

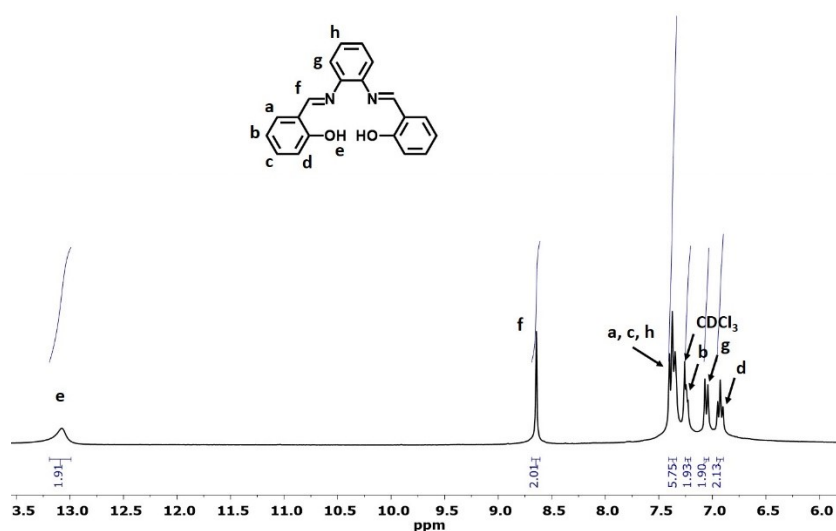
## Supporting Information

### Insertion of CO<sub>2</sub> to 2-methyl furoate promoted by a cobalt hypercrosslinked polymer catalyst to obtain a monomer of CO<sub>2</sub>-based biopolyesters

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**Figure S1.** <sup>1</sup>H-NMR of N,N'-phenylenebis(salicylideneimine) (salphen)

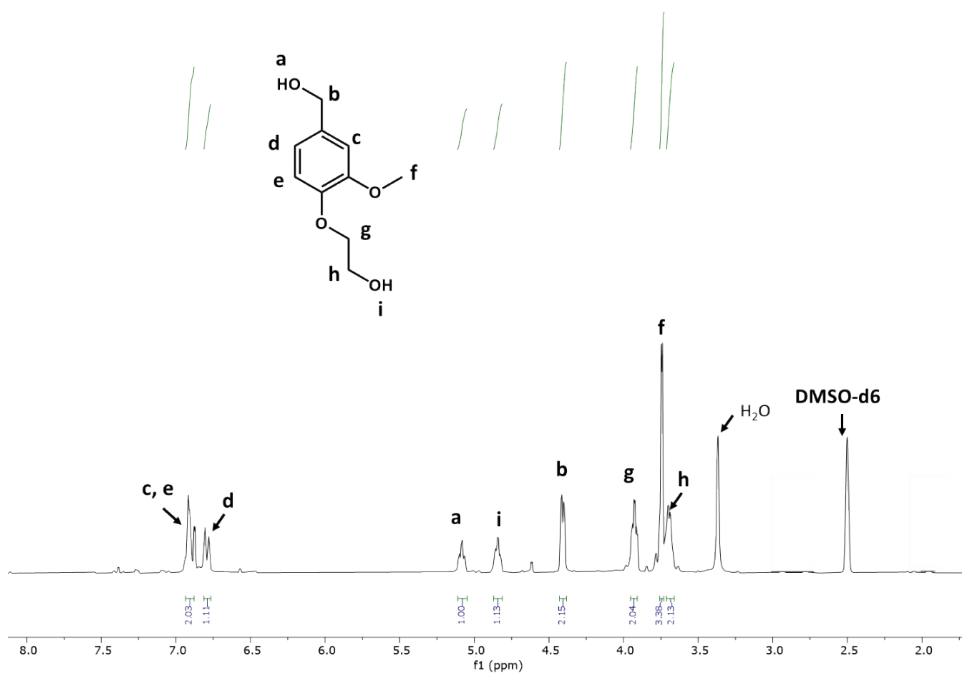


Figure S2. <sup>1</sup>H-NMR of 2-(4-(Hydroxymethyl)-2-methoxyphenoxy)ethanol (Va-Diol)

Seq. No.	6	AS Loc:	14	Date:	2023/04/10 12:10:55
Sample ID:	HCP-SalphenCo(I)				
Analyte	Conc (Calib)	Conc (Sample)	Net Intensity	Corr. Intensity	Time
Co 228.616	35.73 mg/L	35.73 mg/L		1.616.484,9	2023/04/10 12:10:45
	35.32 mg/L	35.32 mg/L	1.598.226,8	1.598.204,0	2023/04/10 12:10:50
	35.05 mg/L	35.05 mg/L	1.586.465,0	1.586.442,2	2023/04/10 12:10:55
Mean:	35.37 mg/L	35.37 mg/L		1.600.377,0	
SD:	0.342 mg/L	0.342 mg/L			
%RSD:	0,97				

Figure S3. ICP analysis of HCP-Salphen-Co

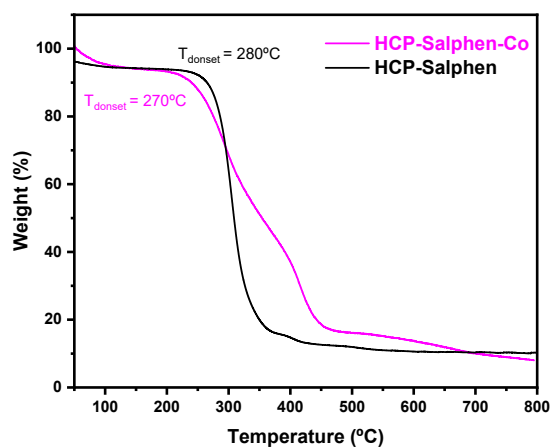
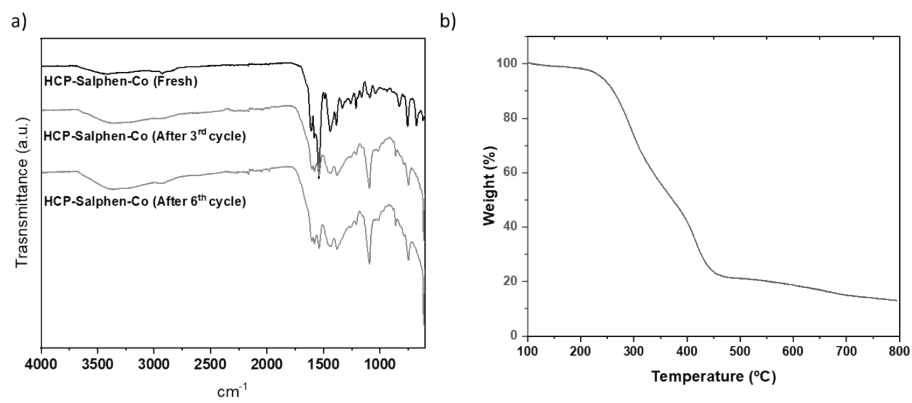
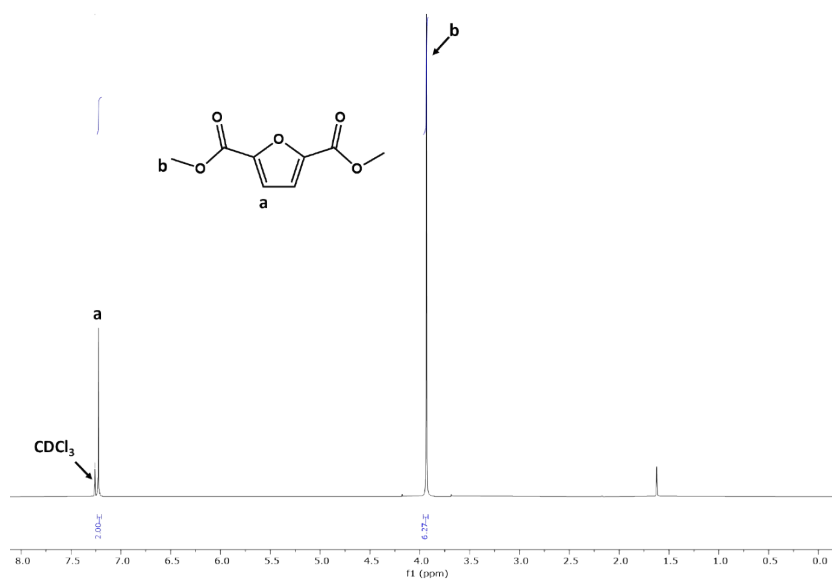


Figure S4. TGA of HCP-Salphen-Co and HCP-Salphen



**Figure S5.** a) FTIR and b) TGA of recycled HCP-Salphen-Co



**Figure S6.** <sup>1</sup>H-NMR of commercial FDME

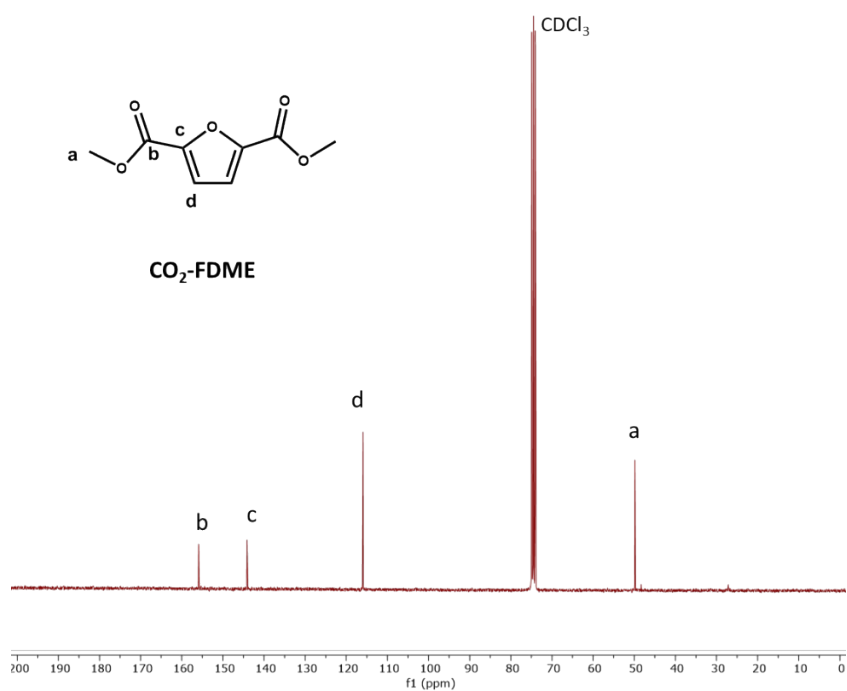


Figure S7.  $^{13}\text{C}$ -NMR of  $\text{CO}_2\text{-FDME}$

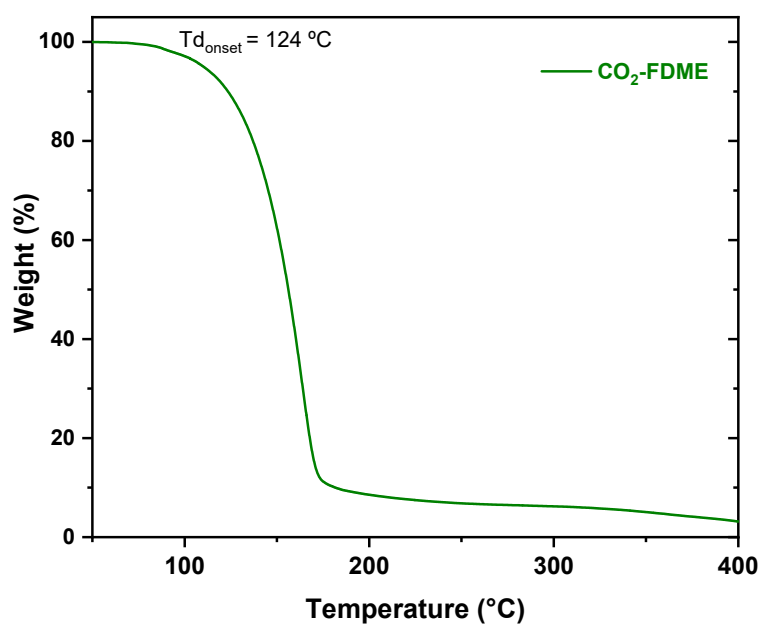
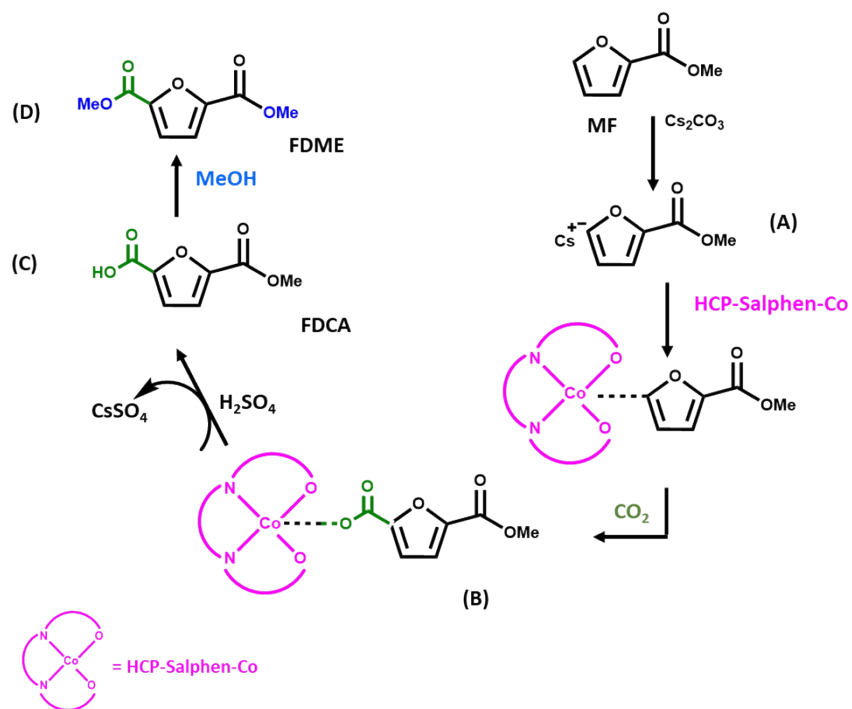
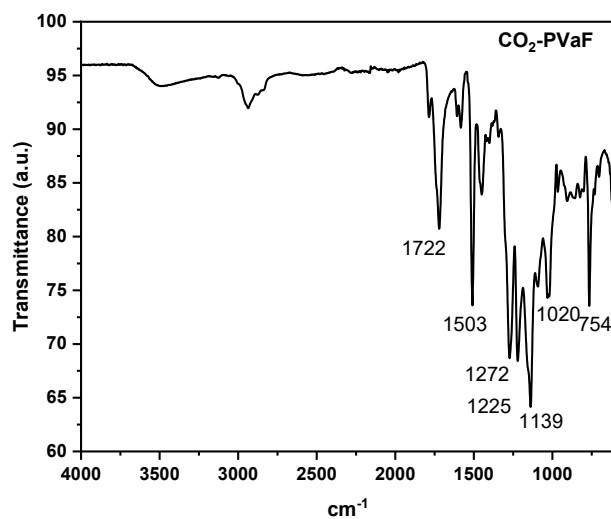


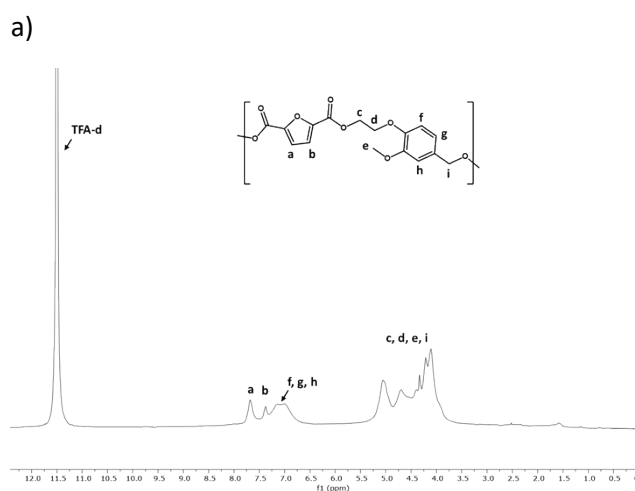
Figure S8. TGA of  $\text{CO}_2\text{-FDME}$



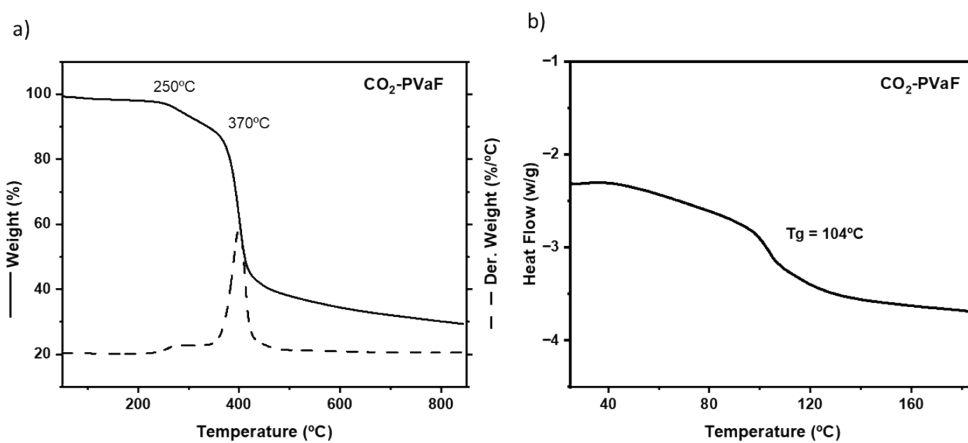
**Figure S9.** Proposed mechanism for the conversion of methyl furoate (MF) into furfural dimethyl ester (FDME)



**Figure S10.** FT-IR spectrum of  $\text{CO}_2\text{-PVaF}$



**Figure S11.**  $^1\text{H-NMR}$  of  $\text{CO}_2\text{-PVaF}$



**Figure S12.** Thermal properties of  $\text{CO}_2\text{-PVaF}$ : a) Thermogravimetric analysis (TGA) and b) Differential scanning calorimetry (DSC)