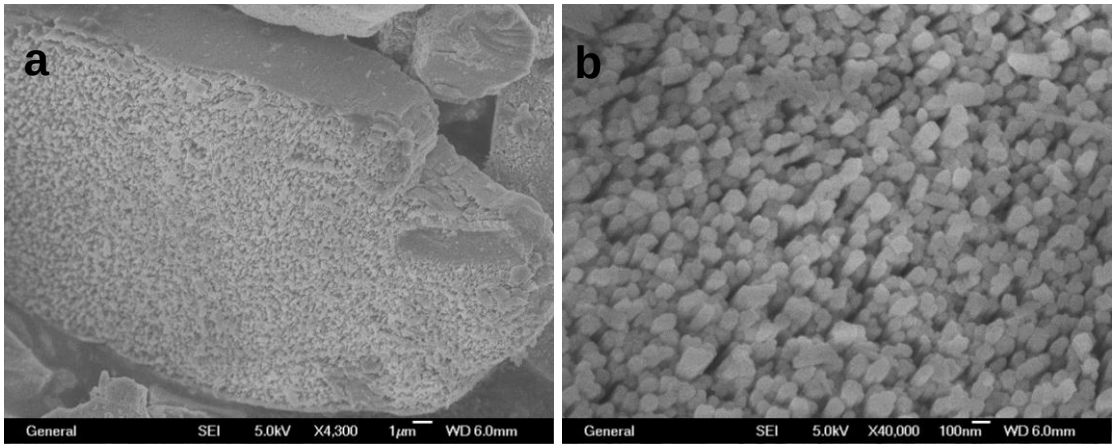

Fig. S2. SEM images of MOR-N in Run 3 (Table 1) after ultrasonic treatment for 1 h.

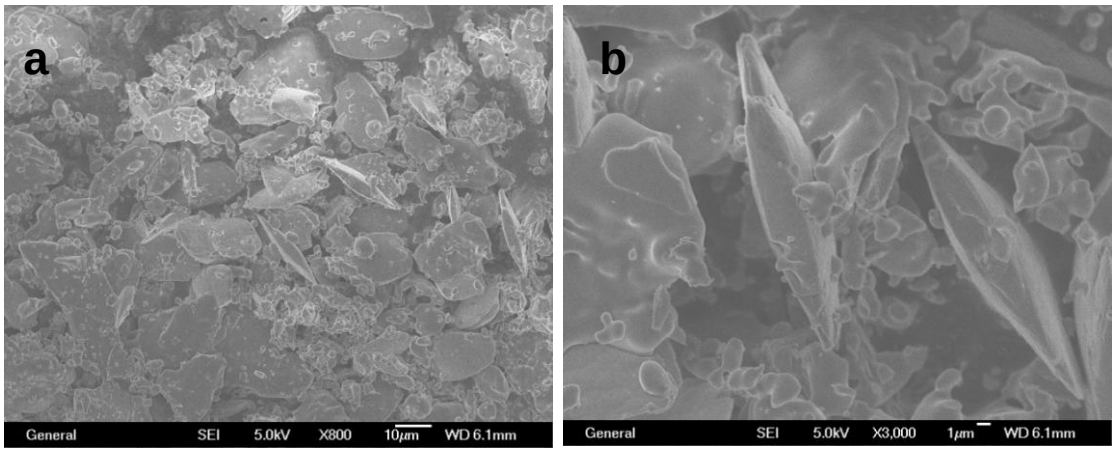

Fig. S3. SEM images of MOR-N (Run 3, Table 1) crystallized for 24h with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$.

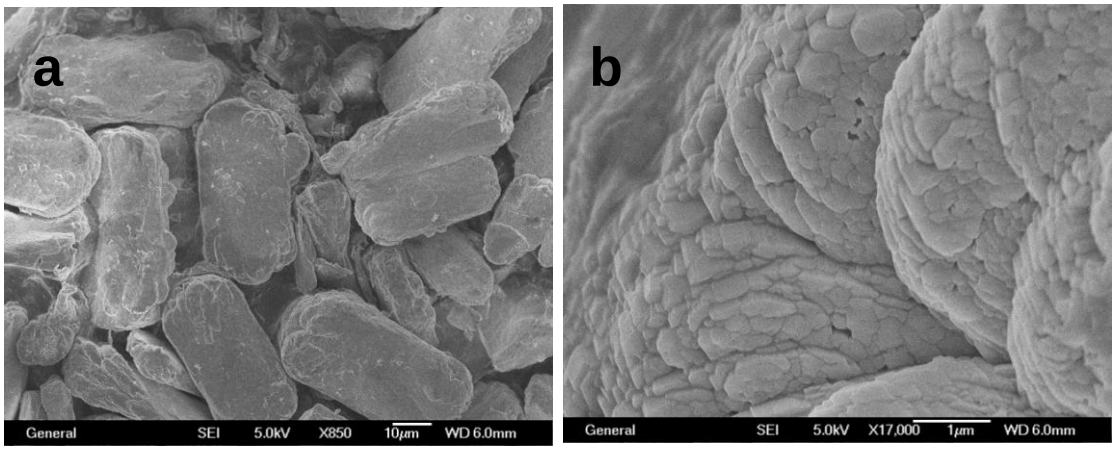

Fig. S4. SEM images of MOR-C with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$.

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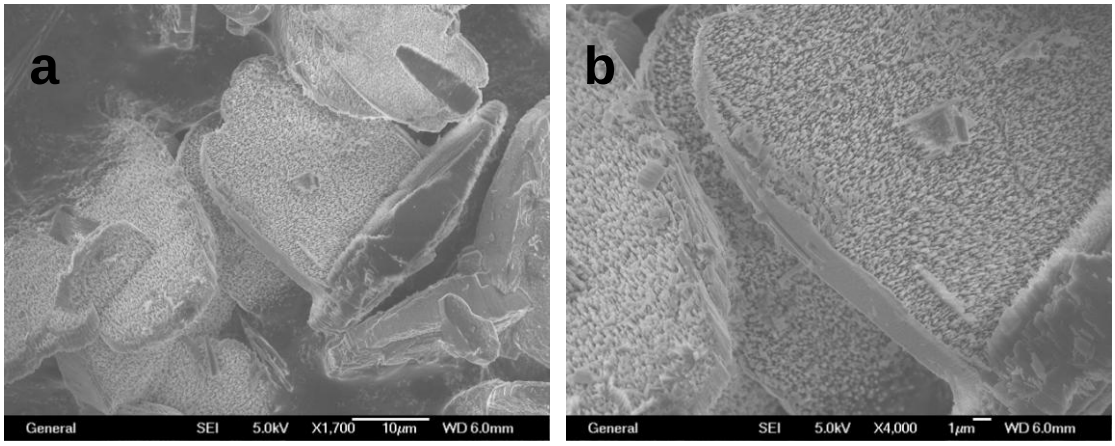

Fig. S5. SEM images of MOR-N in repeated Run 3 (Table 1) with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$.

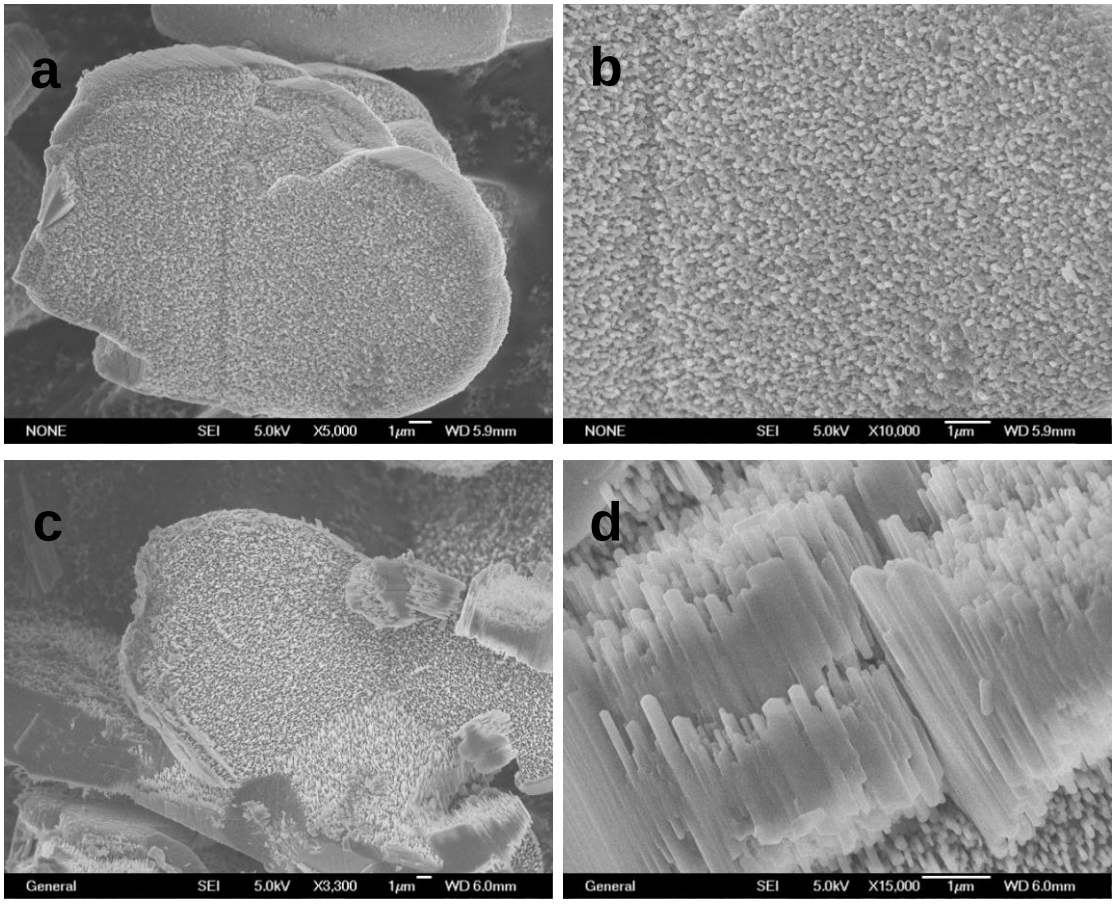

Fig. S6. SEM images of MOR-N with the gel composition of $15SiO_2/1Al_2O_3/1.9Na_2O/319H_2O$ in Run 2 (a and b) and Run 4 (c and d) in Table 1.

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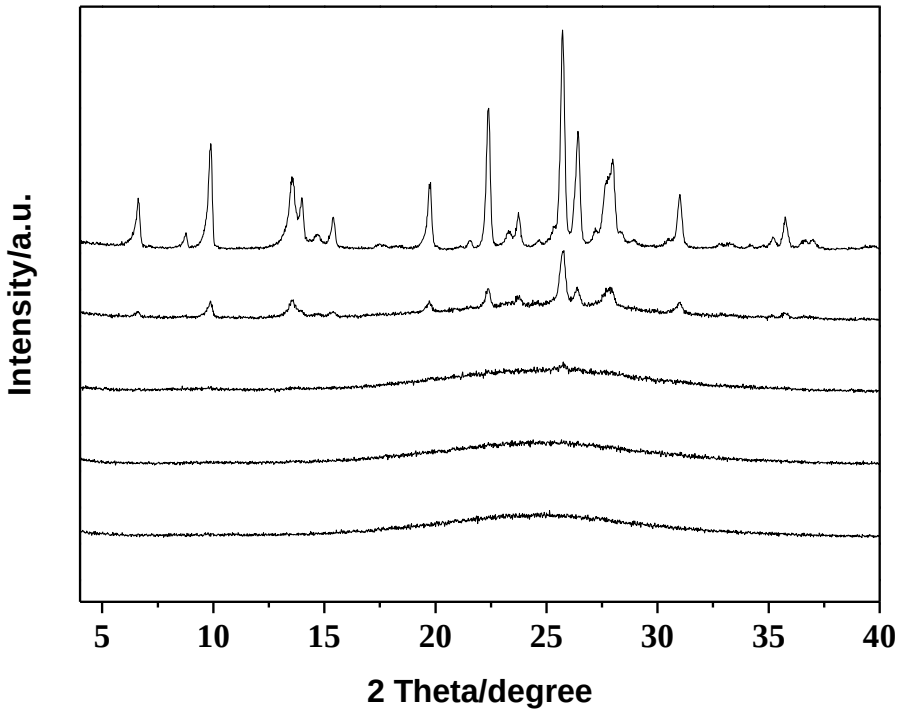

Fig. S7. XRD patterns for MOR-C crystallized at 0 (bottom), 24, 48, 72 and 96 h (top), respectively.

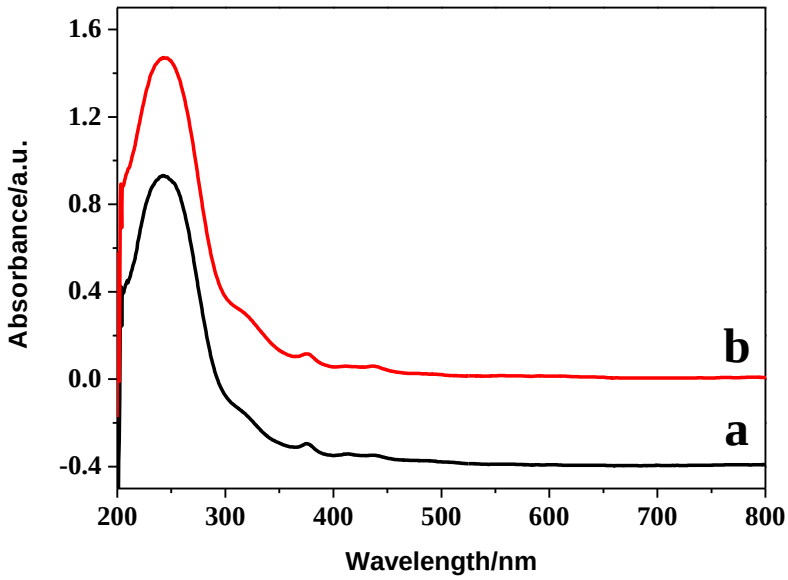

Fig. S8. UV-Vis spectra of as synthesized Fe-MOR-N with Si/Fe ratio at 44 (a) and 27 (b) in the final products.