

Supporting information:

Lewis acid-base bifunctional aluminum-salen catalysts: synthesis of cyclic carbonates from carbon dioxide and epoxides

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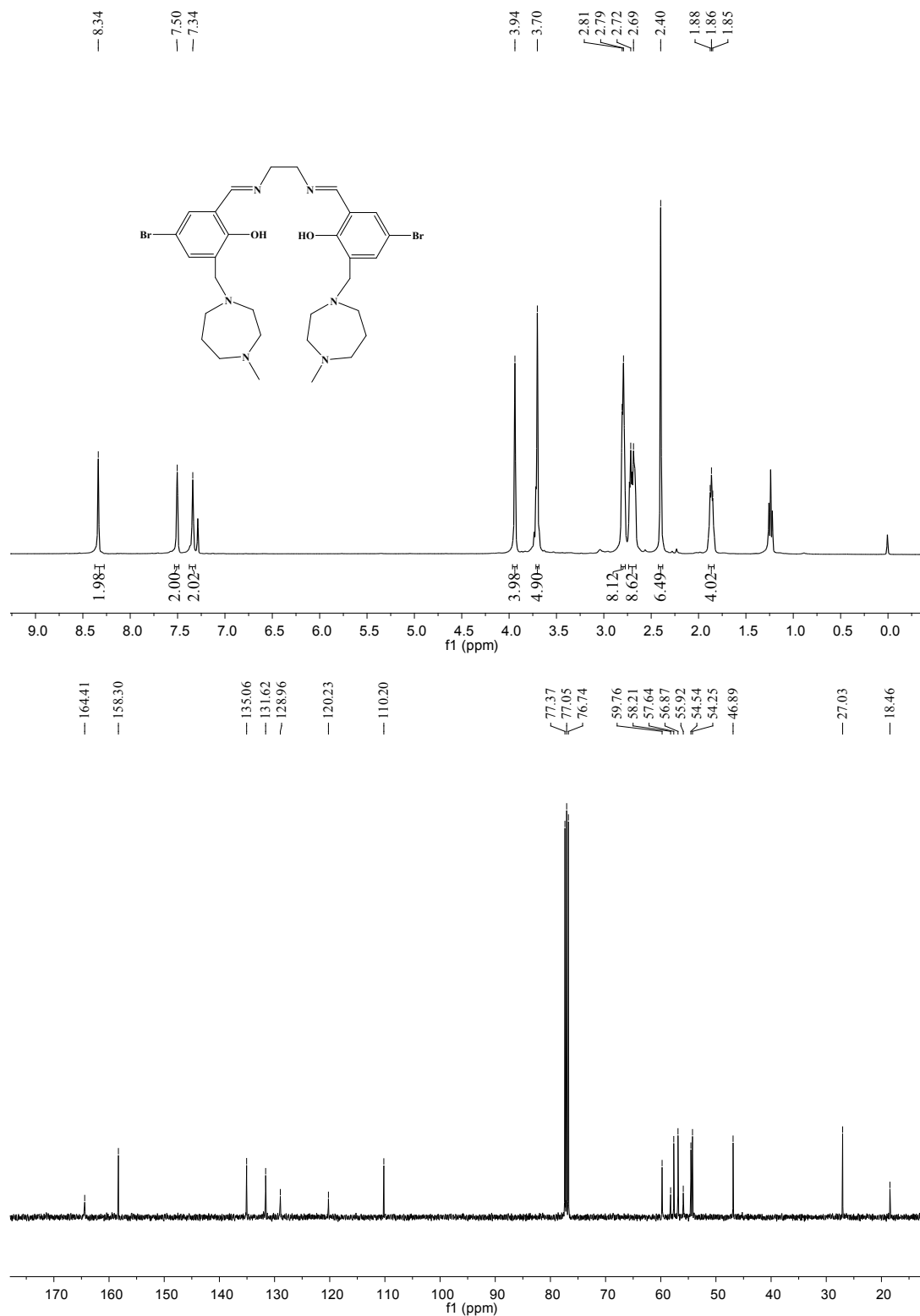


Fig. S1. 1H NMR and ^{13}C NMR spectra ($CDCl_3$) for ligand H_2L^{S1}

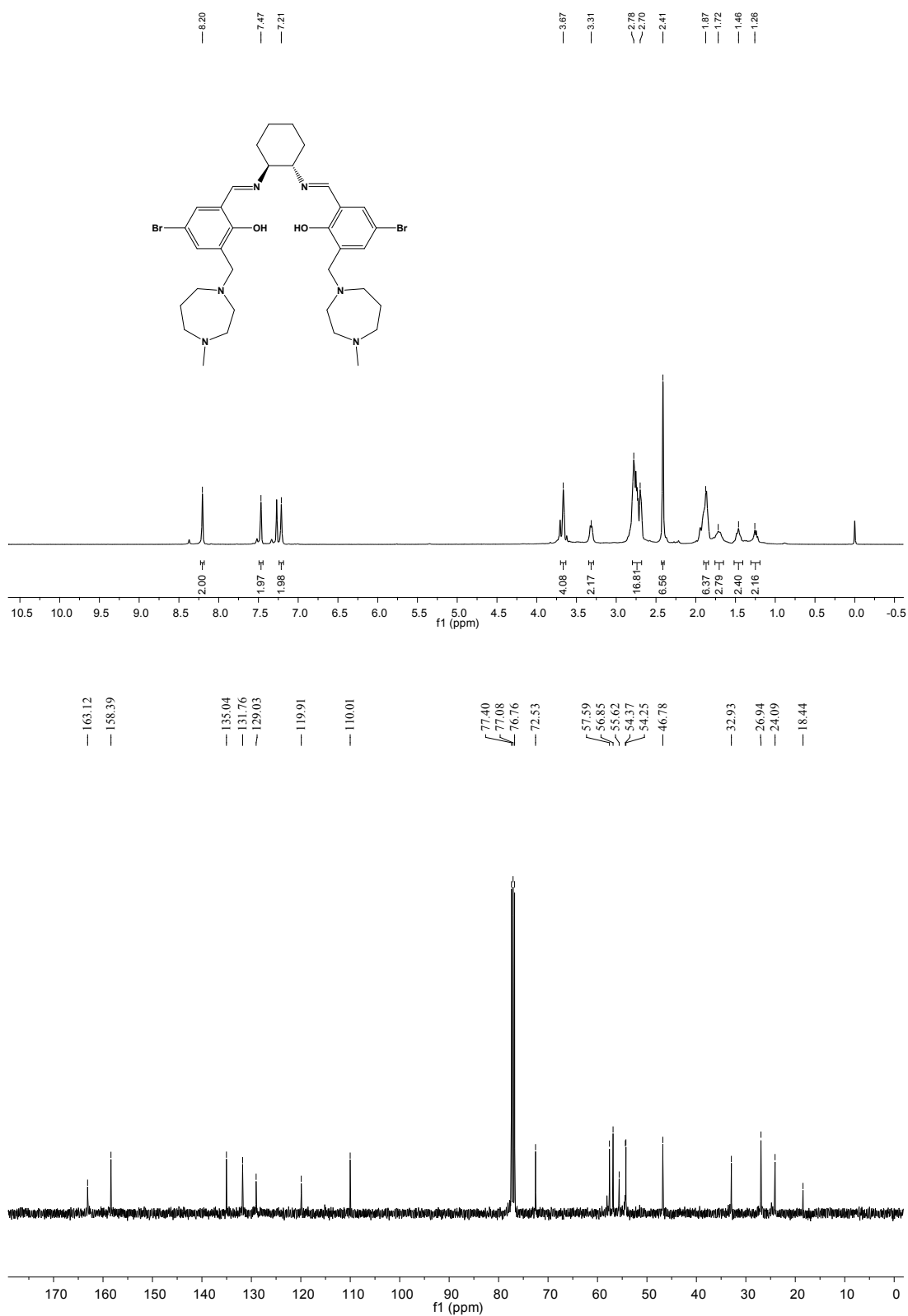


Fig. S2. 1H NMR and ^{13}C NMR spectra ($CDCl_3$) for ligand H_2L^2

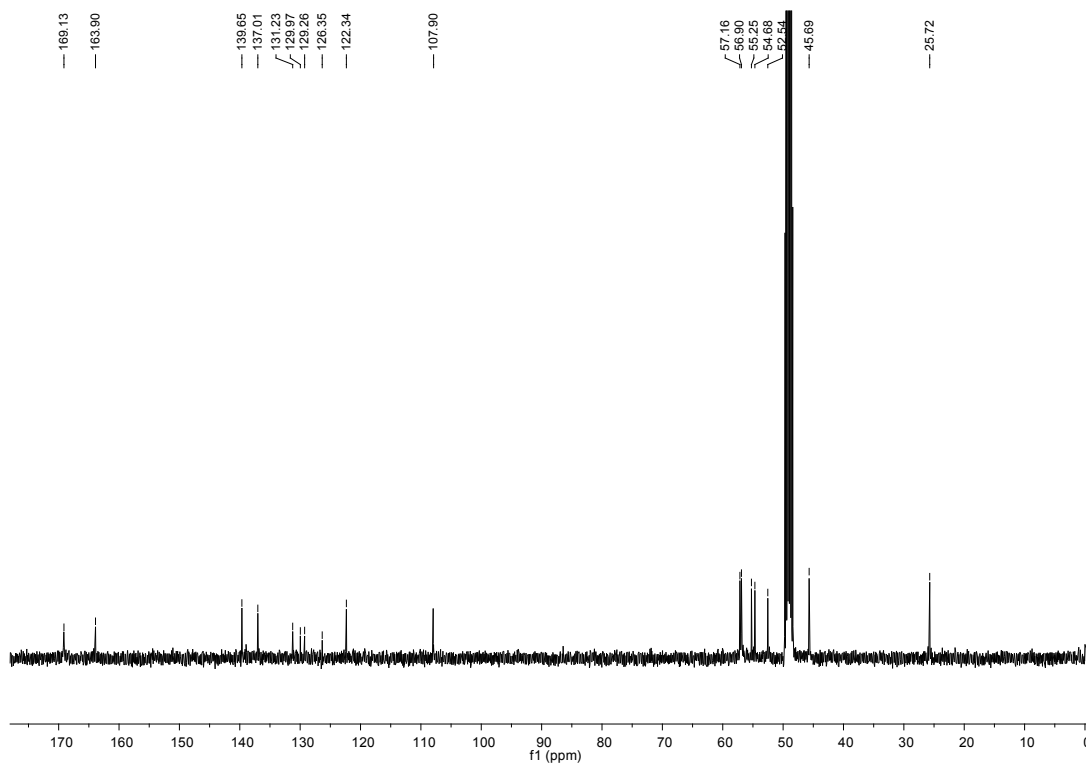
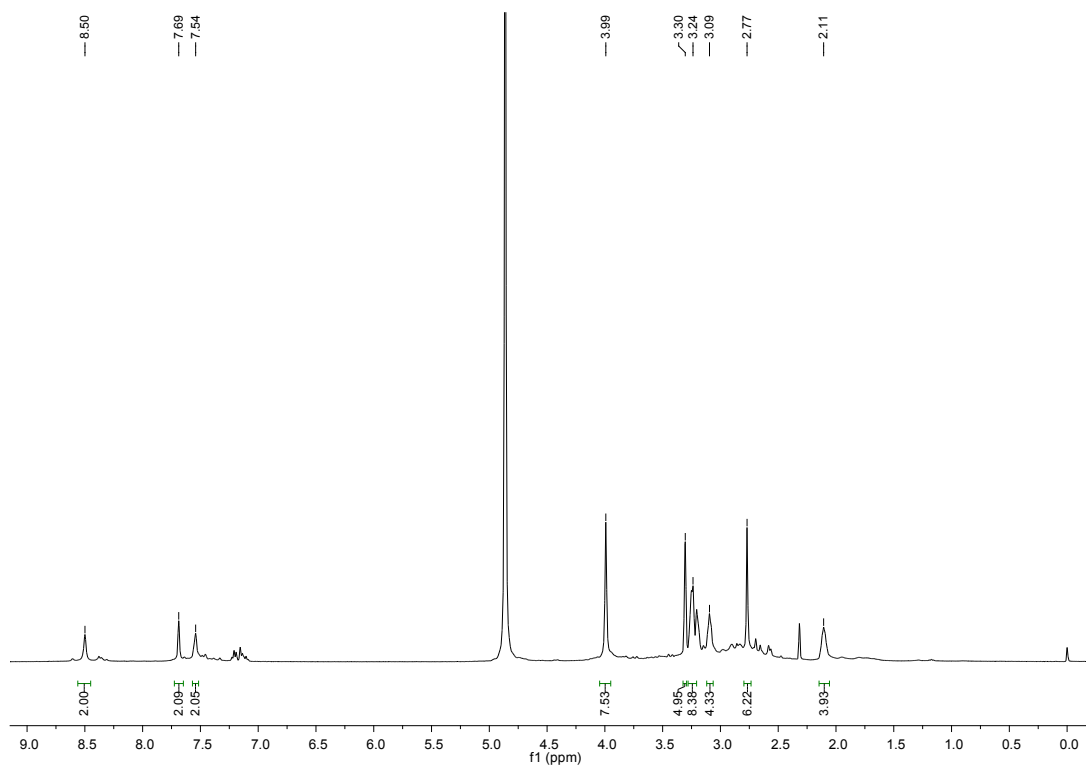


Fig. S3. ^1H NMR and ^{13}C NMR spectra (CD_3OD) for **1a**

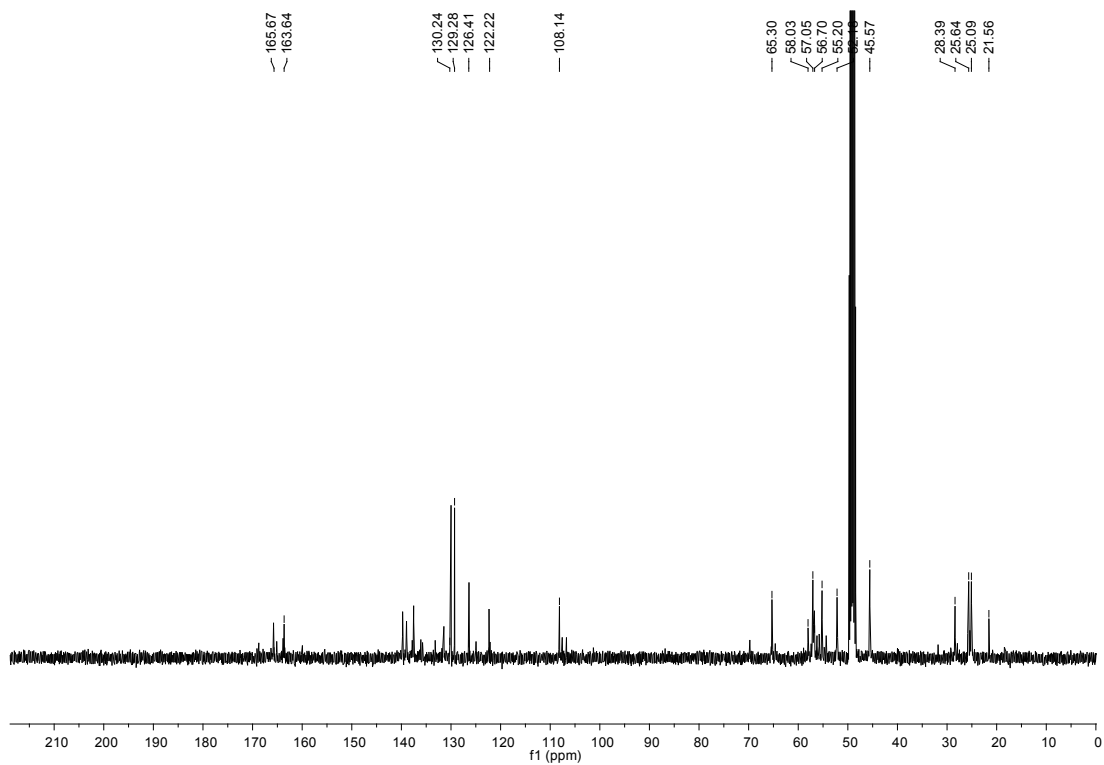
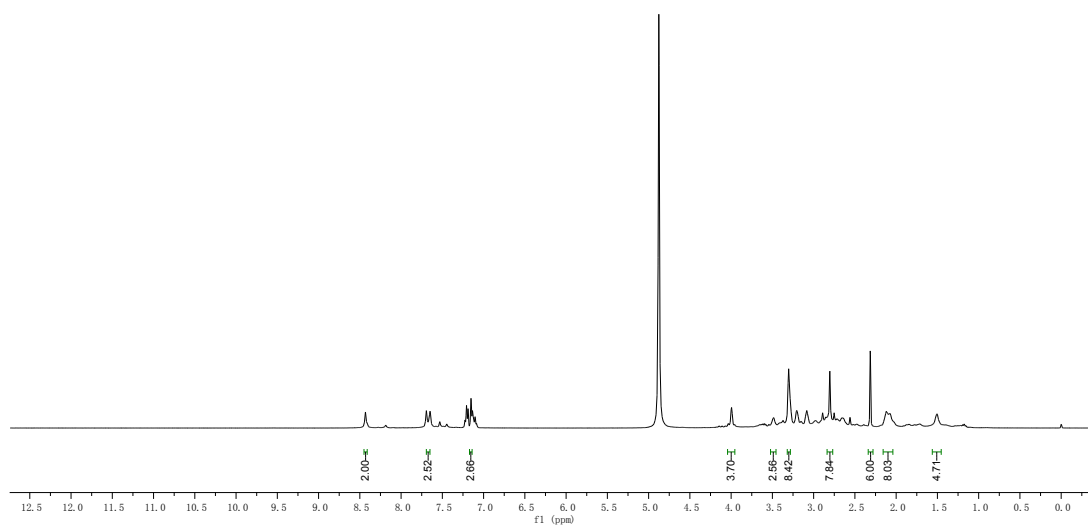


Fig. S4. ^1H NMR and ^{13}C NMR spectra (CD₃OD) for **1b**

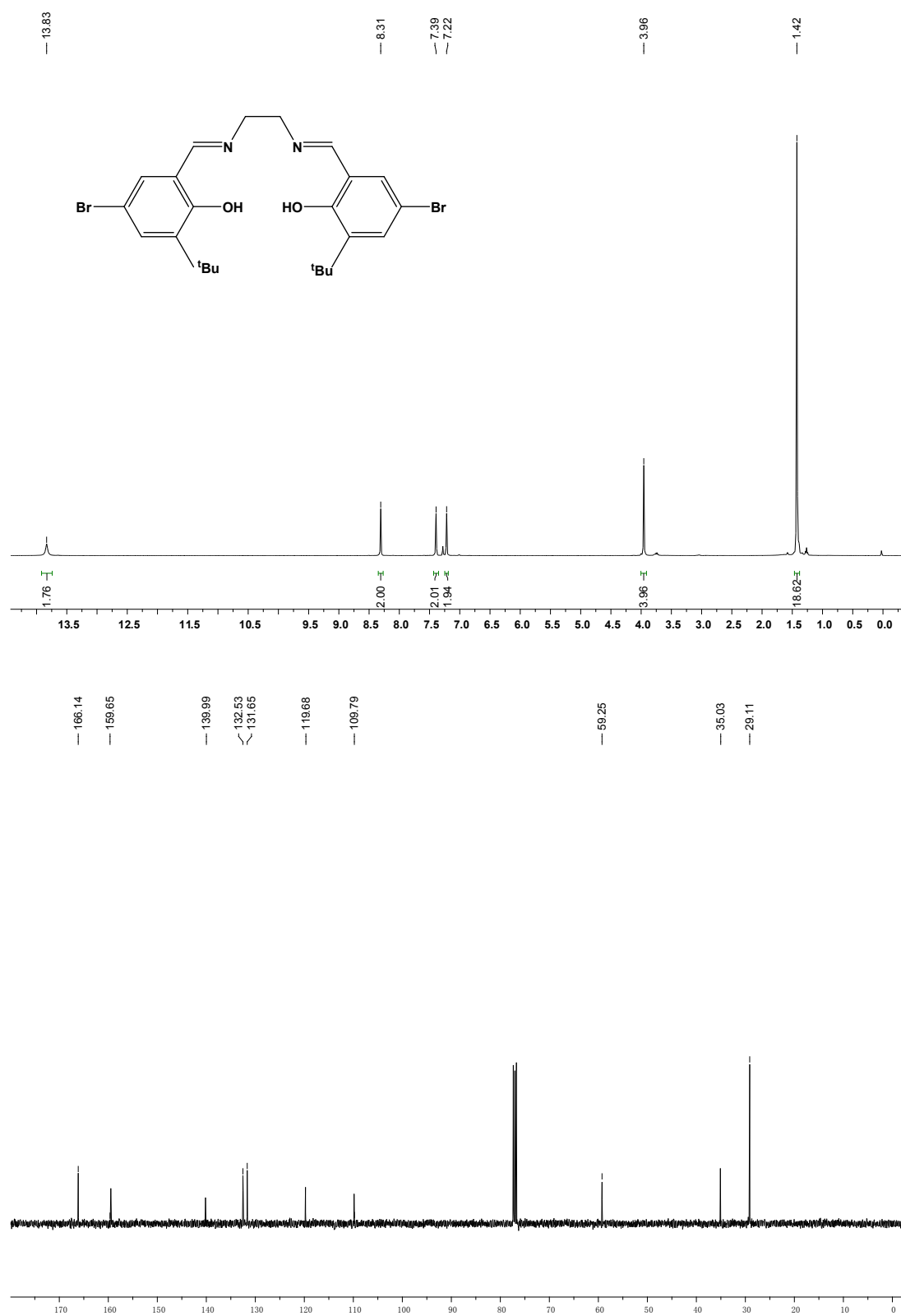


Fig. S5. ¹H NMR and ¹³C NMR spectra (CDCl₃) for salen ligand of **3a**

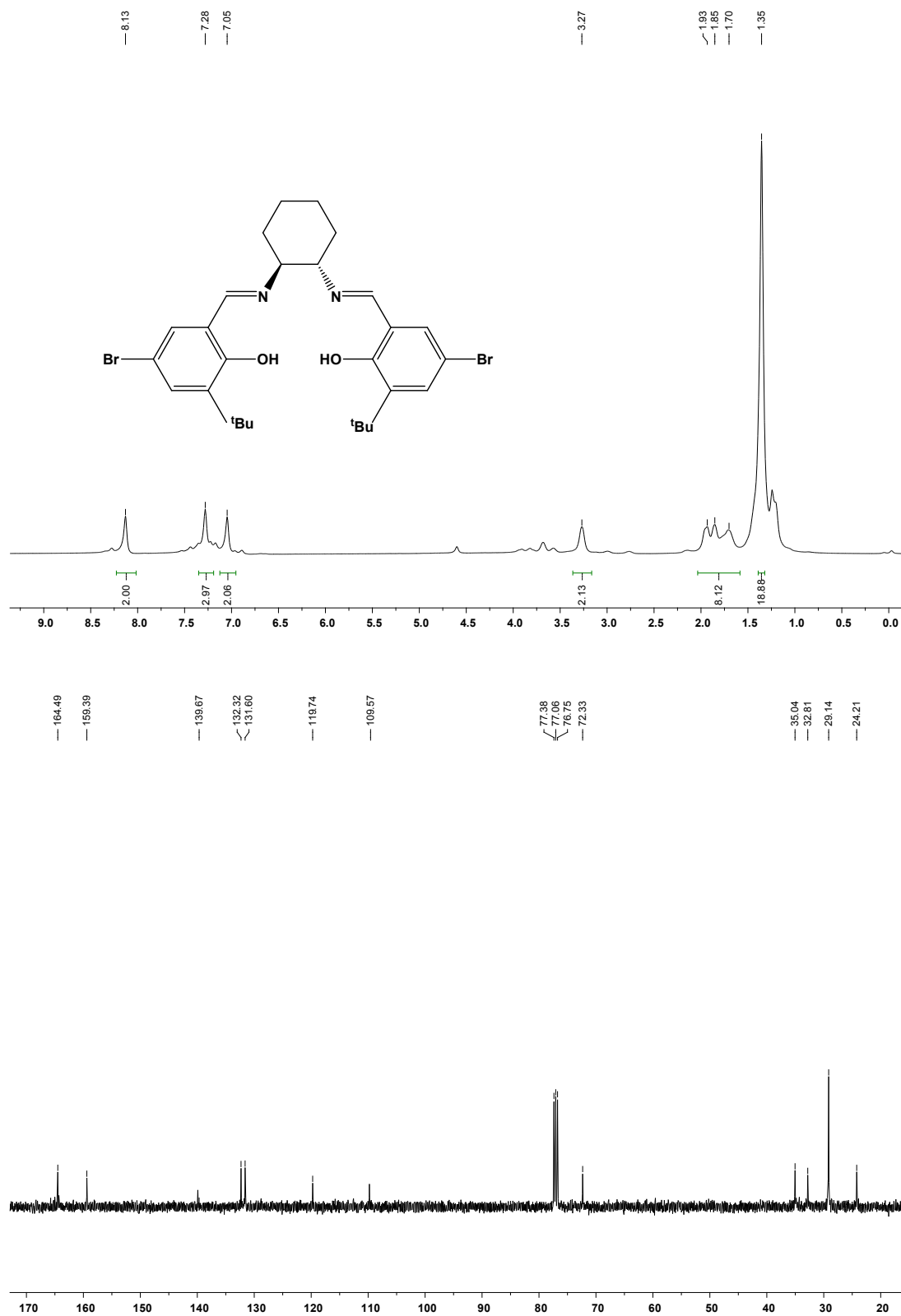


Fig. S6. ¹H NMR and ¹³C NMR spectra (CDCl₃) for salen ligand of **3b**

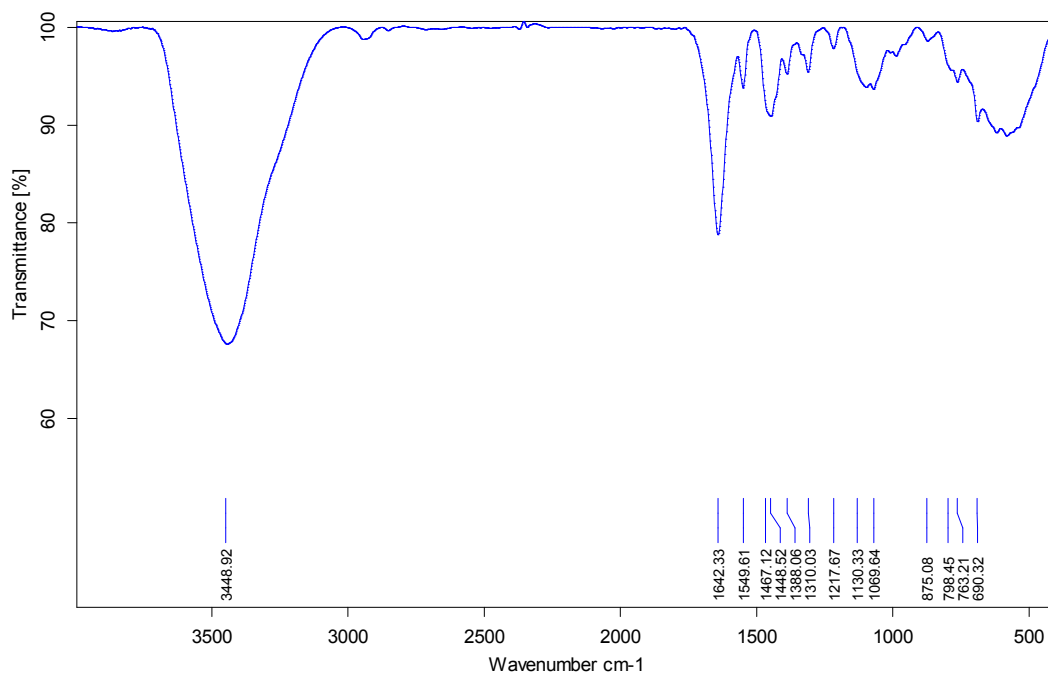


Fig. S7 FT-IR spectrum of **1a**.

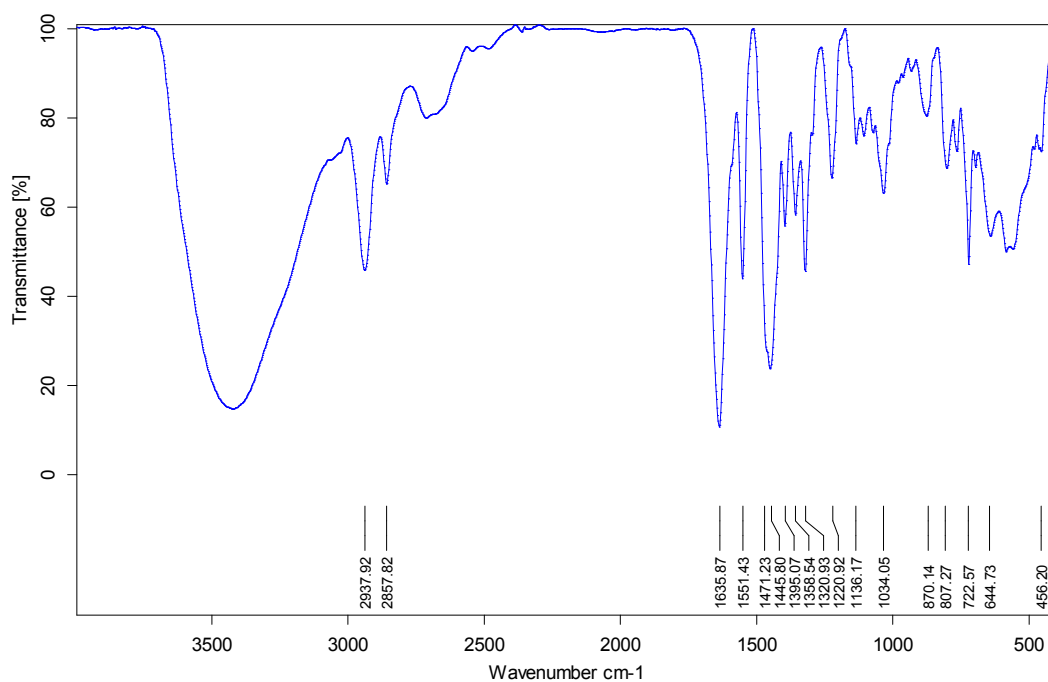


Fig. S8 FT-IR spectrum of **1b**.

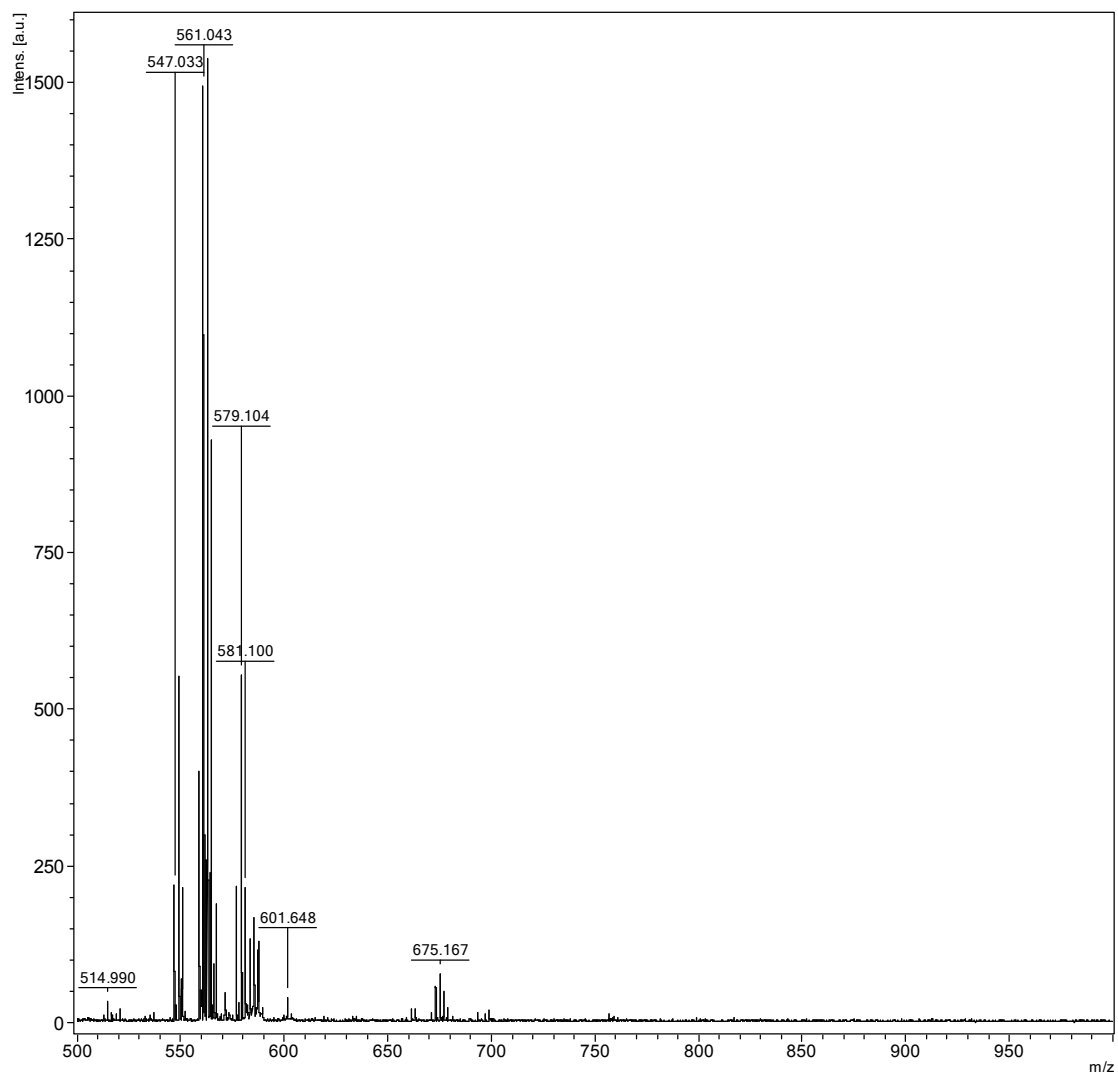


Fig. S9 MS spectrum of ligand H_2L^{S1} .

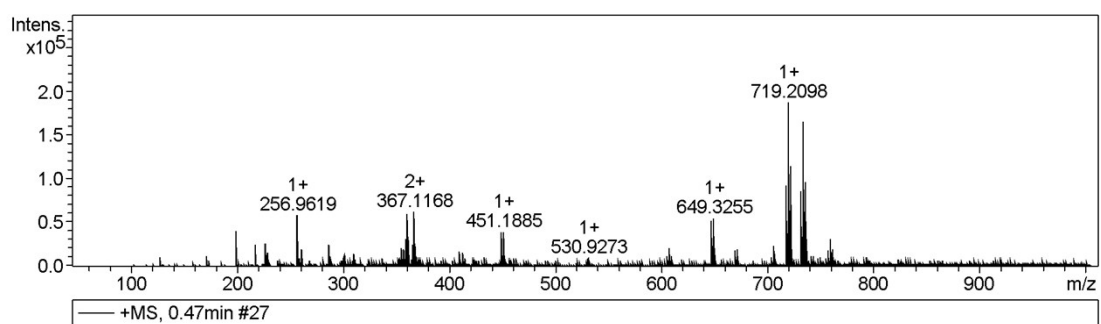


Fig. S10 MS spectrum of ligand H_2L^{S2} .

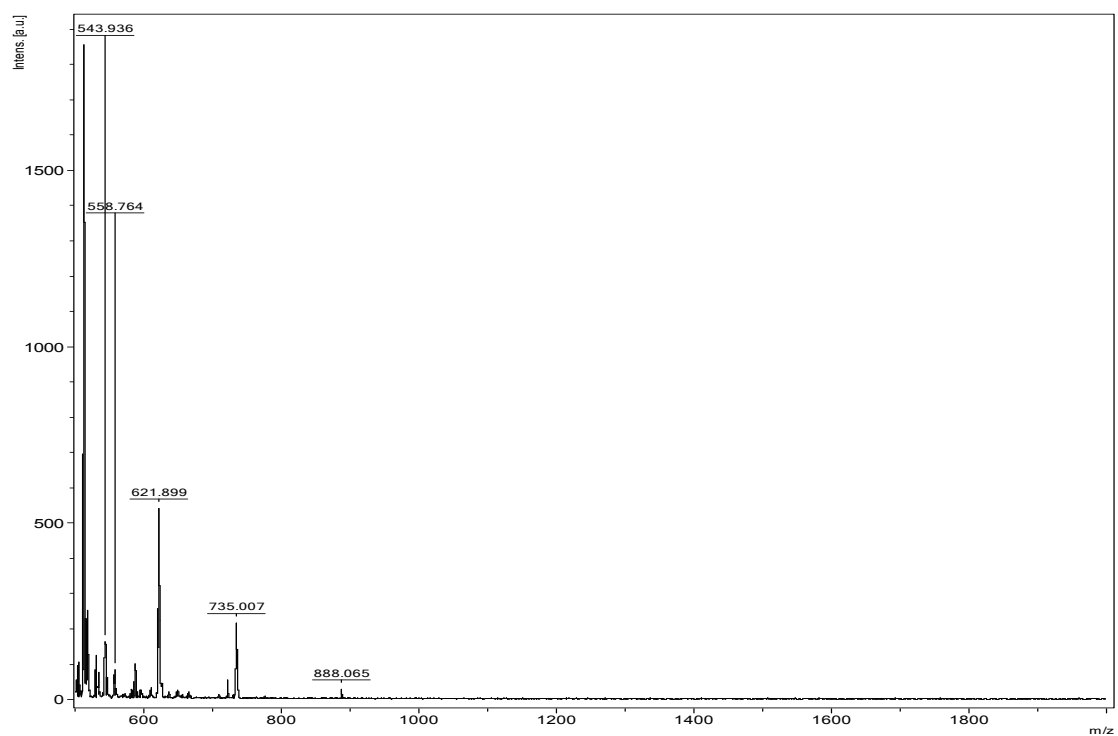


Fig. S11 MS spectrum of **1a**.

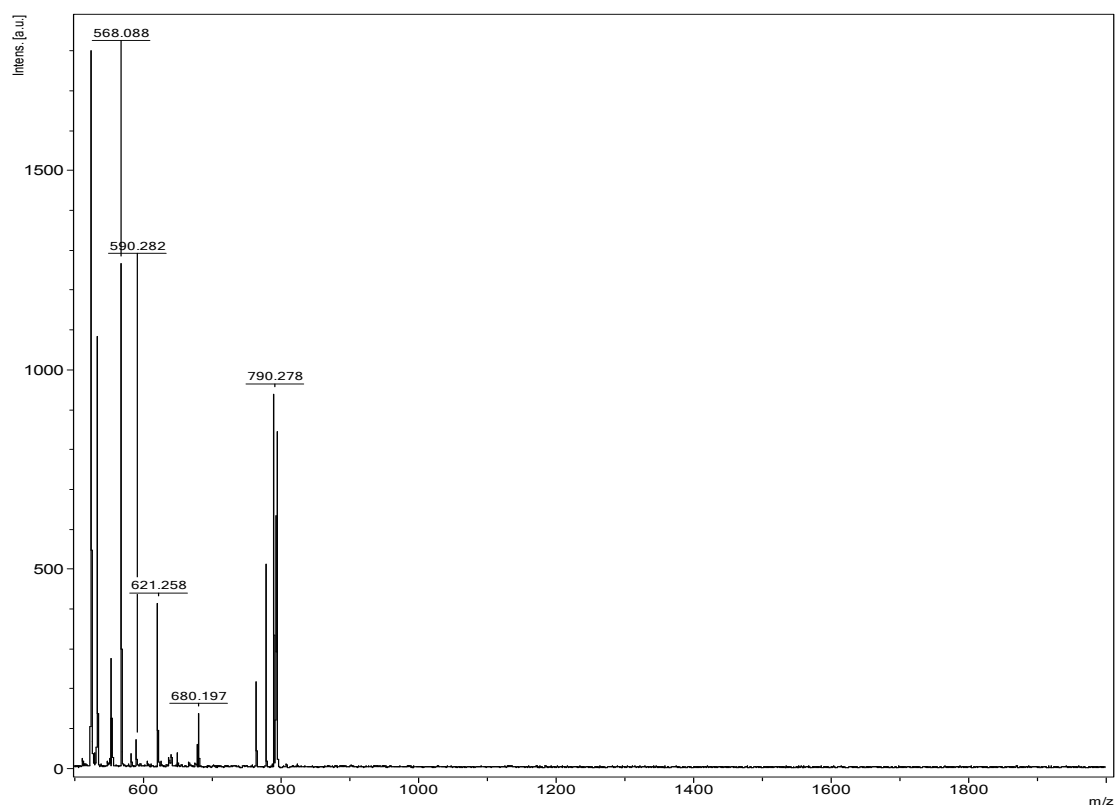


Fig. S12 MS spectrum of **1b**.

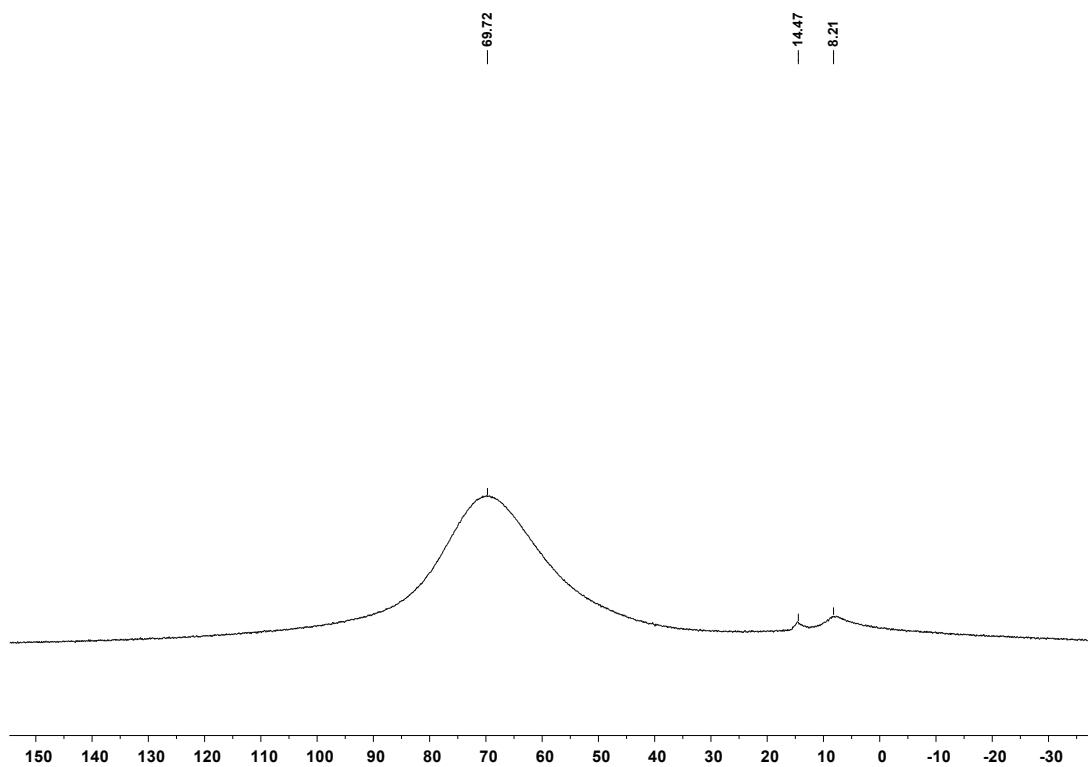


Fig. S13 ^{27}Al NMR spectrum of **1a**.

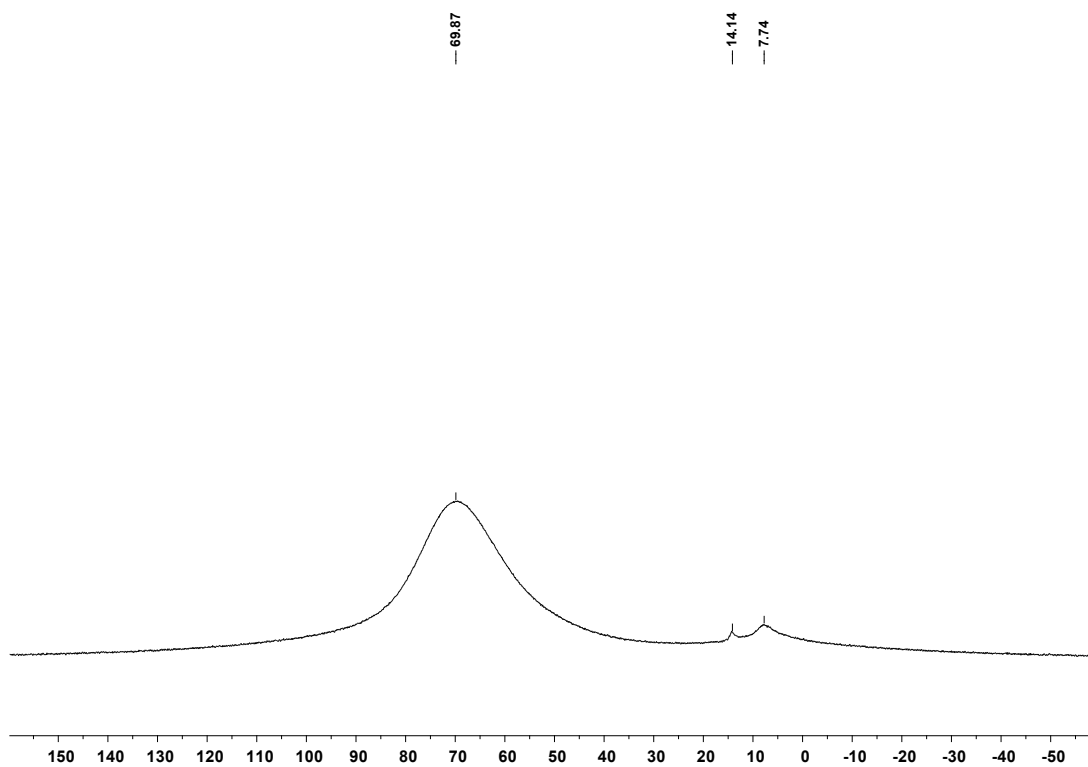


Fig. S14 ^{27}Al NMR spectrum of **1b**.

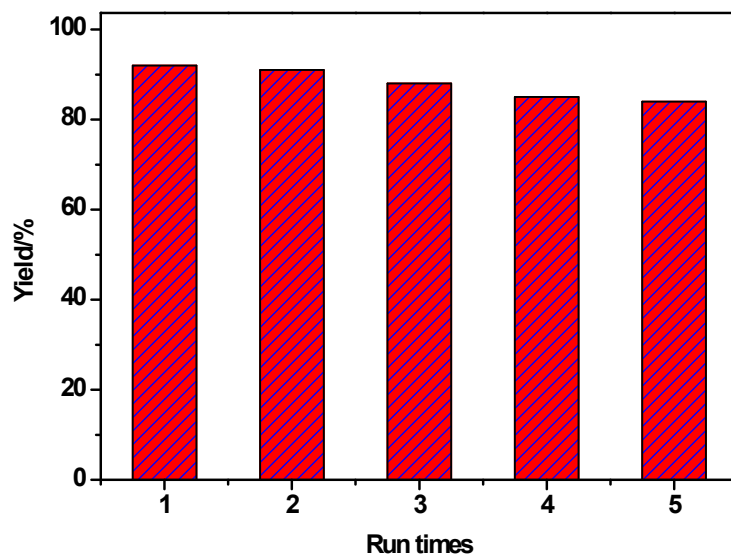


Fig. S15 Recyclability and reusability of the catalyst **1b** in the coupling reaction of PO with CO₂. Reaction conditions: 10 mmol PO with 1 mol% **1b**, CO₂ pressure 2 MPa, reaction time 4 h.

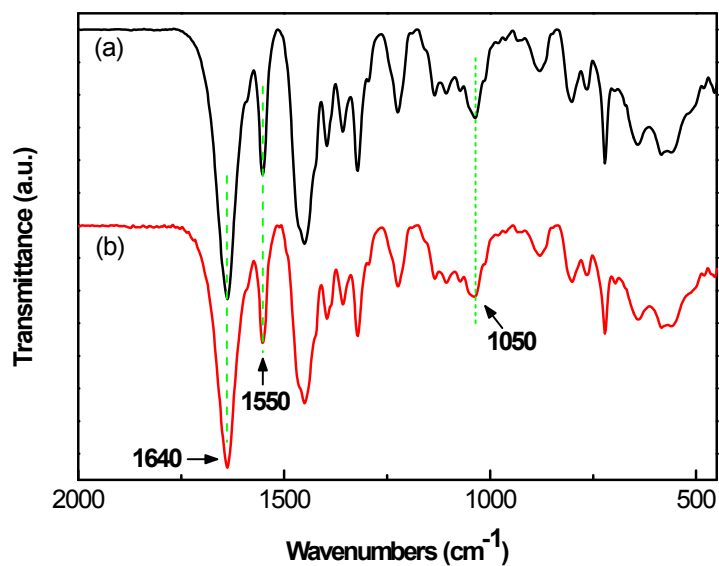


Fig. S16 FT-IT spectra of **1b** (a) and the recovered **1b** after the 5th reuse in the coupling reaction of PO with CO₂ (b).