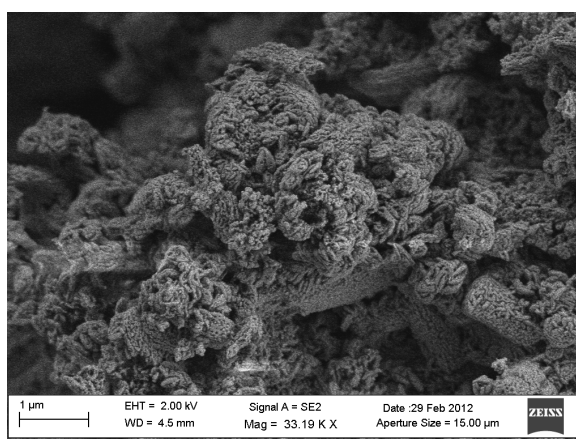
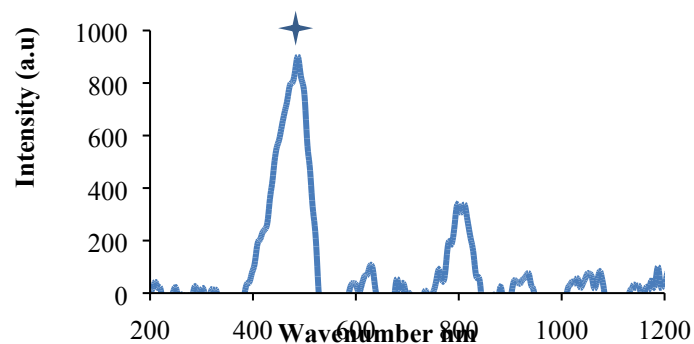


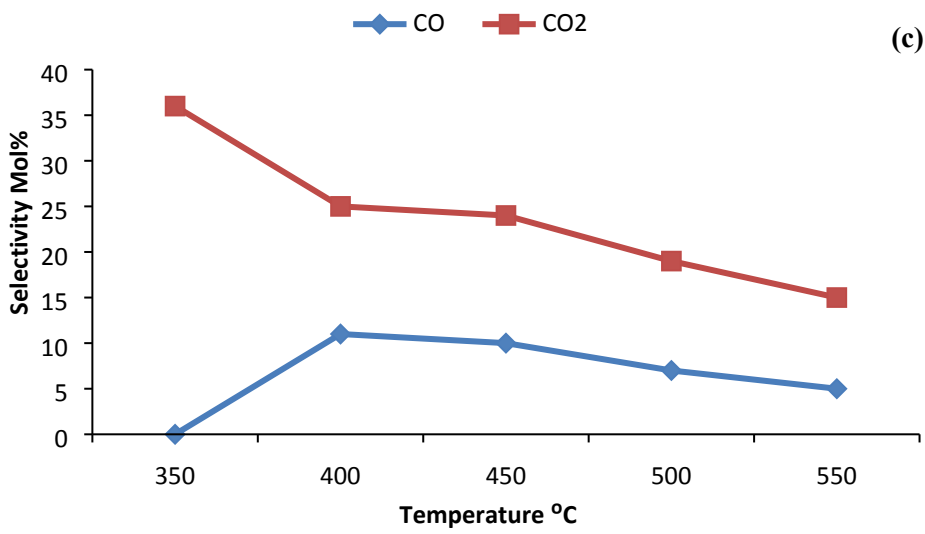
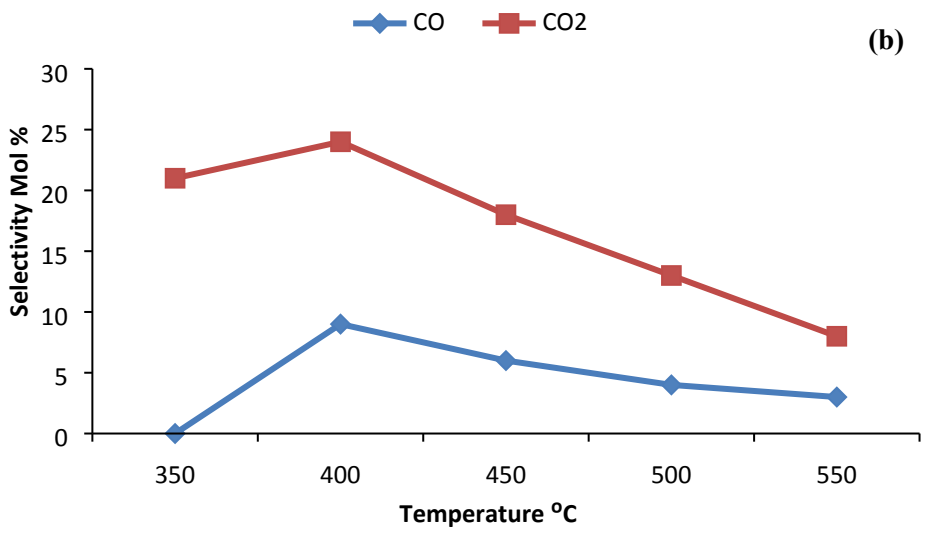
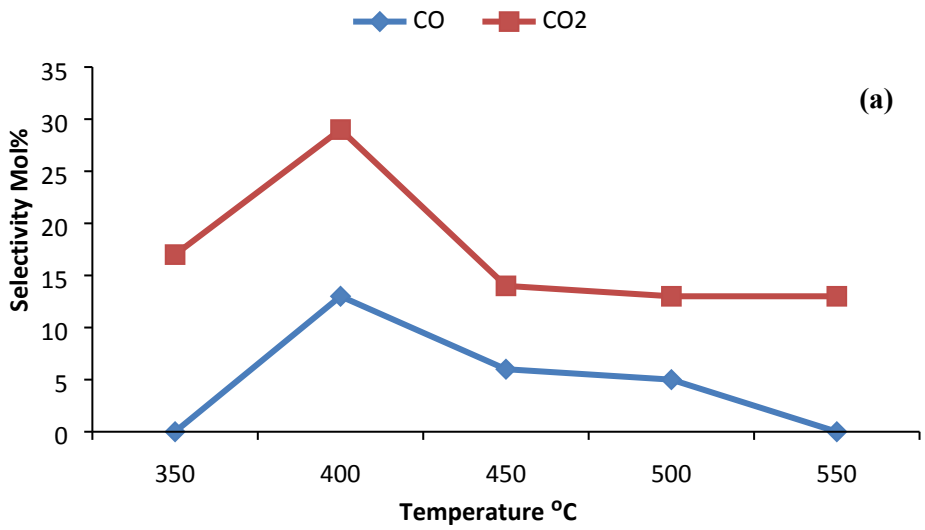
Supporting information

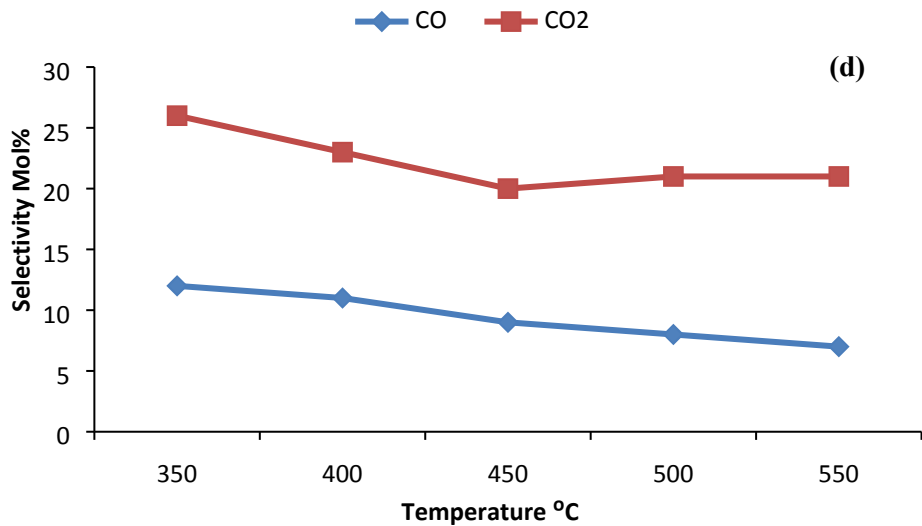


S 1: SEM image of the cobalt molybdate catalyst, showing the presence of both cobalt molybdate and molybdenum trioxide.

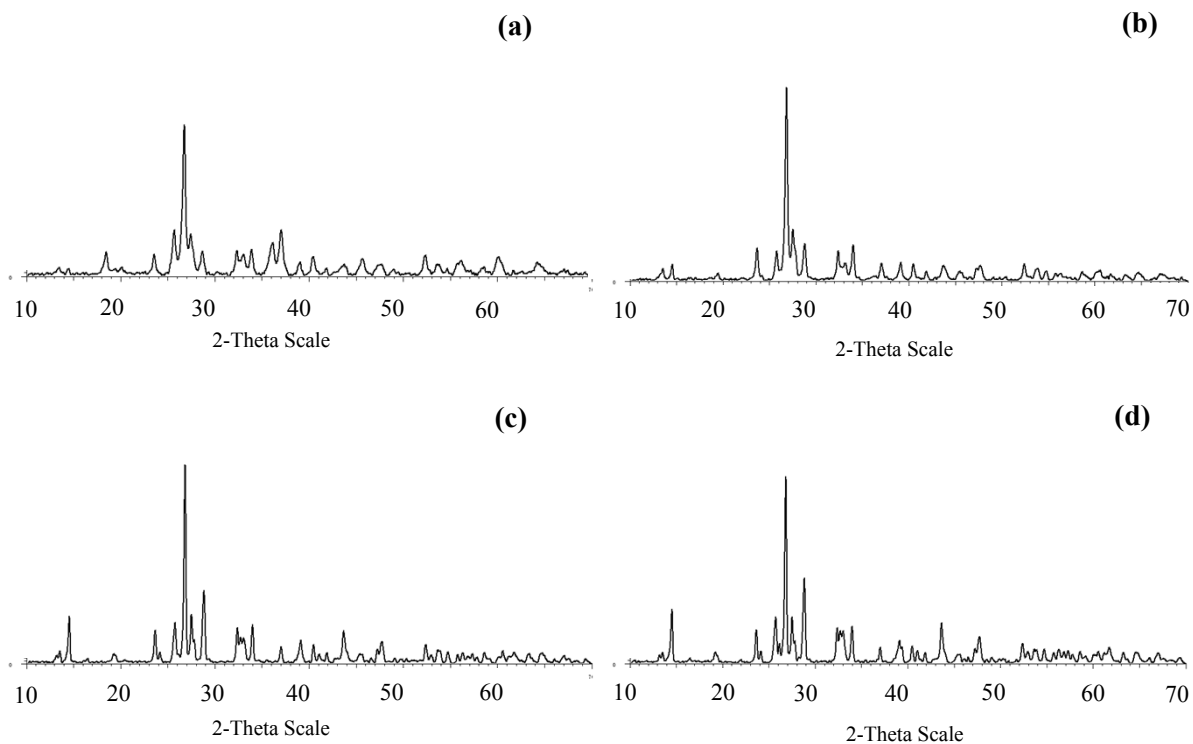


S 2: Raman spectrum of the used catalyst under *n*-octane at an 8:0 C:O ratio at 4000 h⁻¹, ✦(cobalt oxide)





S 3: The effect of the oxygen concentration in the ODH of *n*-octane on the ratio of CO and CO₂, C:O 8:1 (a), 8:2 (b), 8:3 (c) and 8:4 (d)



S4: XRD patterns of the used catalysts tested under different oxygen content in the activation of the *n*-octane at a GHSV of 4000 h⁻¹, a (8:1), b (8:2), c (8:3) and d (8:4).