SUPPORTING INFORMATION

Sustainable Preparation of Fully Bio-based Polybenzoxazine Resins from Amino Acid and their Application in CO_2 Adsorption

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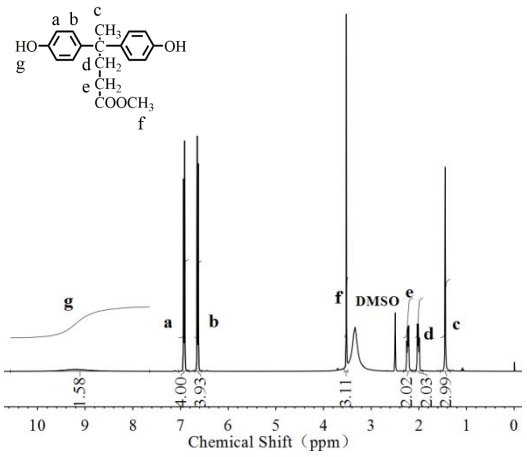

Figure S1. ^{1}H NMR spectrum of MDP.

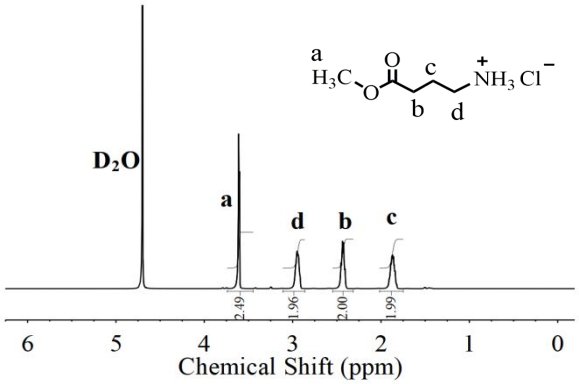

Figure S2. ^{1}H NMR spectra of γABME.

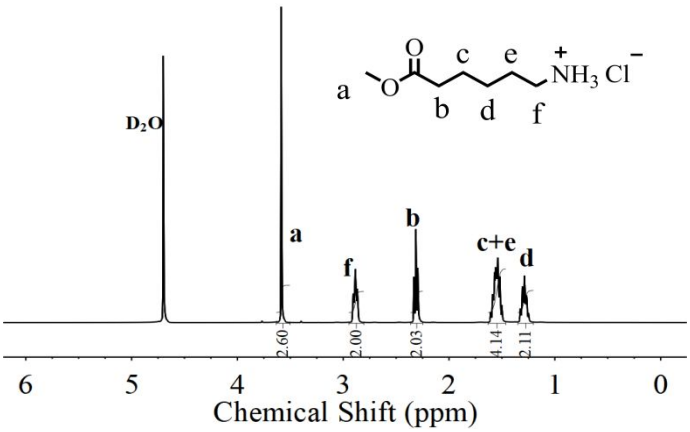

Figure S3. ^{1}H NMR spectra of ACAME.

From Figure S3, the methyl esterified characteristic peak of ACAME was observed

at 3.62 ppm as a singlet. The chemical shift at 2.93 ppm was attributed to the methylene (f) connecting with the nitrogen atom. The protons of methylene (b) adjacent to the ester group were presented at 2.27 ppm to 2.42 ppm. The protons of other methylene(c, d, and e) were revealed at 1.35 ppm to 1.70 ppm.

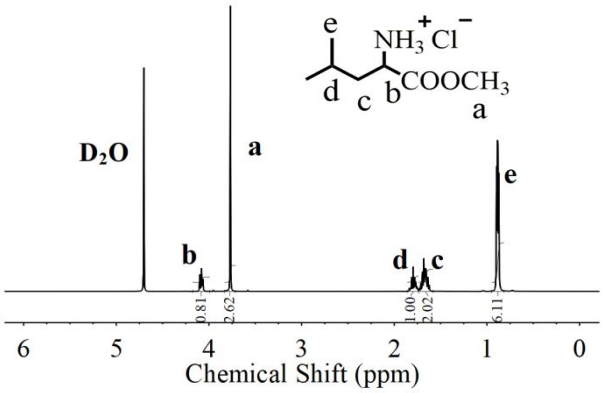

Figure S4. [1]H NMR spectra of LEME.

From Figure S4 for LEME, the characteristic protons of methyl group in methyl ester group (a) were appeared at 3.77 ppm. The signal in the range of 4.0 ppm to 4.14 ppm was attributed to the proton of tertiary carbon (b) attached to the methyl ester group. The protons of methylene (c) and tertiary carbon (d) were presented in the range of 1.57 ppm to 1.86 ppm. The protons of methyl group (e) in leucine were observed in the region of 0.82 ppm to 0.95 ppm.

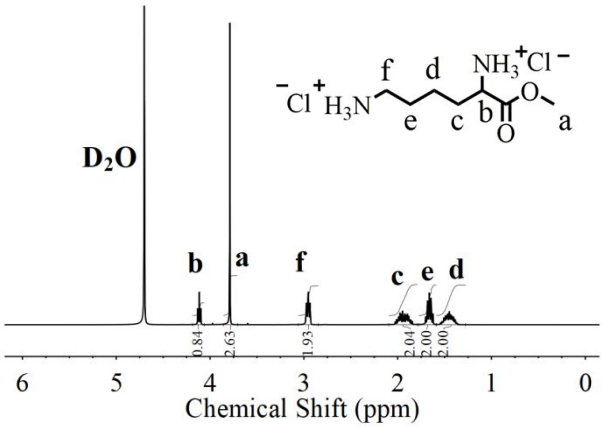

Figure S5. [1]H NMR spectra of LYME.

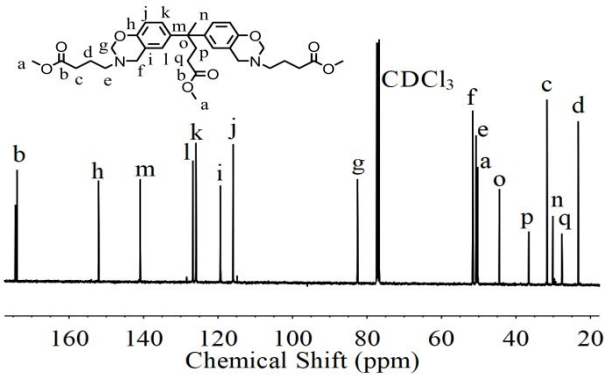

Figure S6. ^{13}C NMR spectra of MDP-γabme.

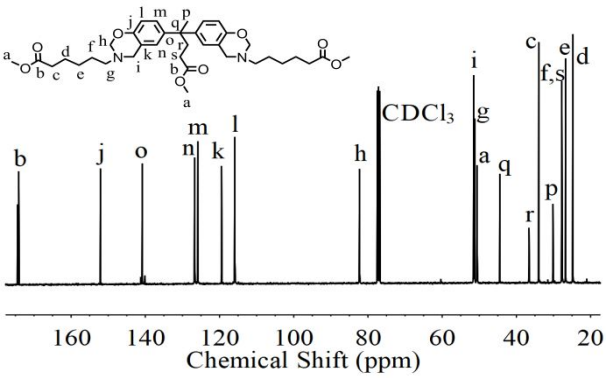

Figure S7. ^{13}C NMR spectra of MDP-acame.

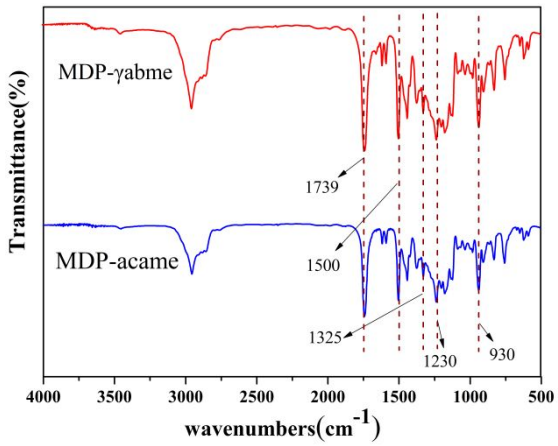

Figure S8. FTIR spectra of non-natural amino acid-containing benzoxazine monomers.

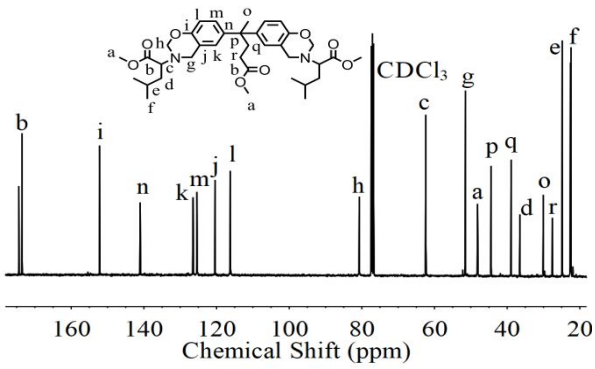

Figure S9. ^{13}C NMR spectra of MDP-leme.

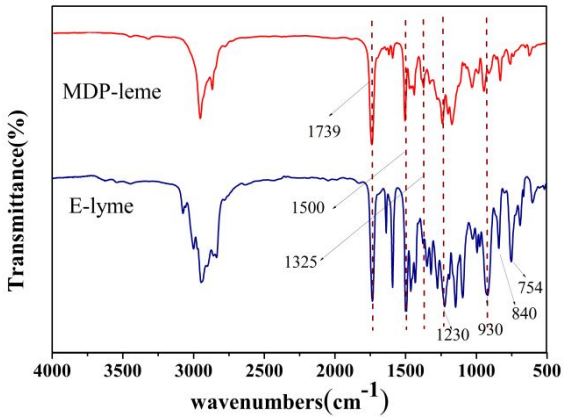

Figure S10. FTIR spectra of natural amino acid-containing benzoxazine monomers.

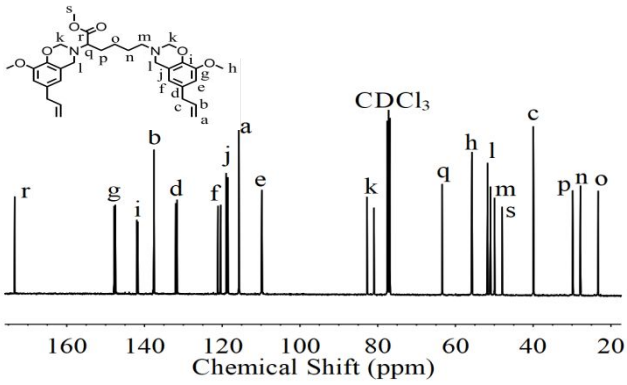

Figure S11. ^{13}C NMR spectra of E-lyme.

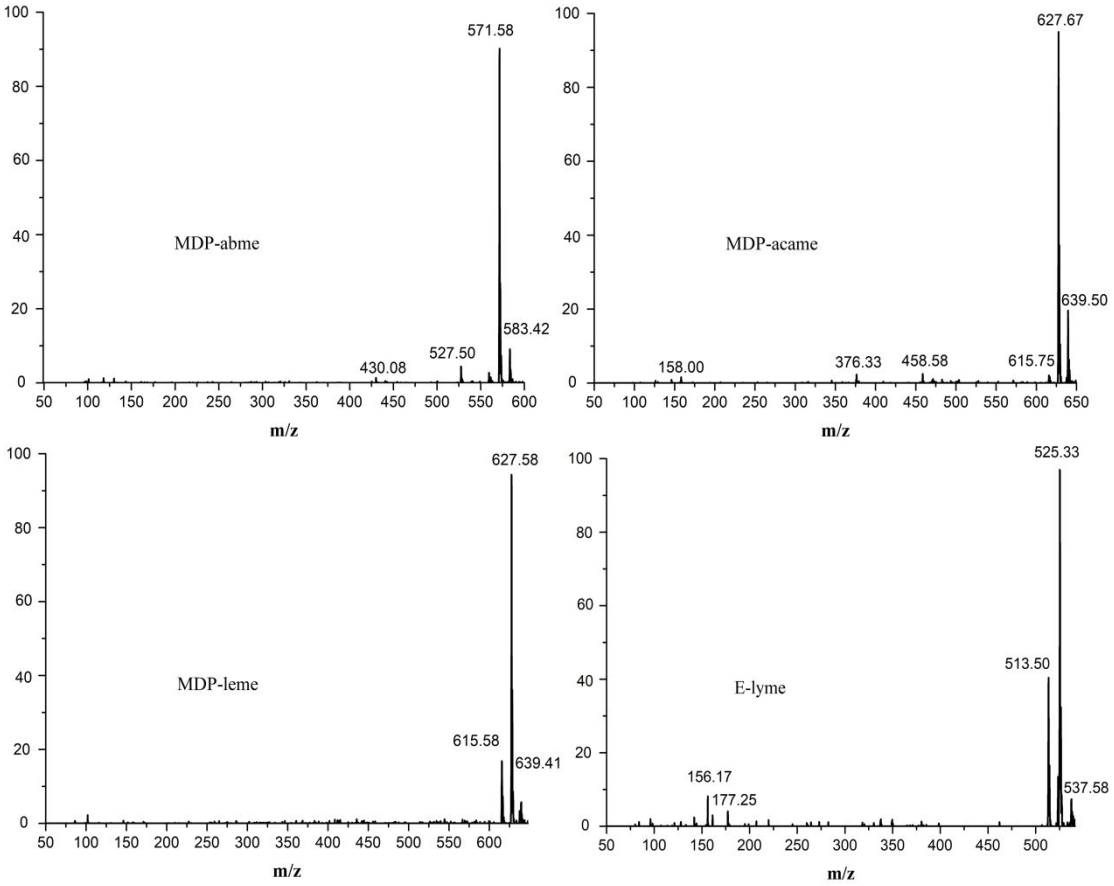

Figure S12. Mass spectra of bio-based amino acid-containing benzoxazine monomers.

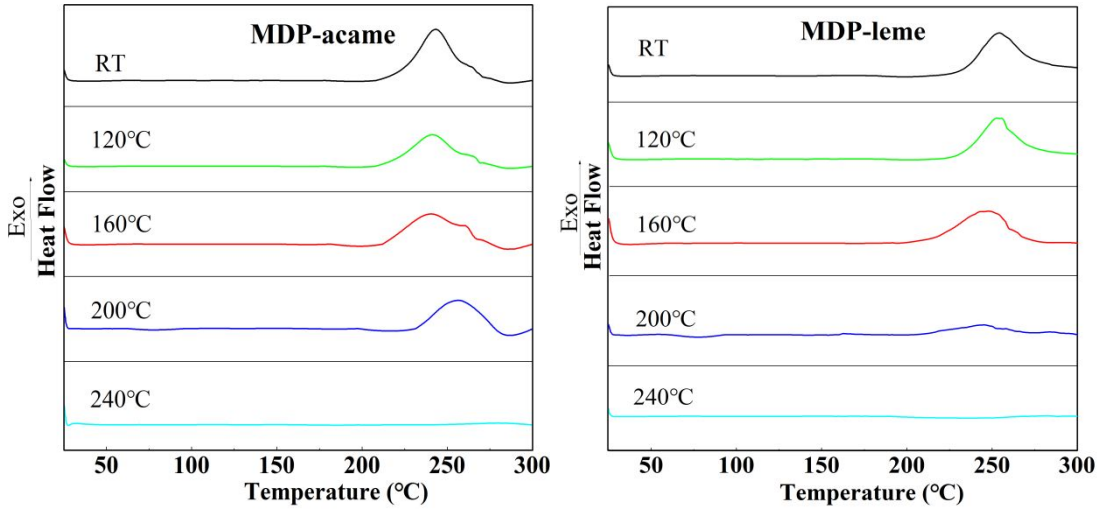

Figure S13. DSC curves for MDP-acame and MDP-leme cured in different stage