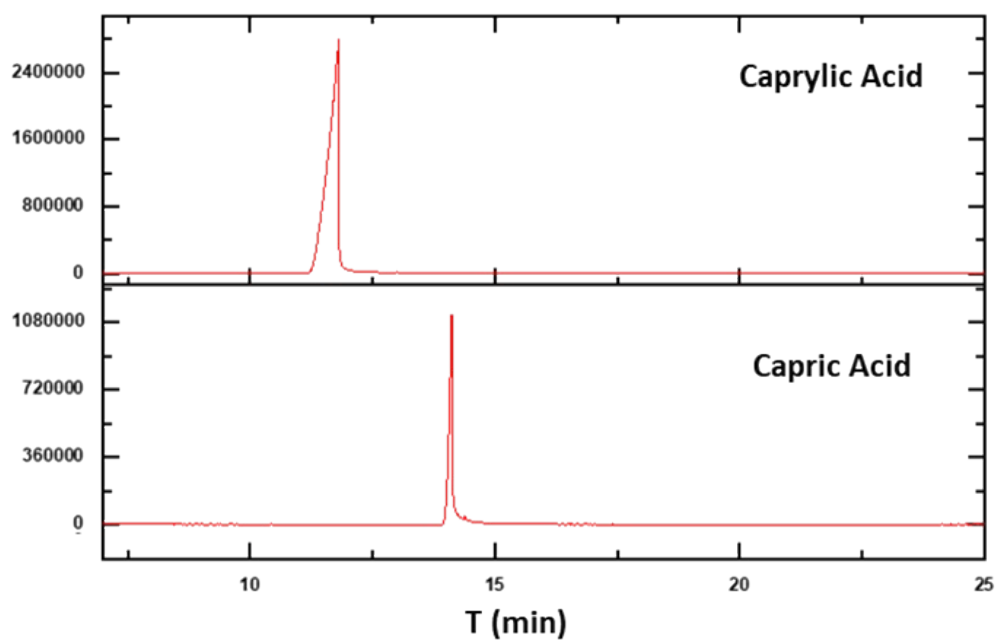
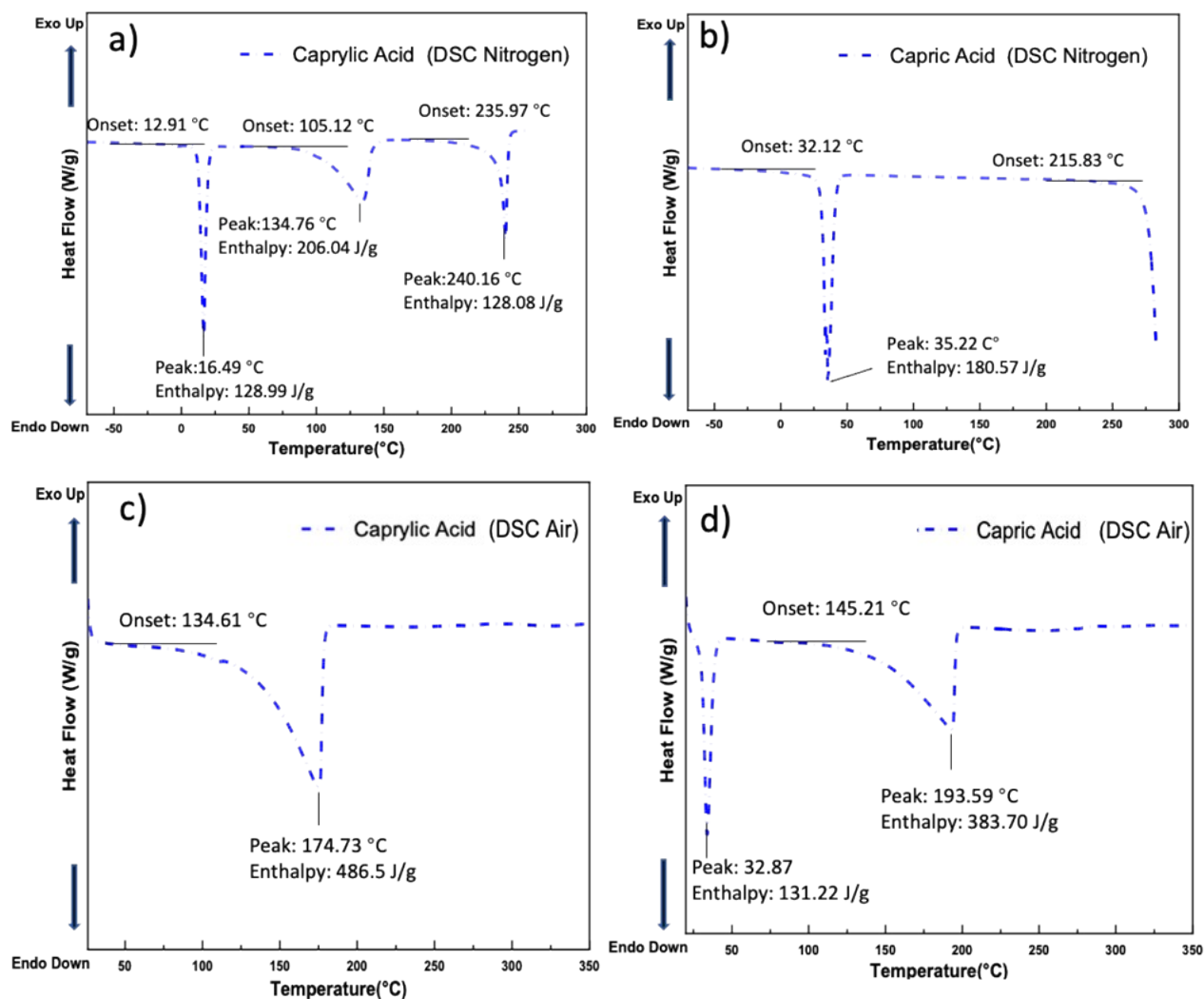


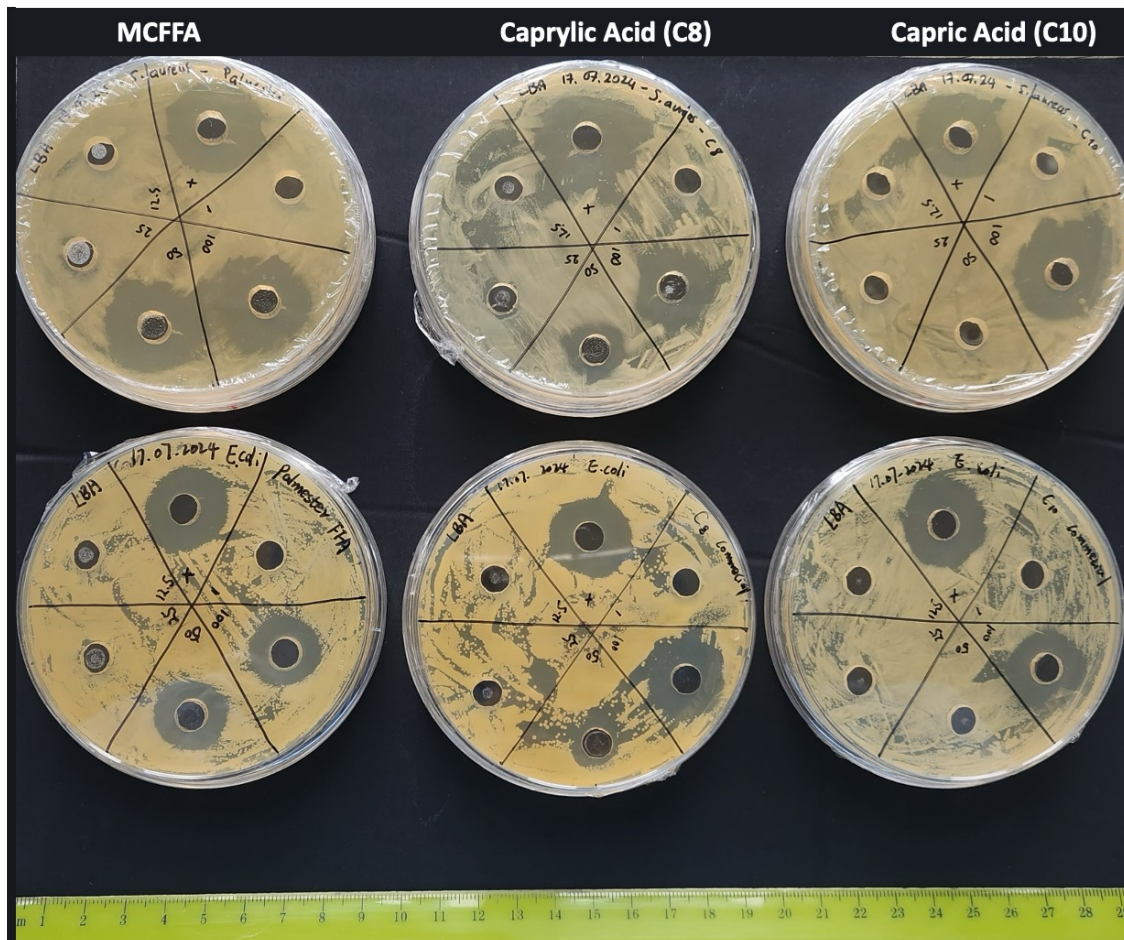
## Supplementary Information



**Figure S1.** GC chromatogram of commercial caprylic acid and capric acid.

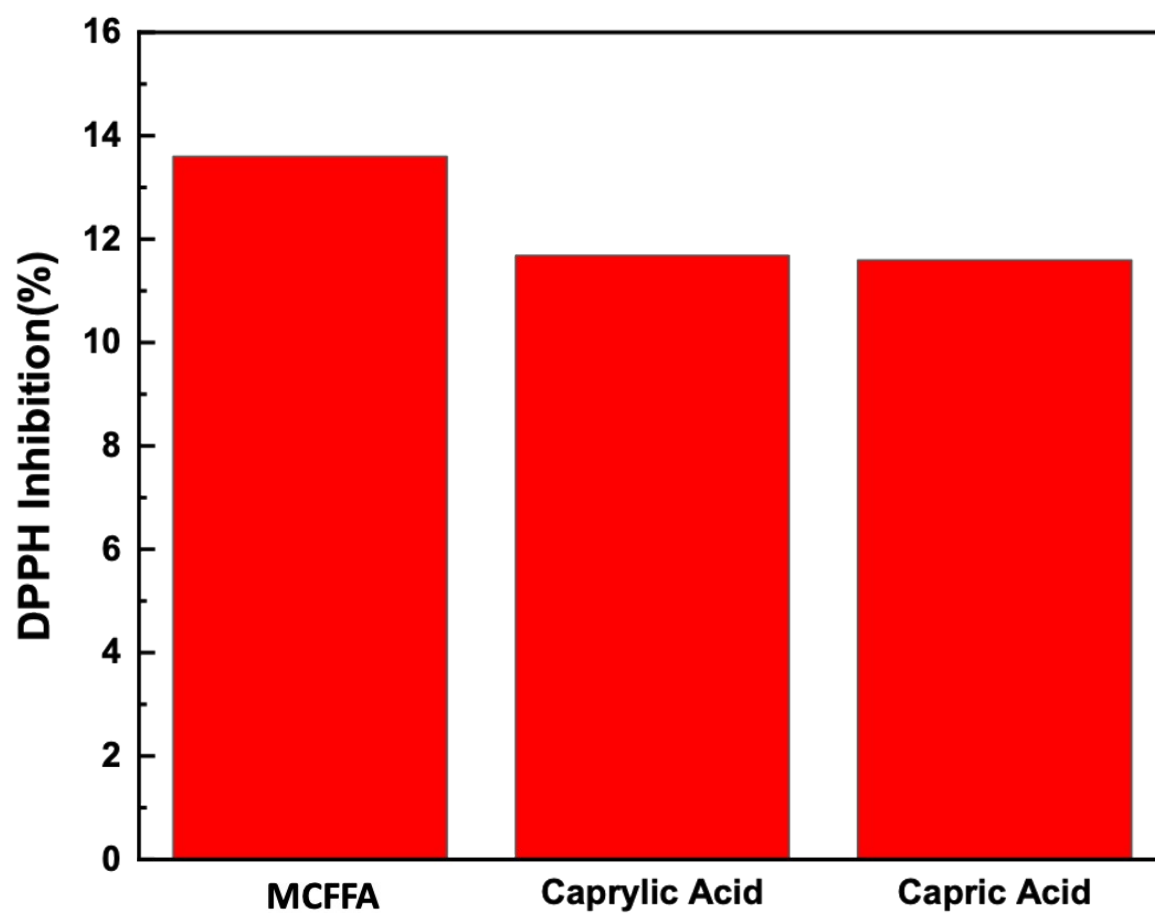


**Figure S2.** Differential Scanning Calorimetry (DSC) spectra of commercial caprylic acid and capric acid. **a)** and **b)** samples were analysed under the nitrogen atmosphere (DSC-2930, temperature range was set from -70°C to 300°C). **c)** and **d)** samples were analysed under the air atmosphere (DSC-8000, the temperature range was 25°C to 350°C).



**Figure S3.**

Antibacterial effects of VFD-produced MCFFA against *S. aureus* (top row) and *E. coli* (bottom row) using a range of concentrations. Ampicillin (50  $\mu\text{g/mL}$ ) served as the positive control (①), while 50% ethanol was used as the negative control (②). MCFFA was tested at 100 g/L (③), 50 g/L (④), 25 g/L (⑤), and 12.5 g/L (⑥) to evaluate its efficacy.



**Figure S4.** DPPH radical scavenging activity of VFD-produced MCFFA, commercial caprylic acid and capric acid.