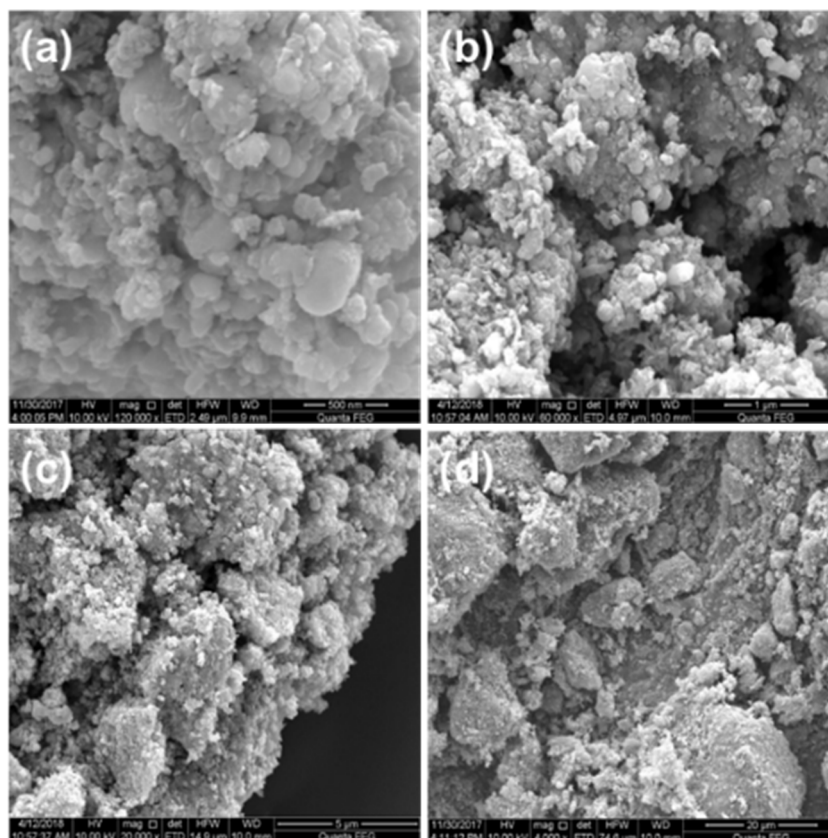
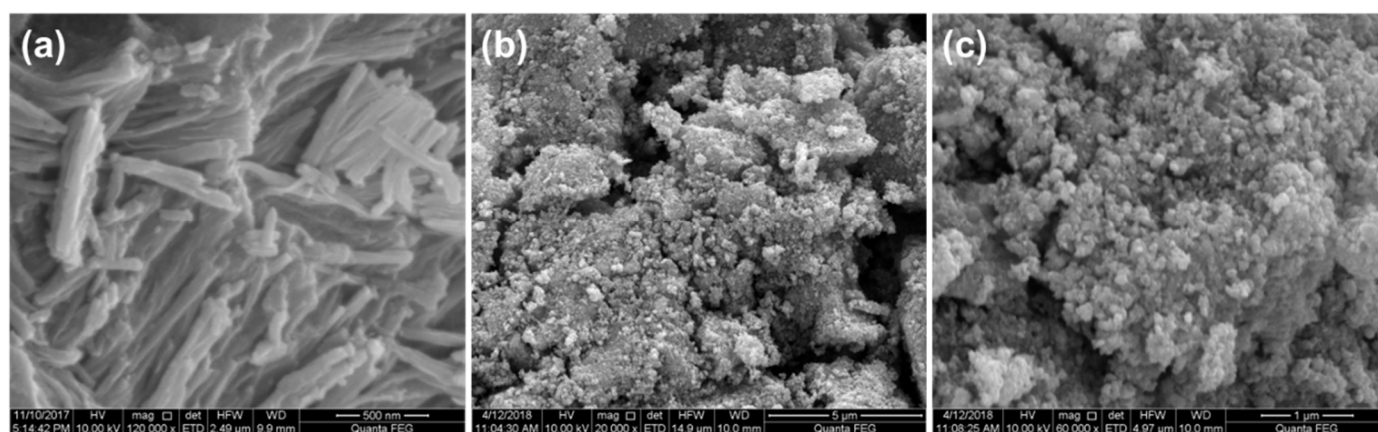


Supporting information

# Single-phase $\theta$ -Fe<sub>3</sub>C derived from Prussian blue and its catalytic application in Fischer-Tropsch synthesis



**Figure S1.** SEM images of the  $\theta$ -Fe<sub>3</sub>C sample.



**Figure S2.** SEM images (a) precursor of 6 wt% Mn/Fe<sub>3</sub>C. (b, c) 6 wt% Mn/Fe<sub>3</sub>C sample.

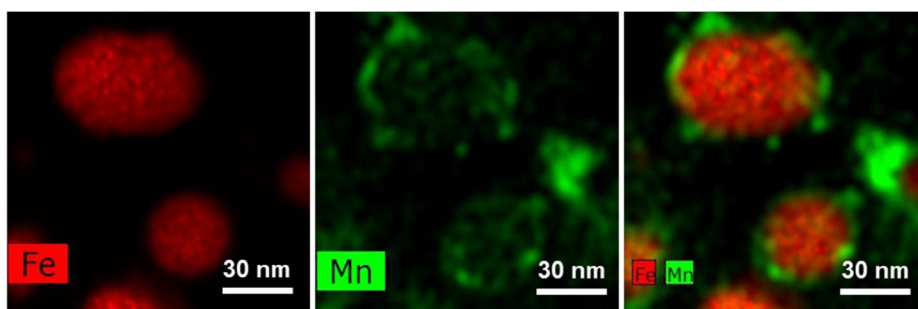


Figure S3. TEM elemental mapping images of 6 wt% Mn/Fe<sub>3</sub>C sample.

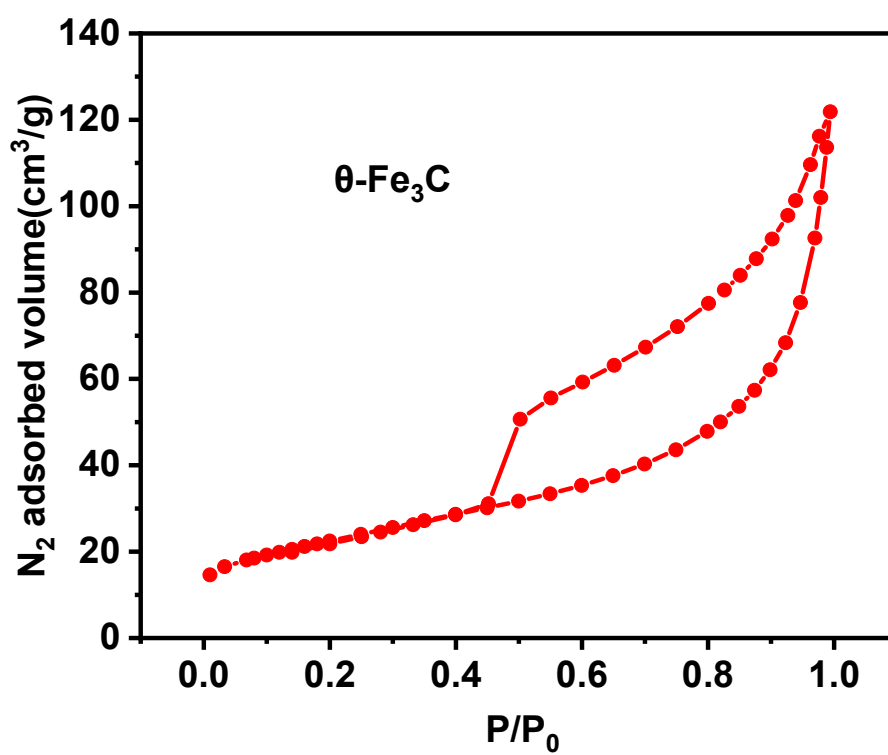


Figure S4. N<sub>2</sub> physisorption isotherm of  $\theta$ -Fe<sub>3</sub>C sample.

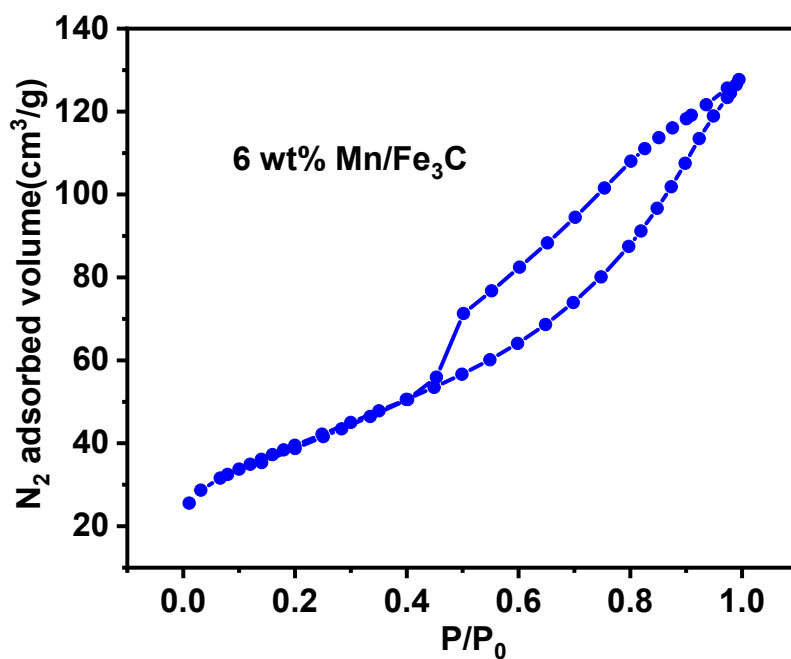


Figure S5. N<sub>2</sub> physisorption isotherm of 6 wt% Mn/Fe<sub>3</sub>C sample.

Table S1. Textural properties, crystallite size and manganese contents of samples.

Samples	Mn/Fe (wt%)	BET surface area (m <sup>2</sup> /g)	Crystallite size <sup>1</sup> (nm)
θ-Fe <sub>3</sub> C	0	81	32.3
6 wt% Mn/Fe <sub>3</sub> C	6.0	142	30.9

<sup>1</sup> The crystallite size was estimated from the Scherrer equation.

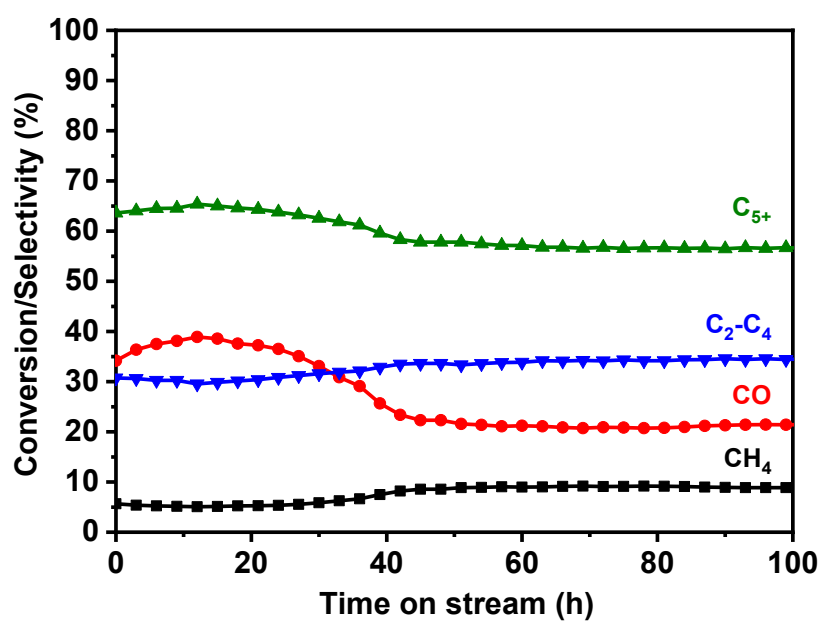


Figure S6. CO conversion and product selectivity of the 6 wt% Mn/Fe<sub>3</sub>C sample with the time on stream.