Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Supplementary information

Engineering of Structure Formula in N-doped Molybdenum Carbides Nanowires for Deoxygenation of Palmitic Acid

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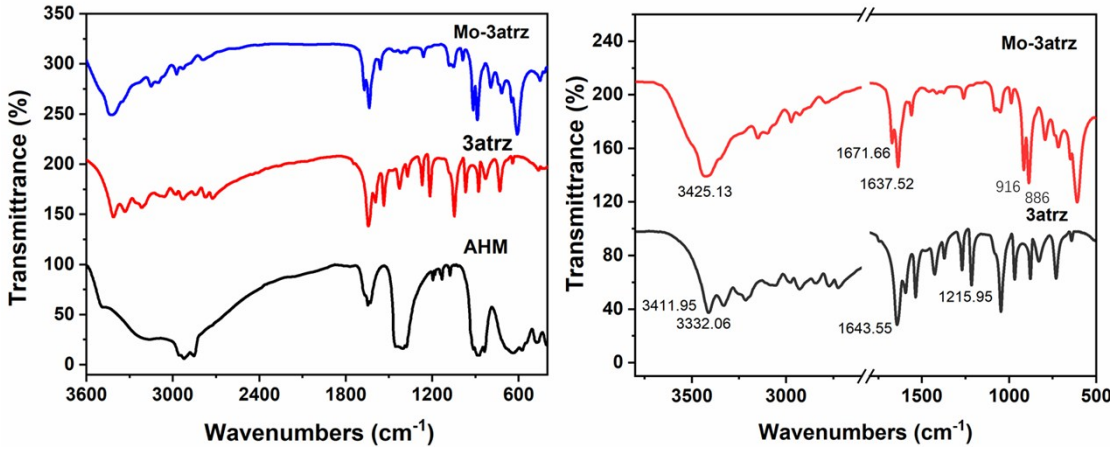

Fig. S1 FTIR spectra of ammonium heptamolybdate (AHM), 3-amino-1,2,4-triazole (3atrz) and Mo-3atrz.

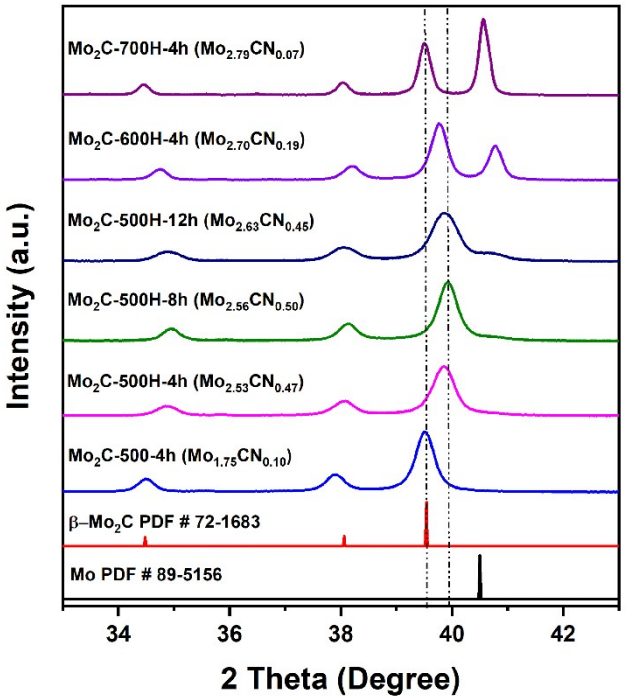

Fig. S2 The XRD pattern of the as-prepared samples obtained at different carburization parameters.

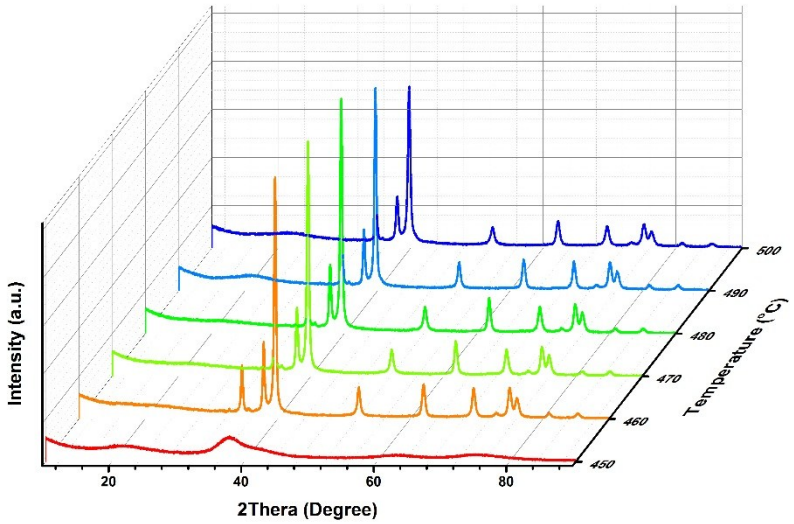

Fig. S3 XRD patterns of samples obtained via pyrolysing the Mo-3atrz precursor at (different temperature (450-500/10^{o}C) for 4 h in Ar/H_2 with a ramp rate of 5 ^{o}C min^{-1}.

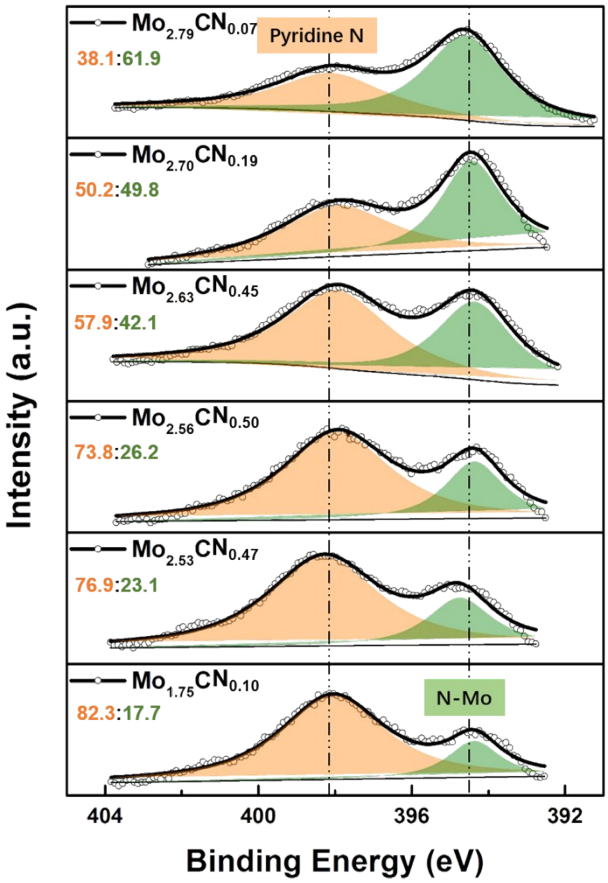

Fig. S4 N 1s XPS spectra of the as-prepared Mo_xCN_y nanowires

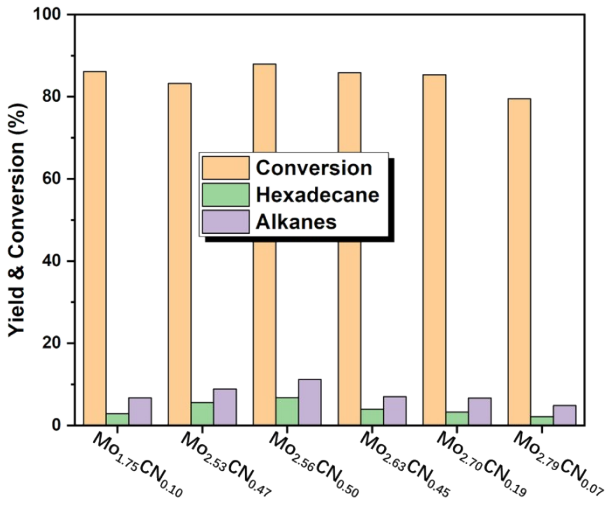

Fig. S5 Comparison of the alkanes and hexadecane yields for palmitic acid conversion over Mo_xCN_y. at similar conversion (78~88 %). Reaction conditions: 300 ^oC and 4 MPa, 0.05 g catalyst.

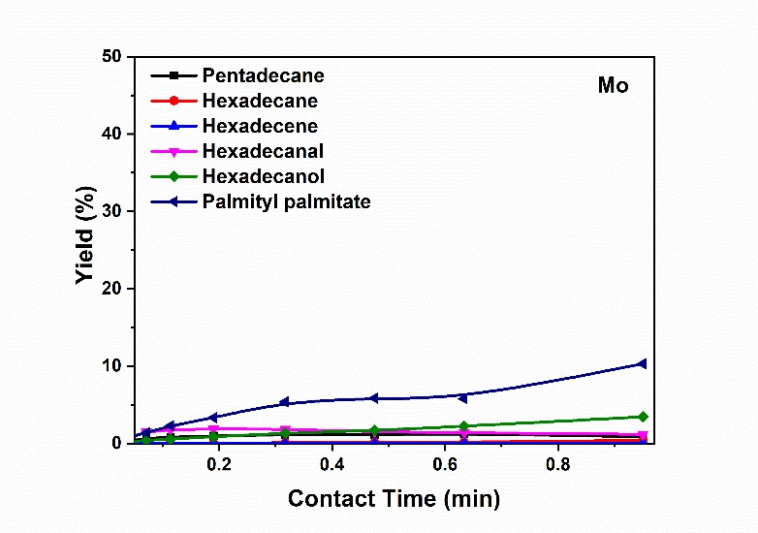

Fig. S6 Conversion of palmitic acid over Mo. PA conversion conditions: 0.05g Mo, 300 ^{o}C and 4 MPa.

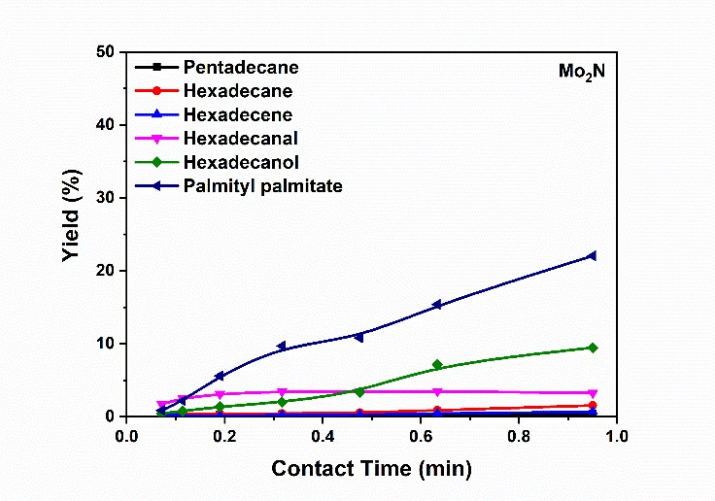

Fig. S7 Conversion of palmitic acid over Mo_2N obtained by nitriding MoO_3 in NH_3. PA conversion conditions: 0.05g Mo_2N, 300 ^oC and 4MPa.