

# Synthesis and Characterization of Low-Cost Cresol-Based Benzoxazine Resins as Potential Binders in Abrasive Composites

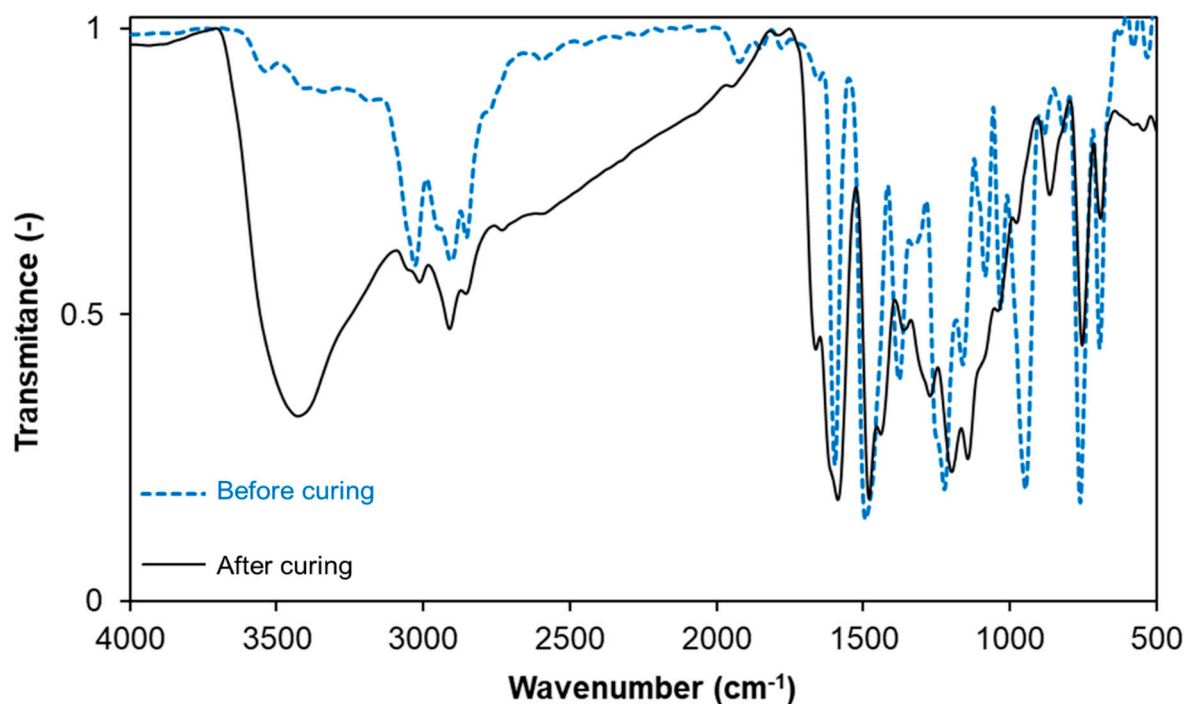


Figure S1. FTIR spectrum of oC-A benzoxazine.

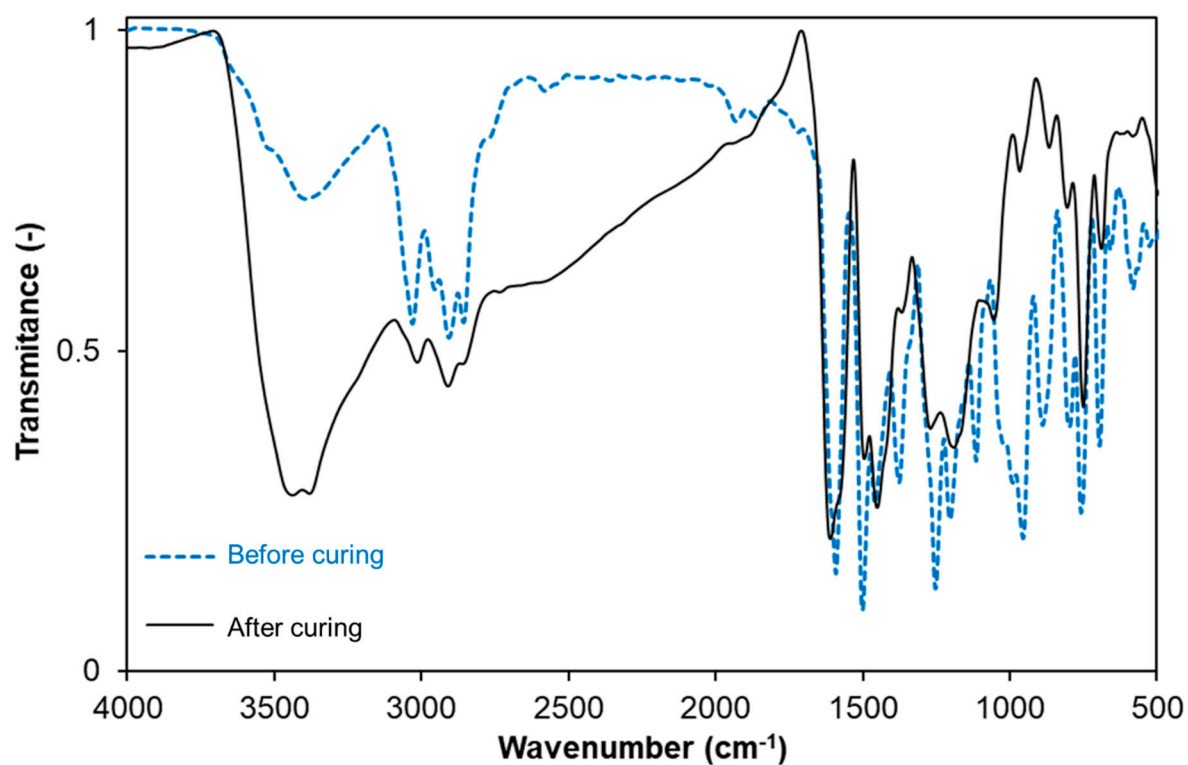


Figure S2. FTIR spectrum of *mC-A* benzoxazine.

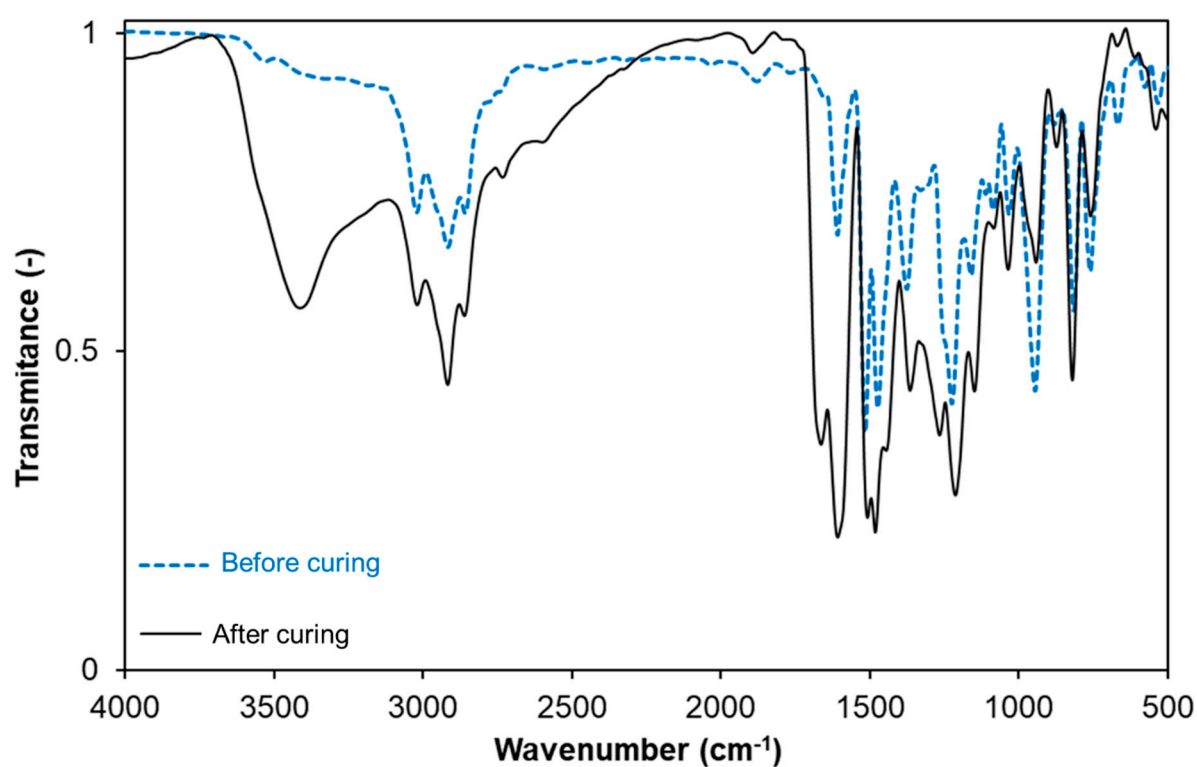


Figure S3. FTIR spectrum of *oC-pT* benzoxazine.

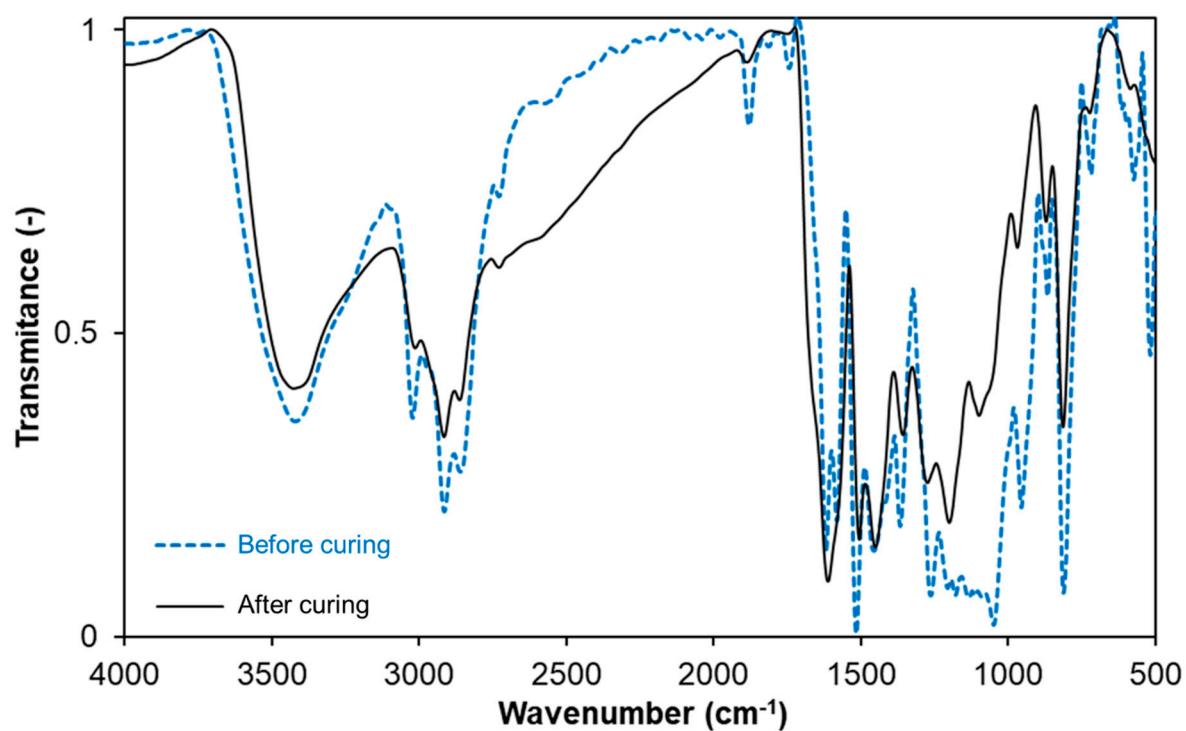


Figure S4. FTIR spectrum of *mC-pT* benzoxazine.

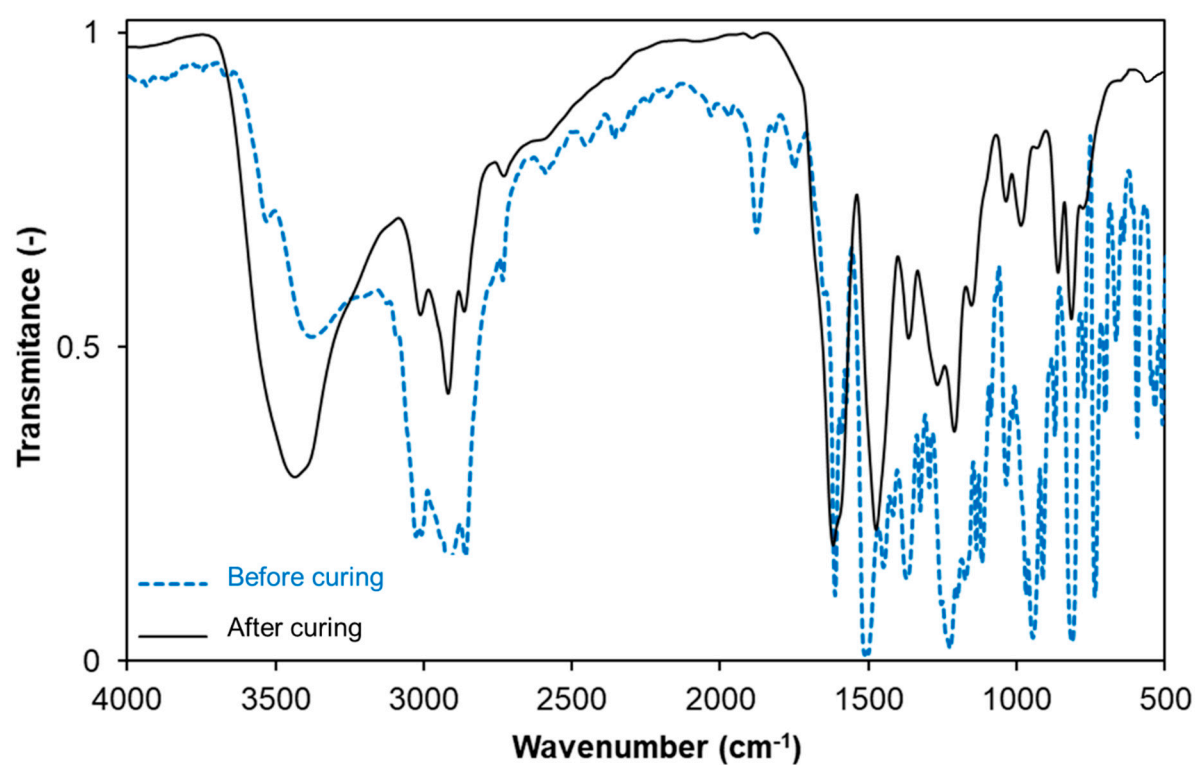
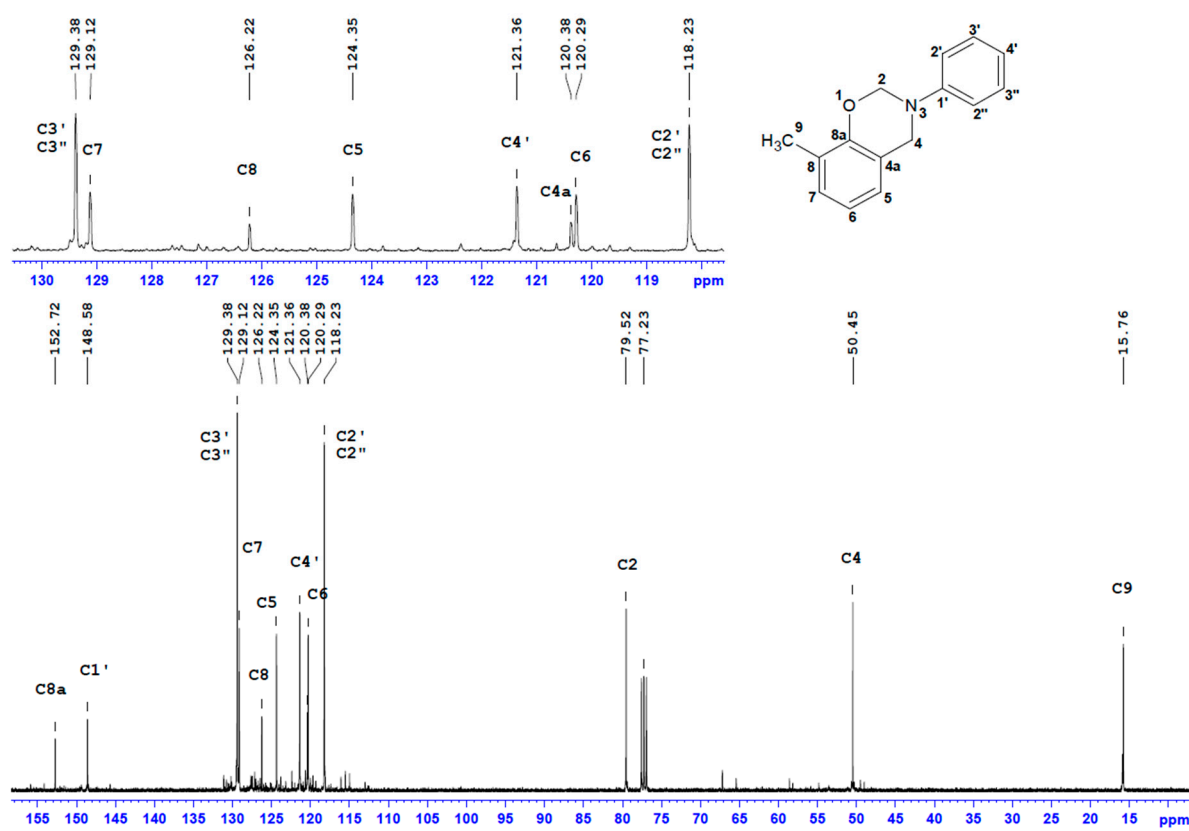
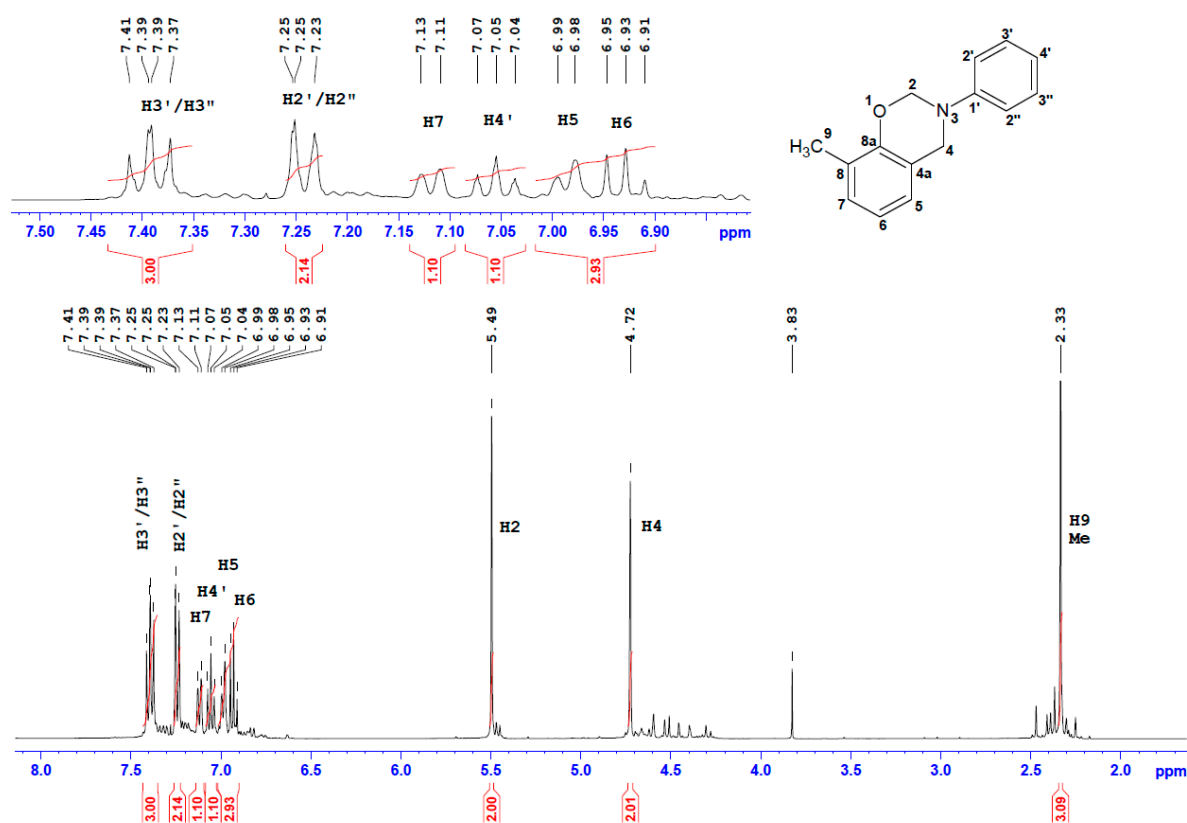
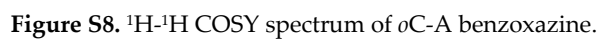
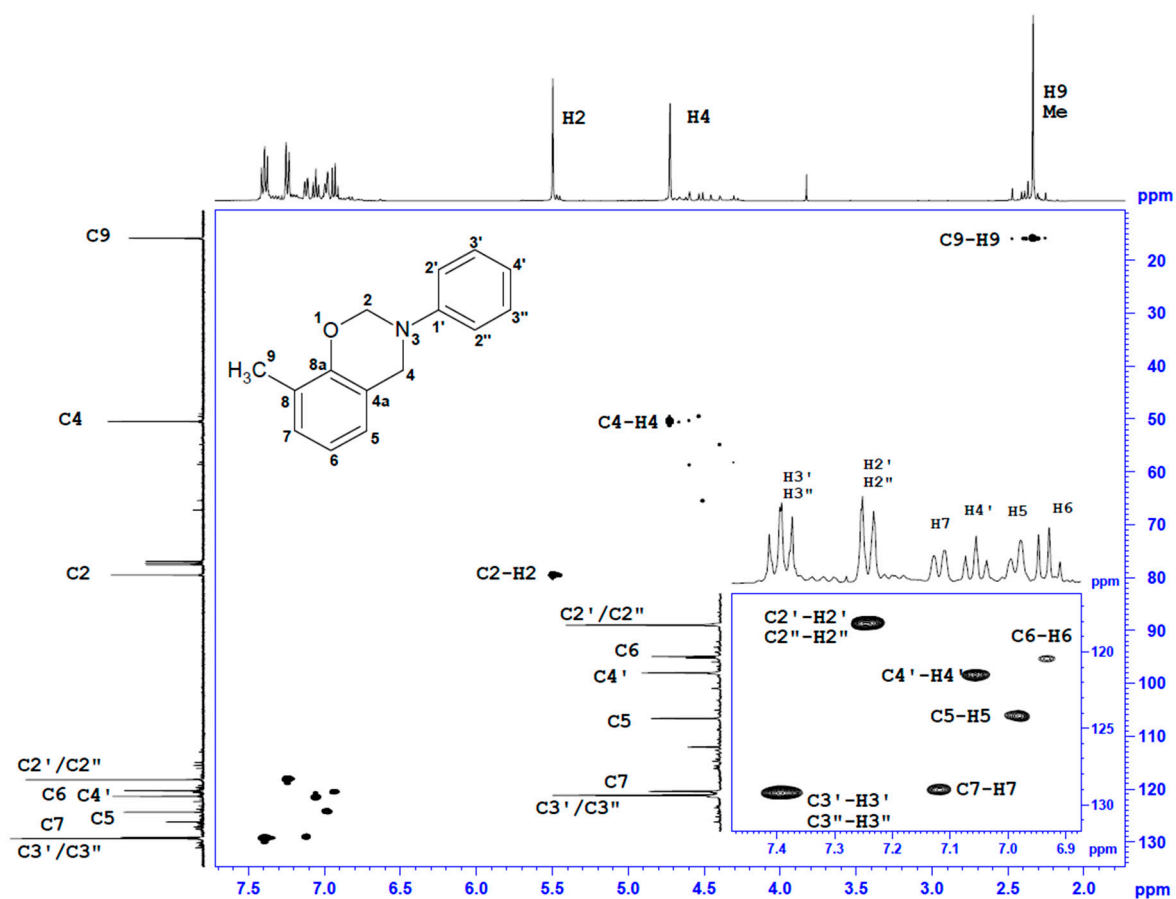
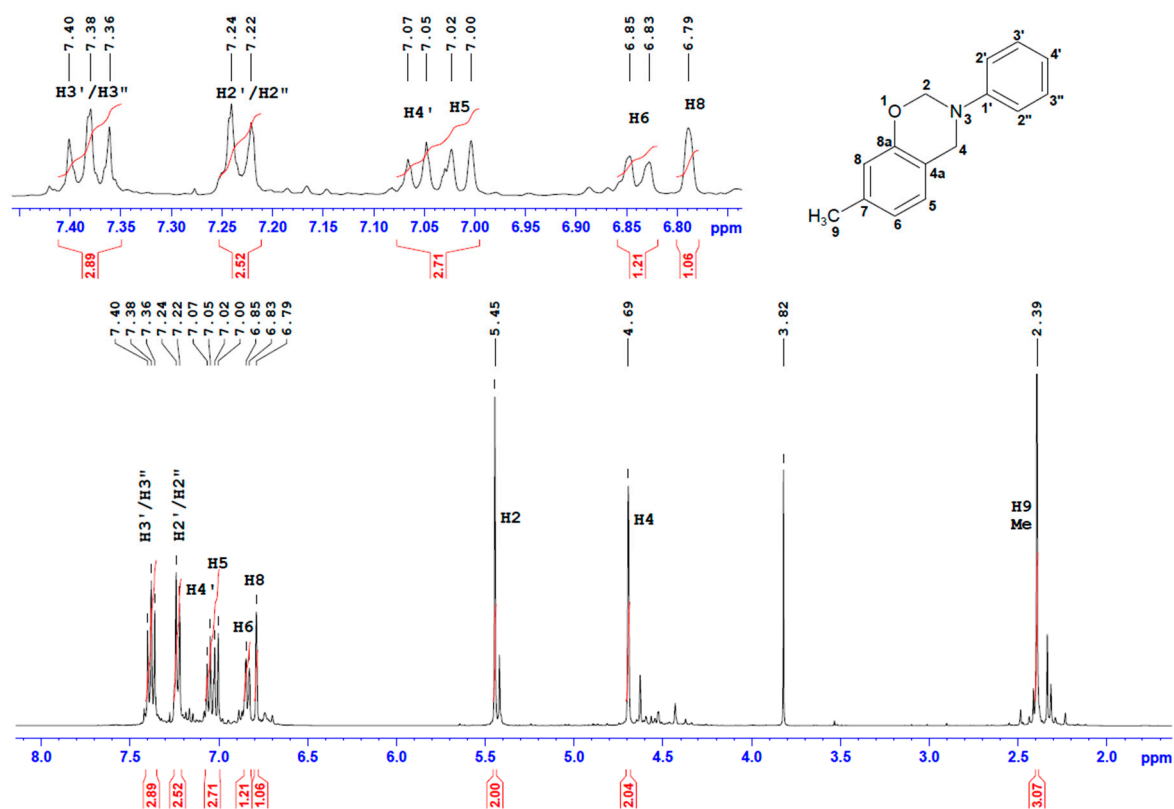
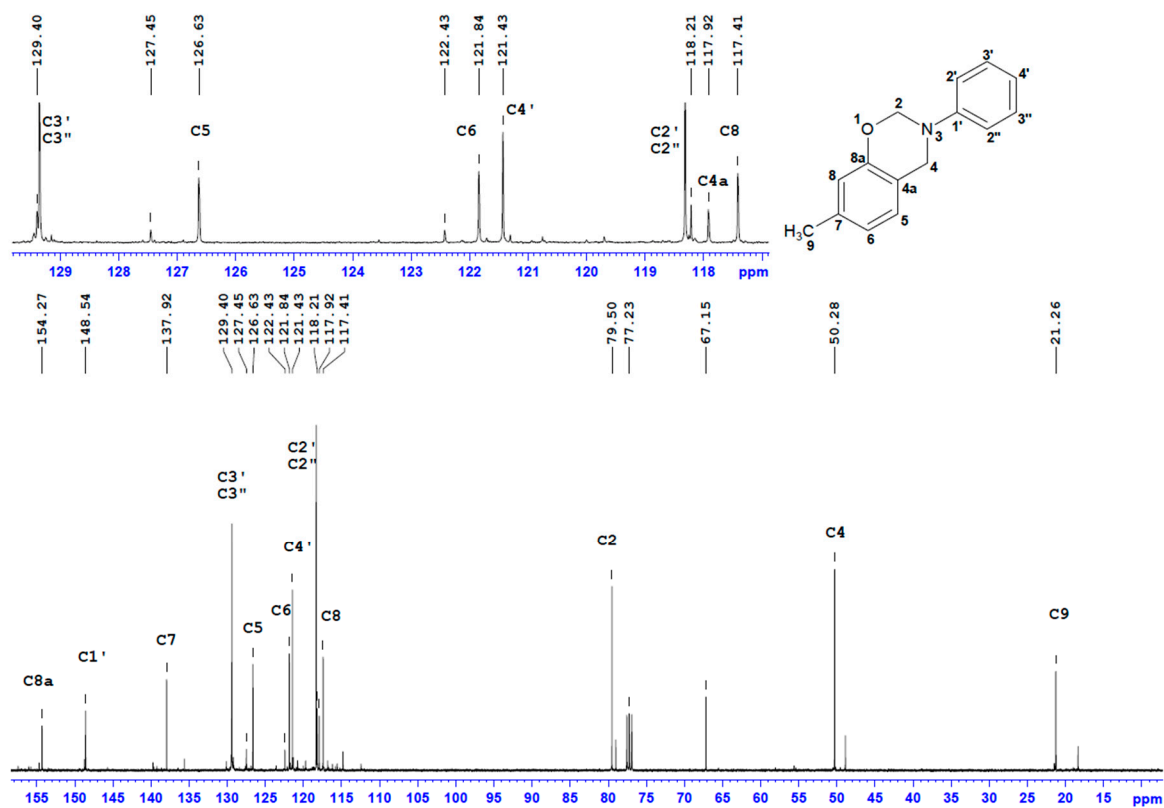
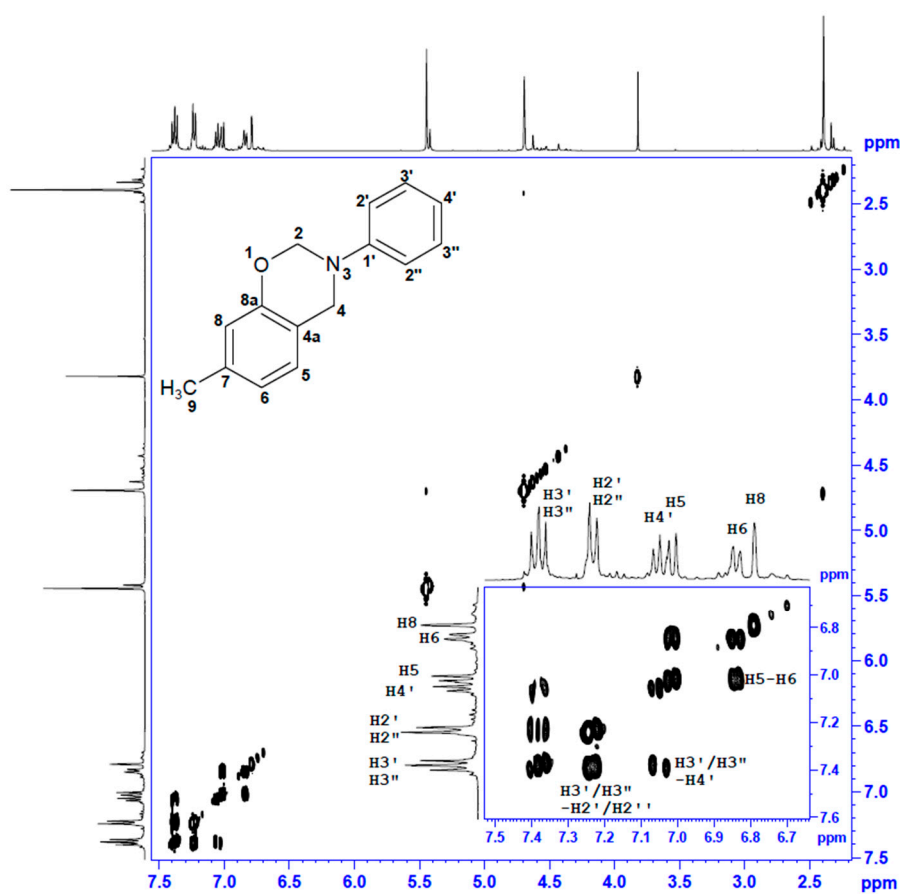


Figure S5. FTIR spectrum of *mC-pT* benzoxazine.

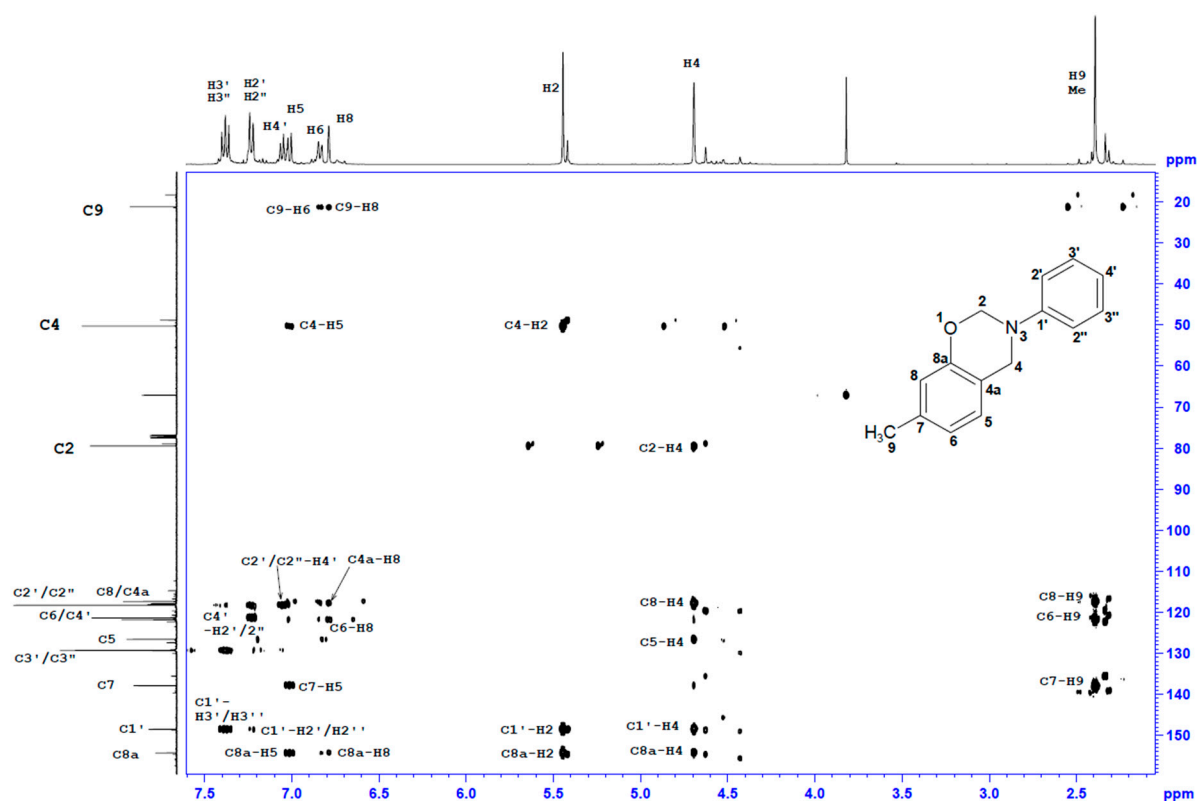
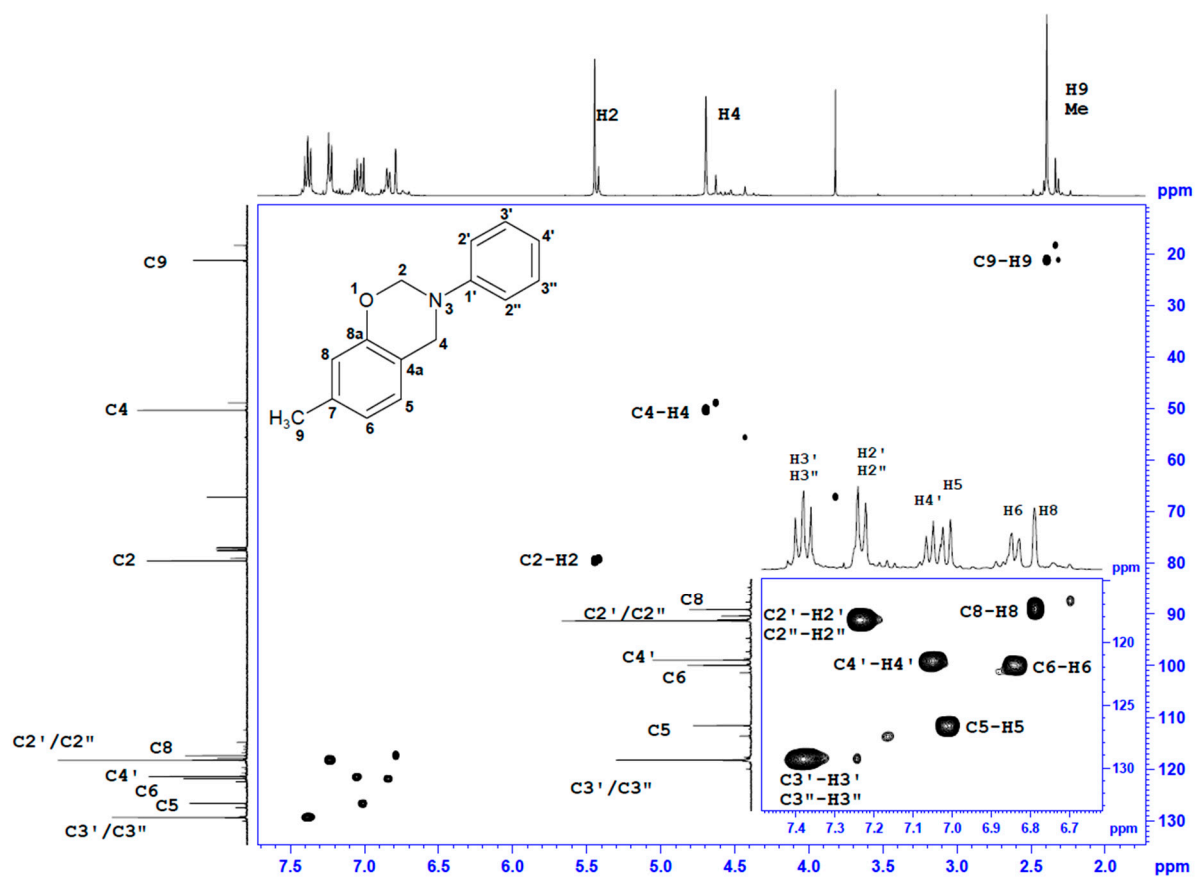




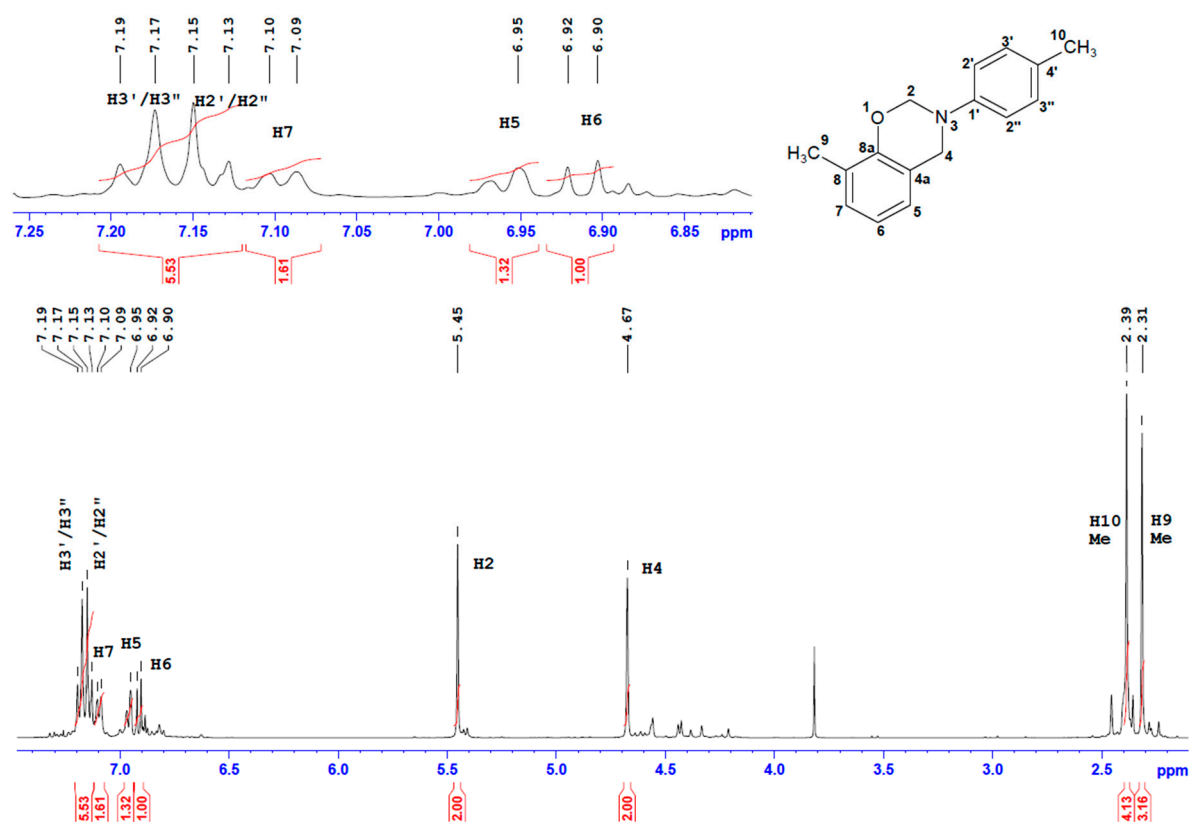
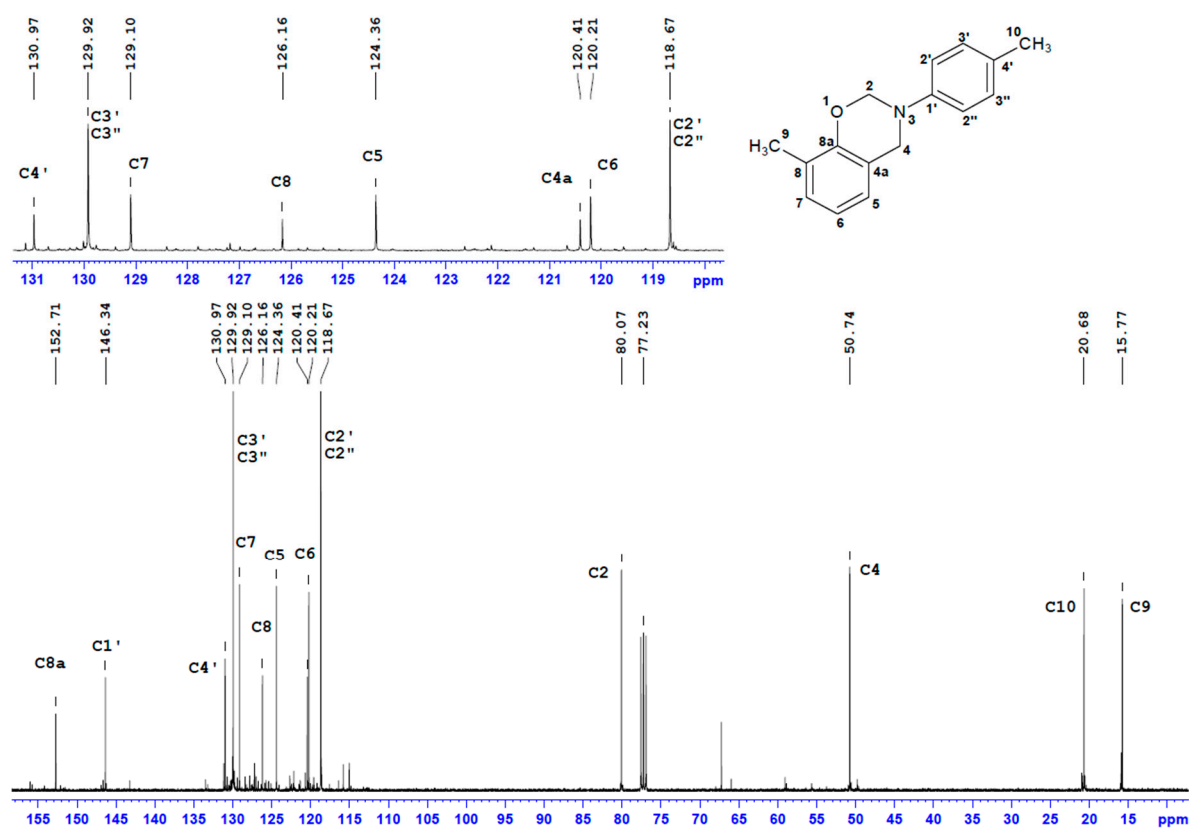
Figure S10.  $^1\text{H}$ - $^{13}\text{C}$  gHMBC spectrum of *o*C-A benzoxazine.Figure S11.  $^1\text{H}$ -NMR spectrum of *m*C-A benzoxazine.

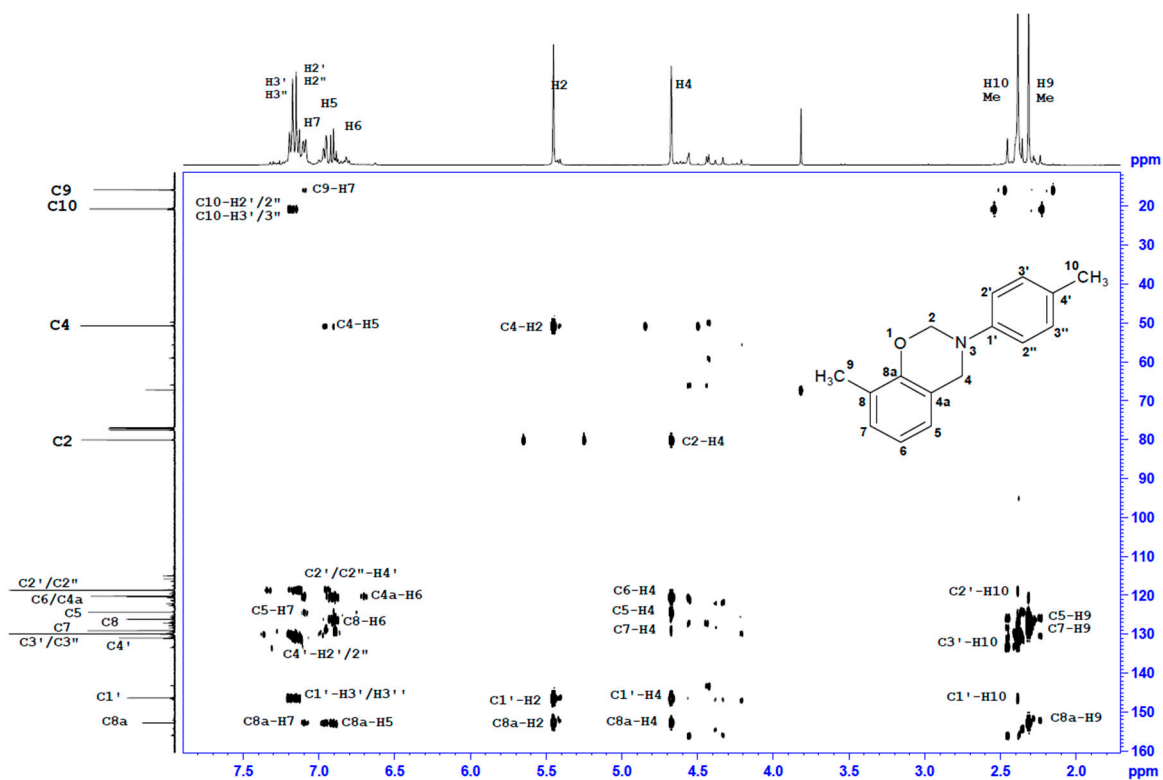
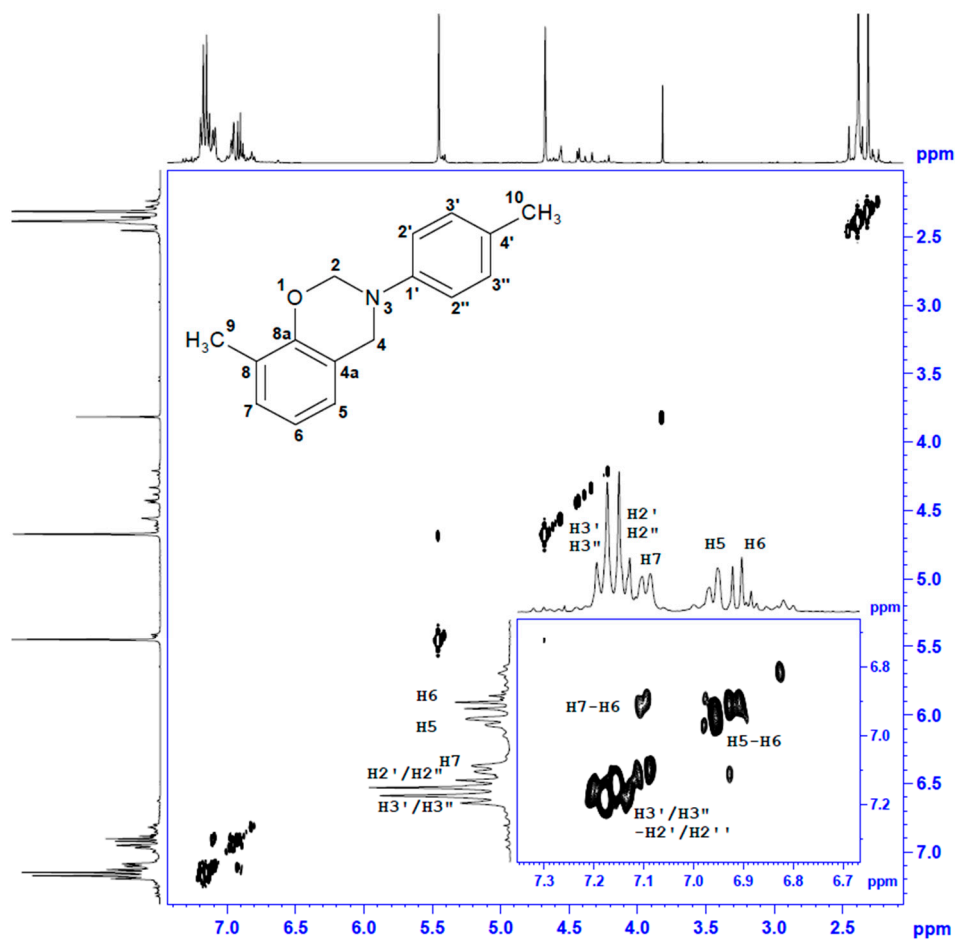
Figure S12.  $^{13}\text{C}$ -NMR spectrum of *m*C-A benzoxazine.Figure S13.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of *m*C-A benzoxazine.

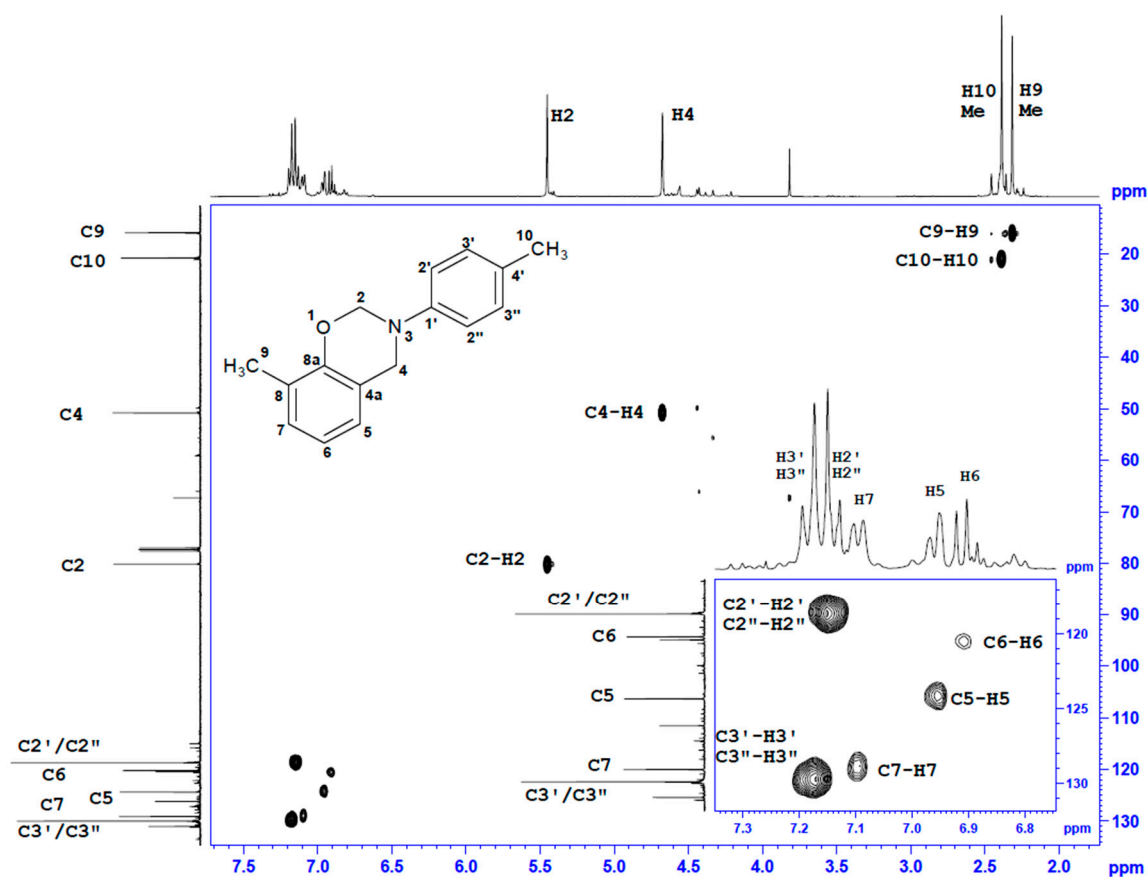
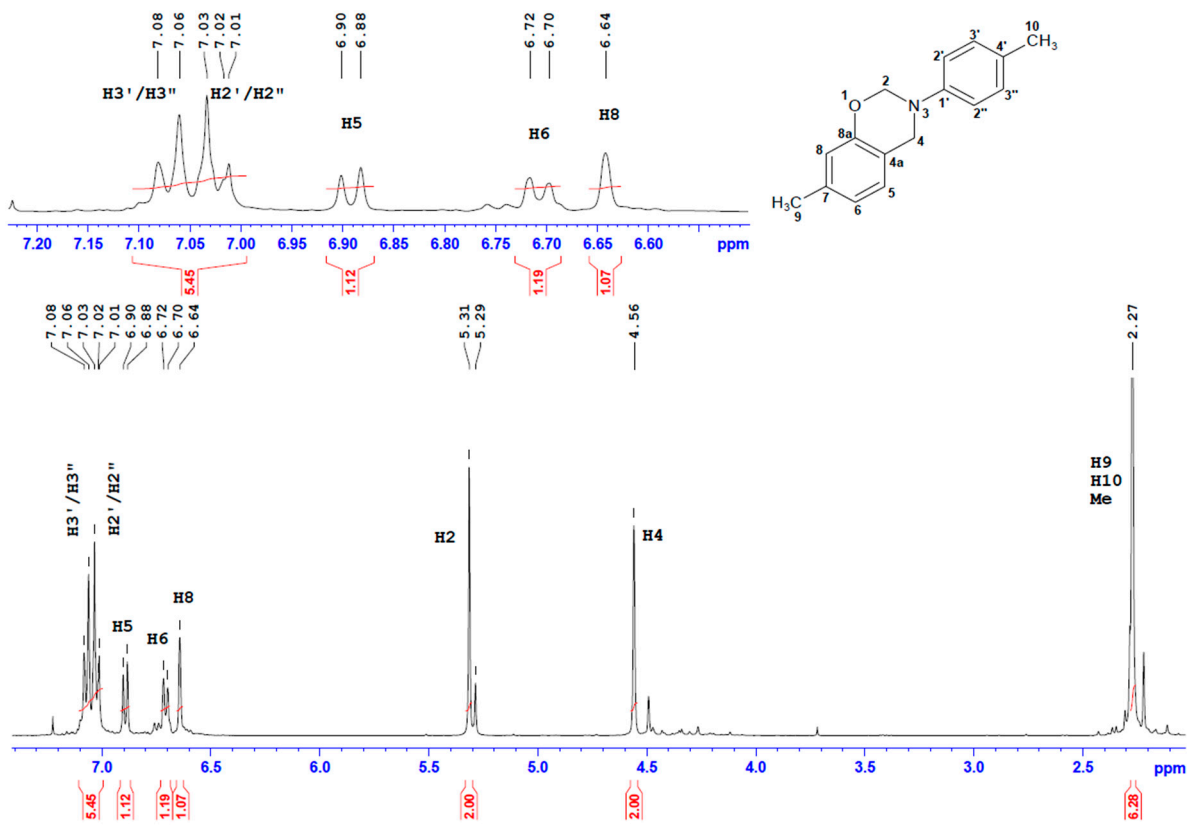


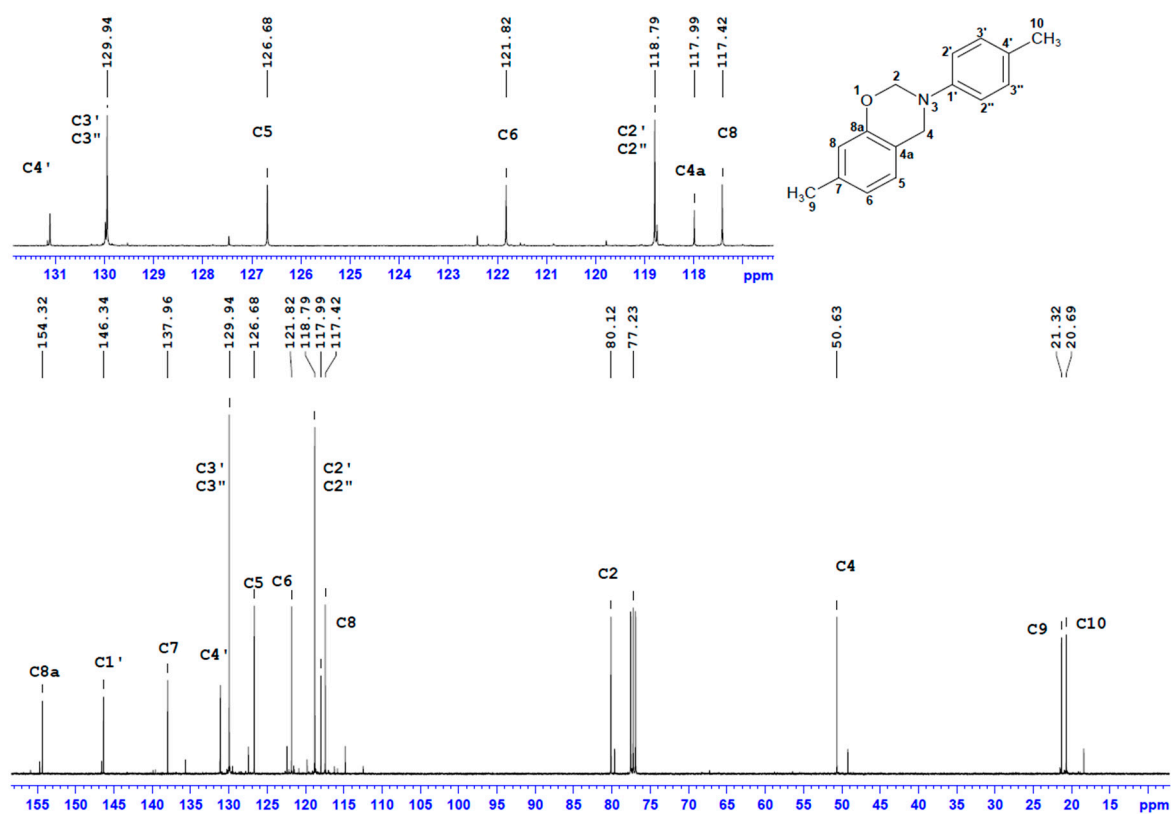
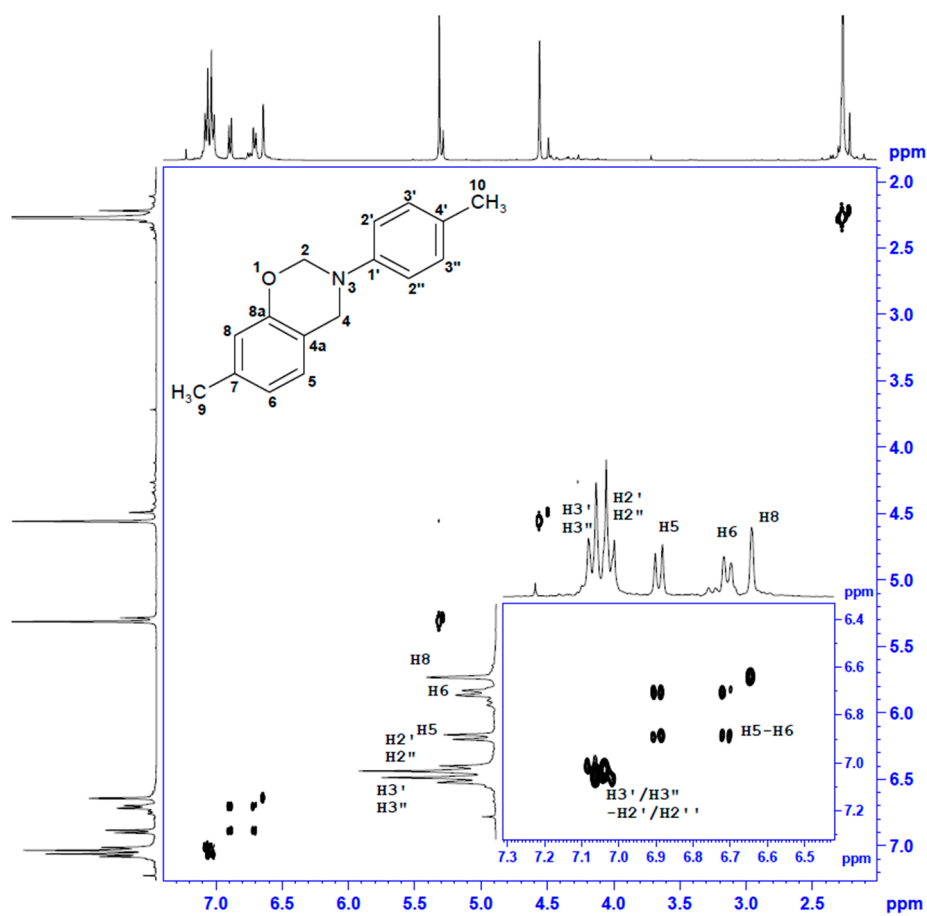
Figure S14.  $^1\text{H}$ - $^{13}\text{C}$  gHSQC spectrum of *mC-A* benzoxazine.Figure S15.  $^1\text{H}$ - $^{13}\text{C}$  gHMBC spectrum of *mC-A* benzoxazine.



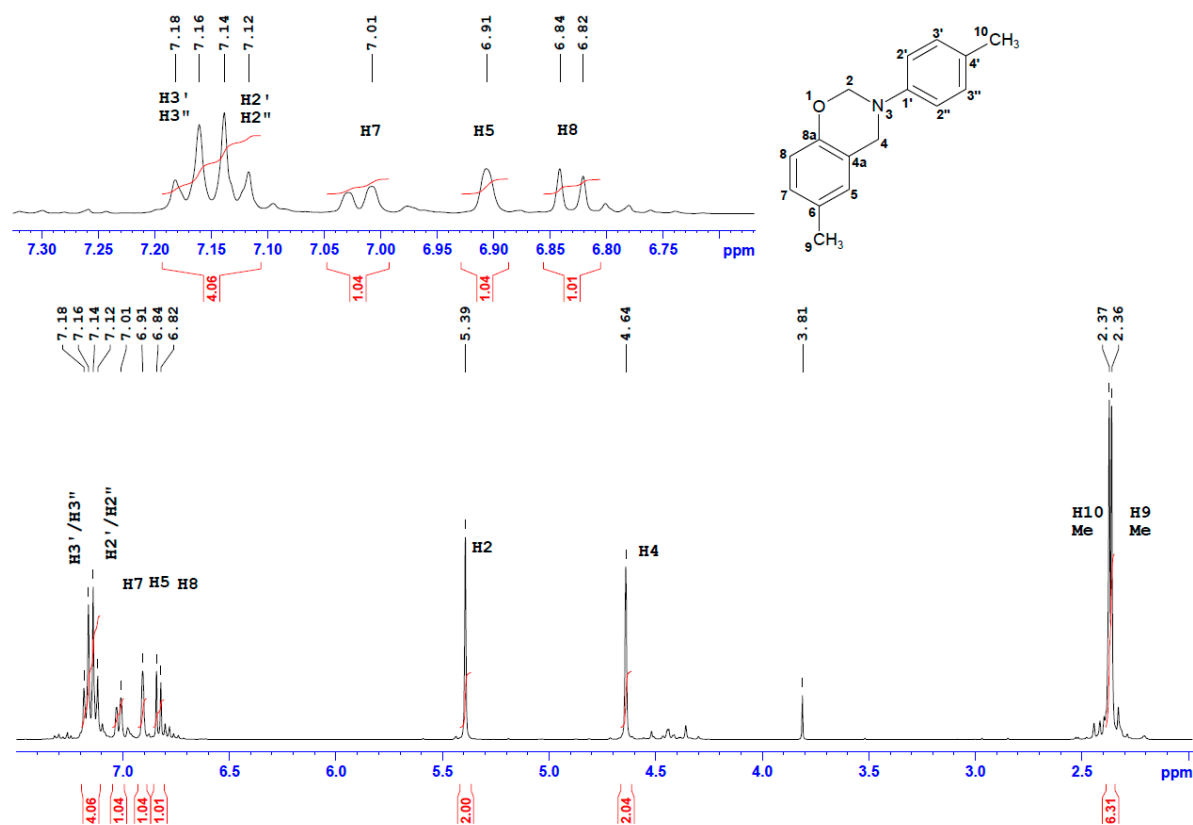
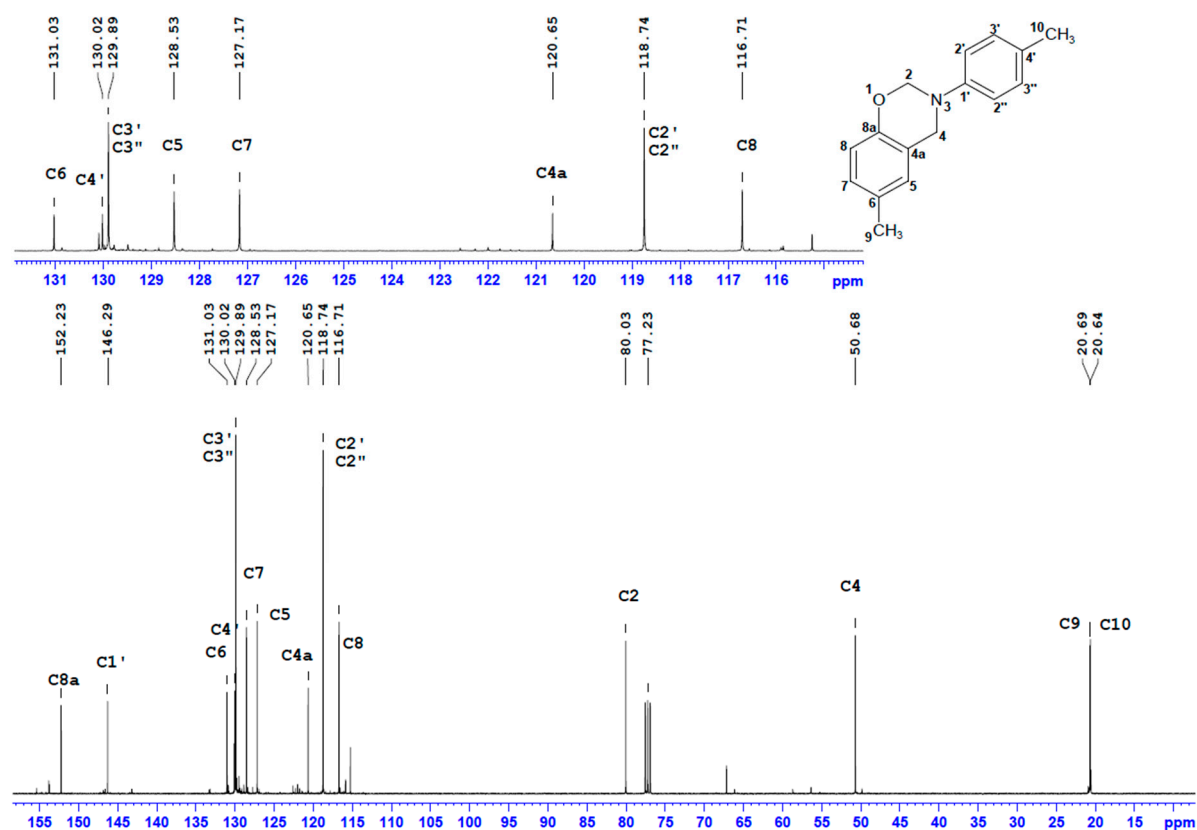
Figure S16.  $^1\text{H}$ -NMR spectrum of *oC-pT* benzoxazine.Figure S17.  $^{13}\text{C}$ -NMR spectrum of *oC-pT* benzoxazine.

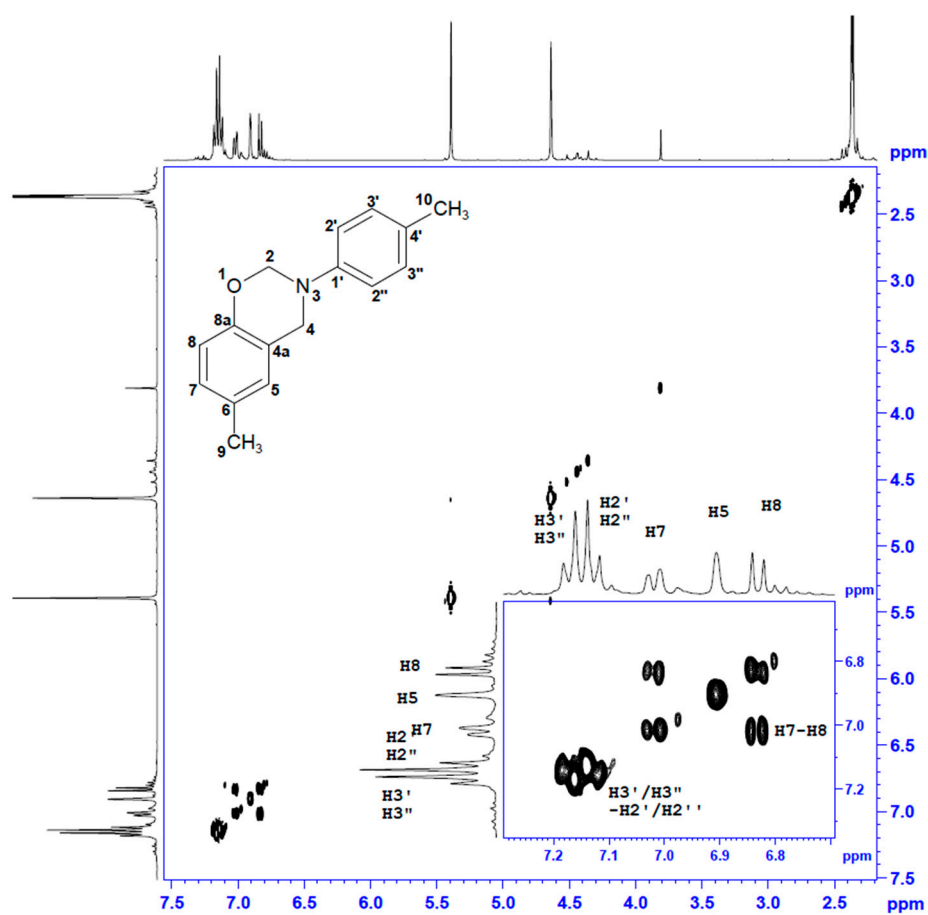
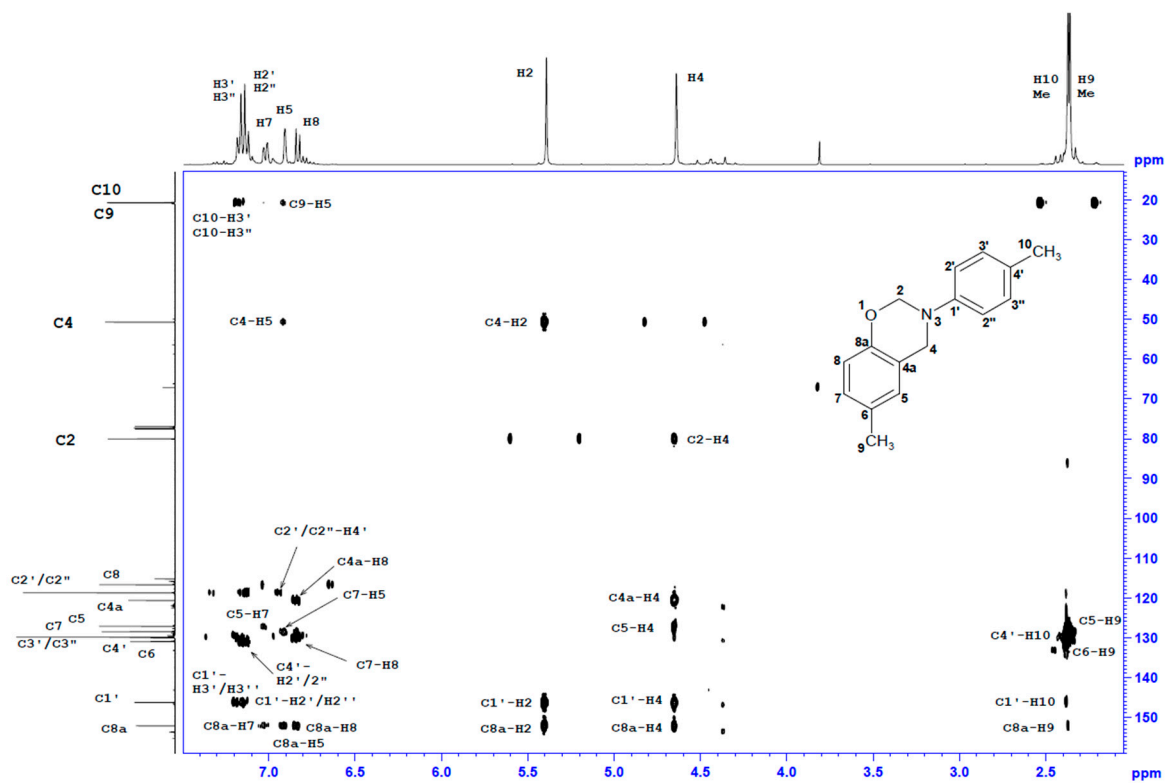


Figure S20.  $^1\text{H}$ - $^{13}\text{C}$  gHMBC spectrum of *oC-pT* benzoxazine.Figure S21.  $^1\text{H}$ -NMR spectrum of *mC-pT* benzoxazine.

Figure S22.  $^{13}\text{C}$ -NMR spectrum of *mC-pT* benzoxazine.Figure S23.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of *mC-pT* benzoxazine.



Figure S26. <sup>1</sup>H-NMR spectrum of *pC-pT* benzoxazine.Figure S27. <sup>13</sup>C-NMR spectrum of *pC-pT* benzoxazine.

Figure S28.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of *pC-pT* benzoxazine.Figure S29.  $^1\text{H}$ - $^{13}\text{C}$  gHSQC spectrum of *pC-pT* benzoxazine.



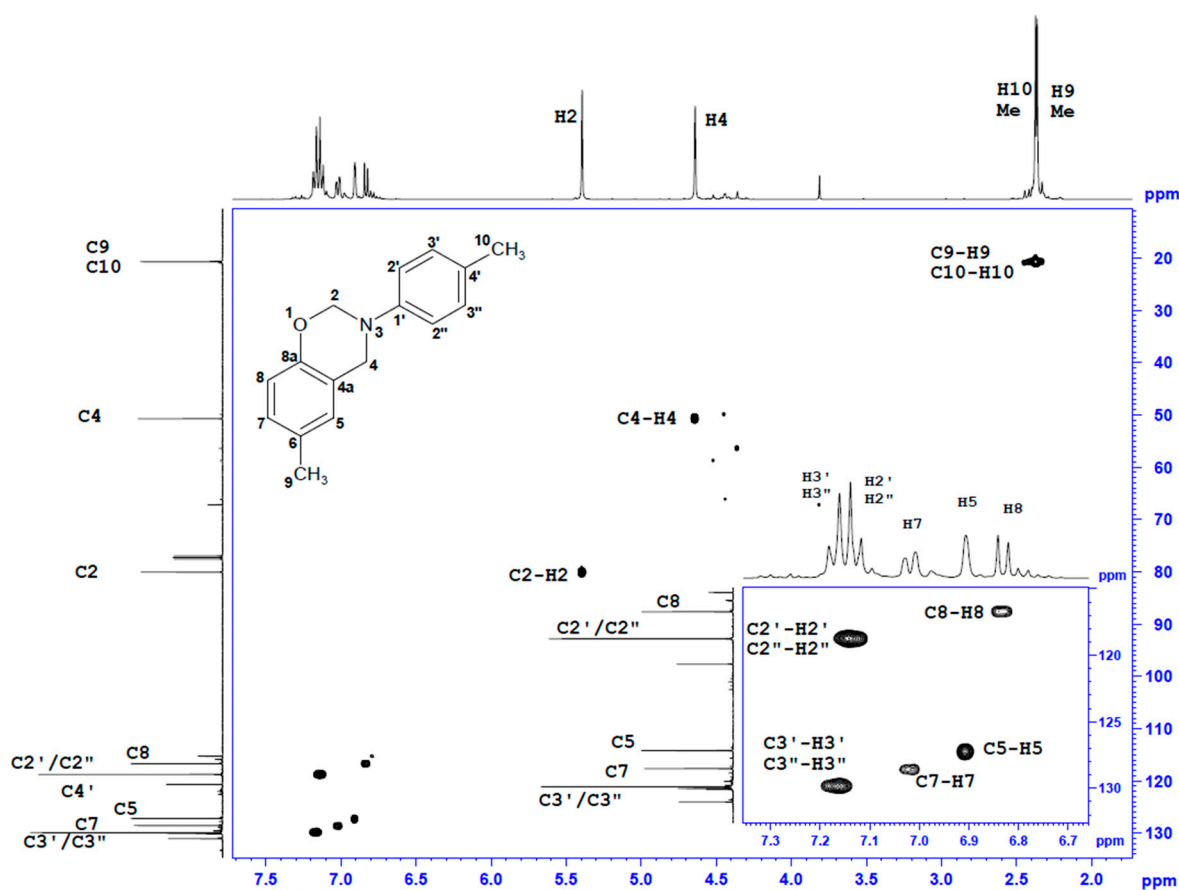


Figure S30.  $^1\text{H}$ - $^{13}\text{C}$  gHMBC spectrum of *pC-pT* benzoxazine.



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