

Catalytic hydrogenation and dehydrogenation reactions of *N*-alkyl-bis(carbazole)-based hydrogen storage materials

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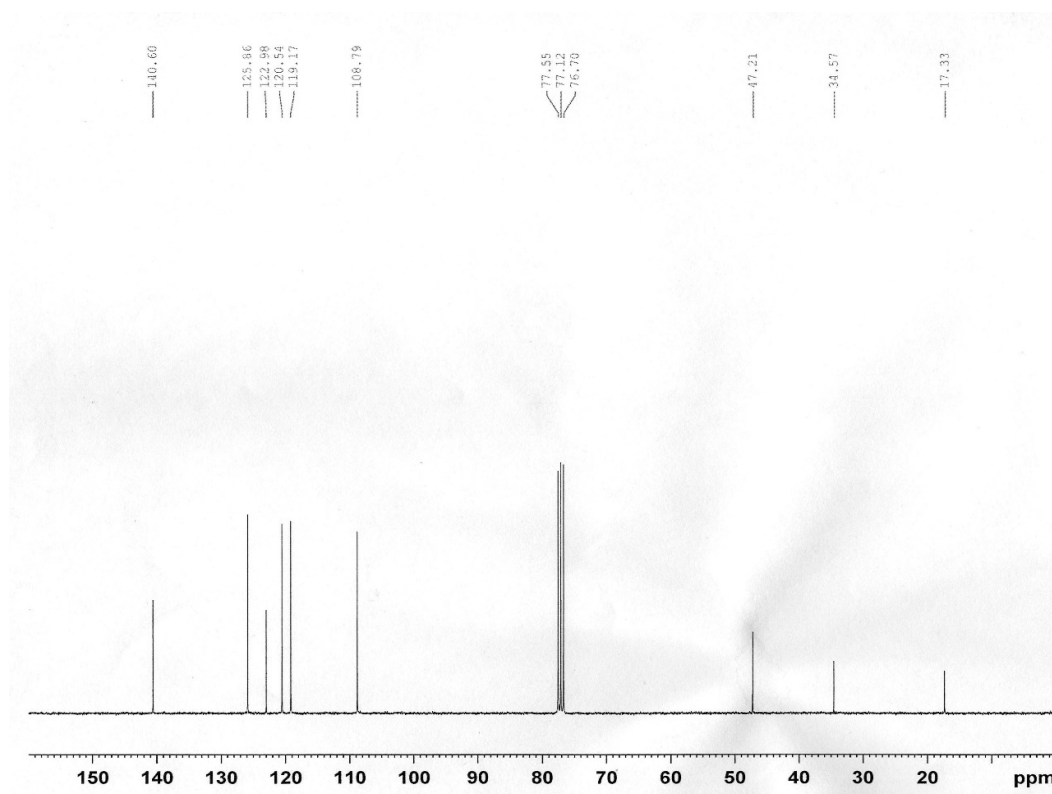
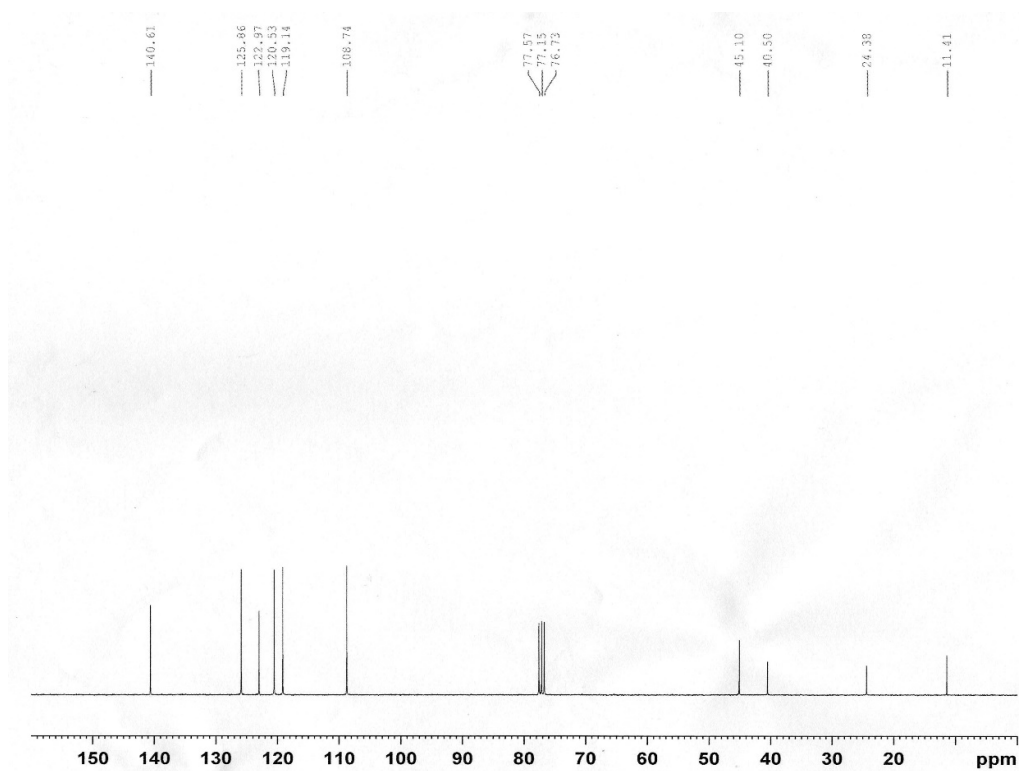
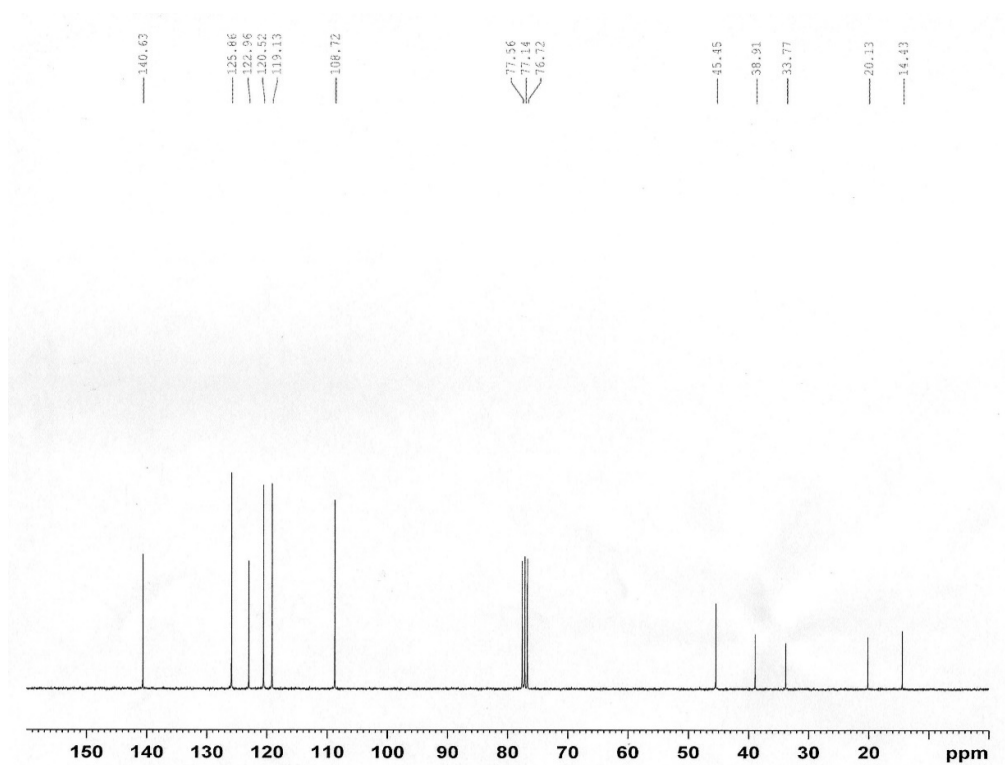
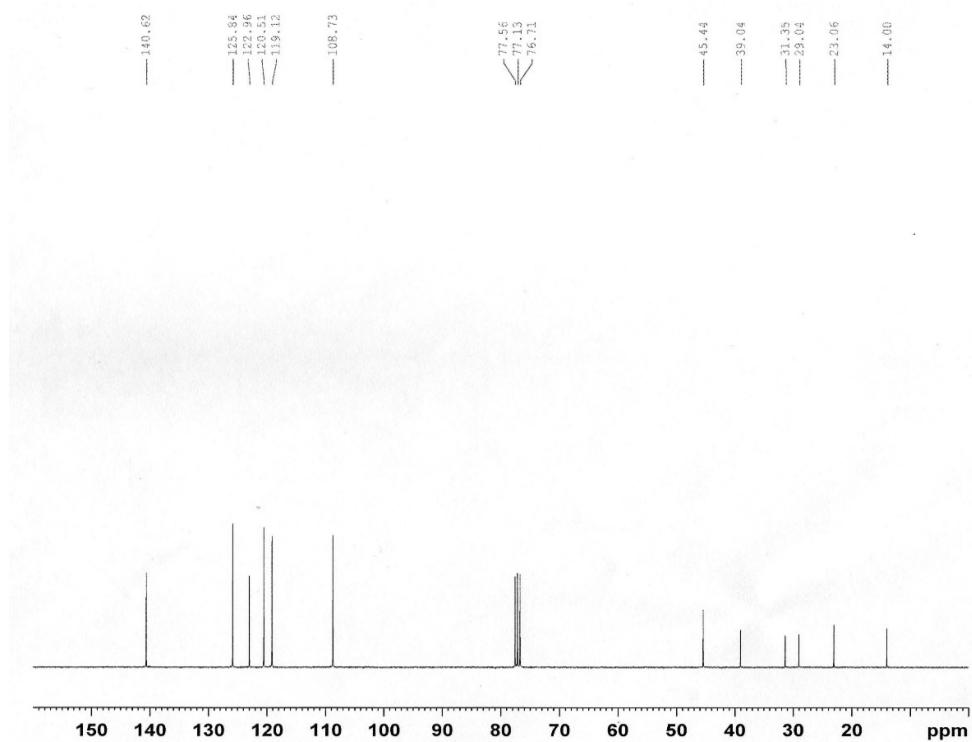
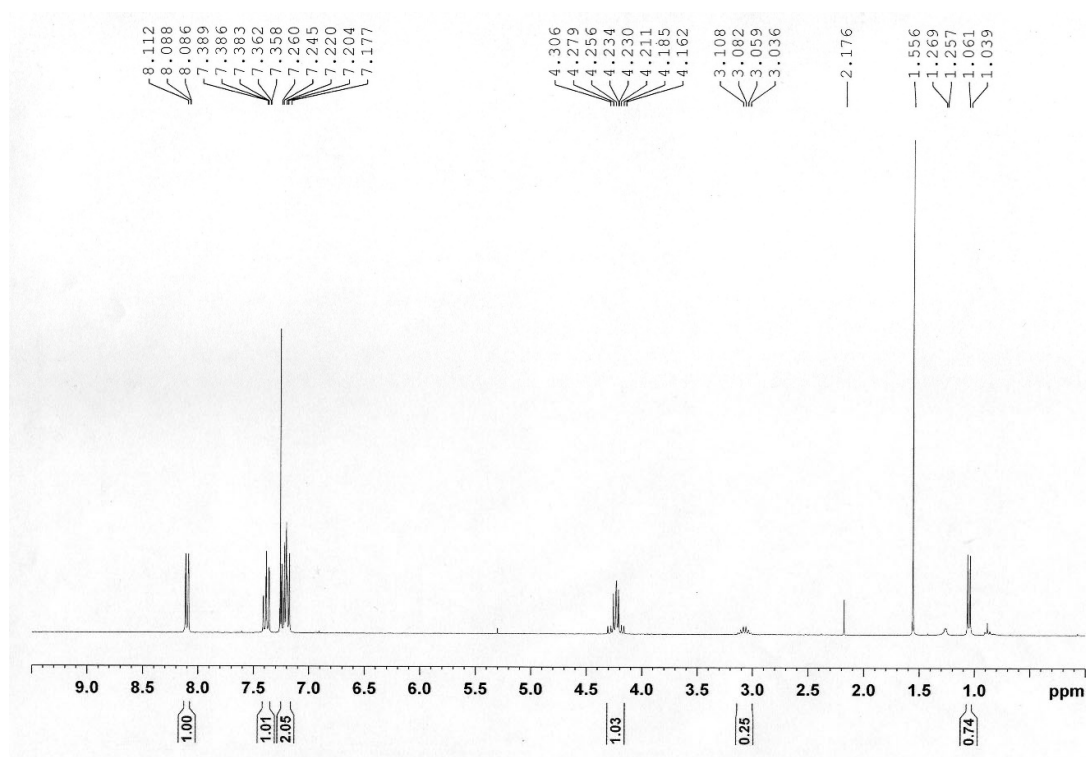
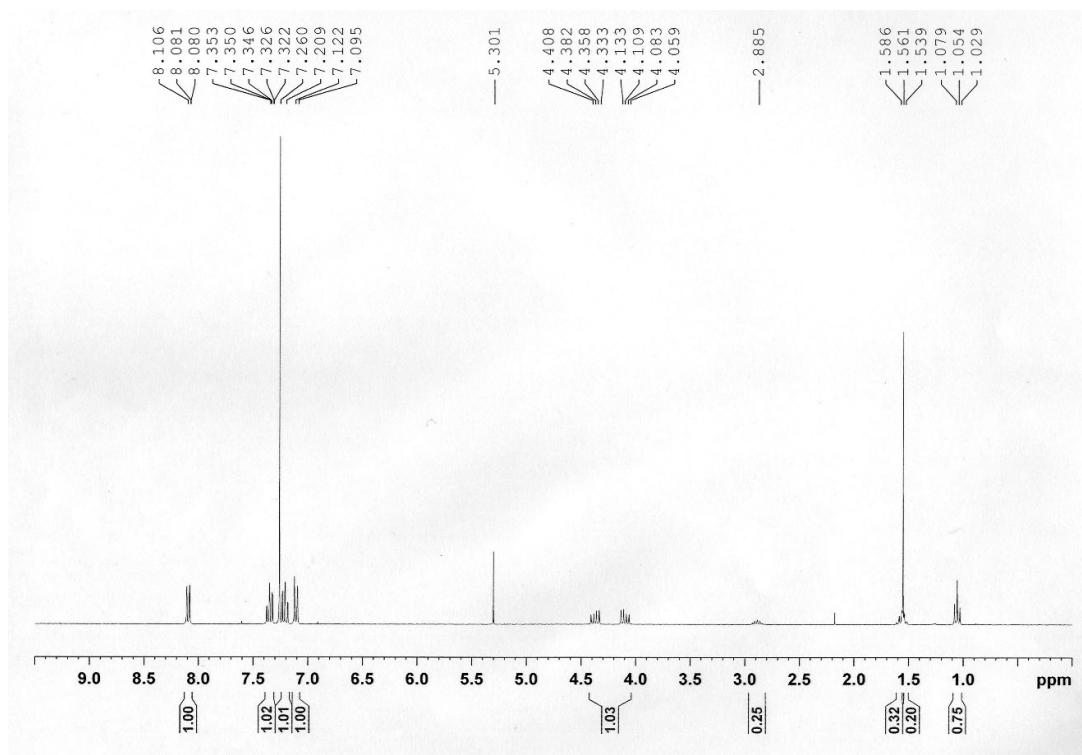
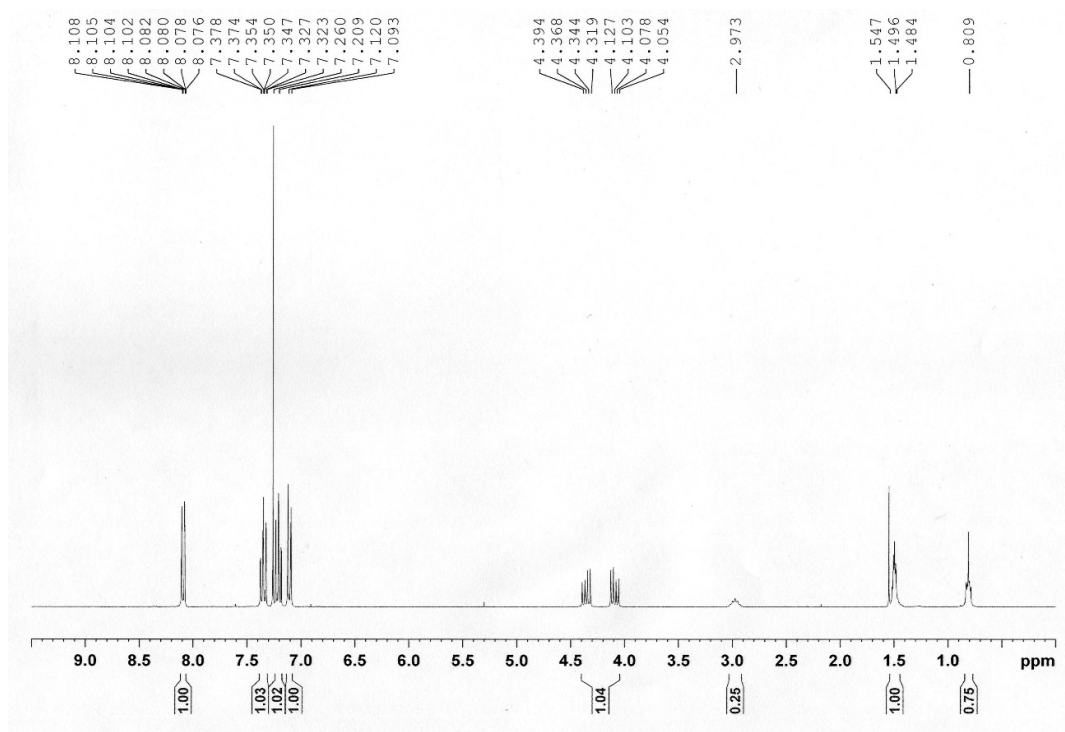
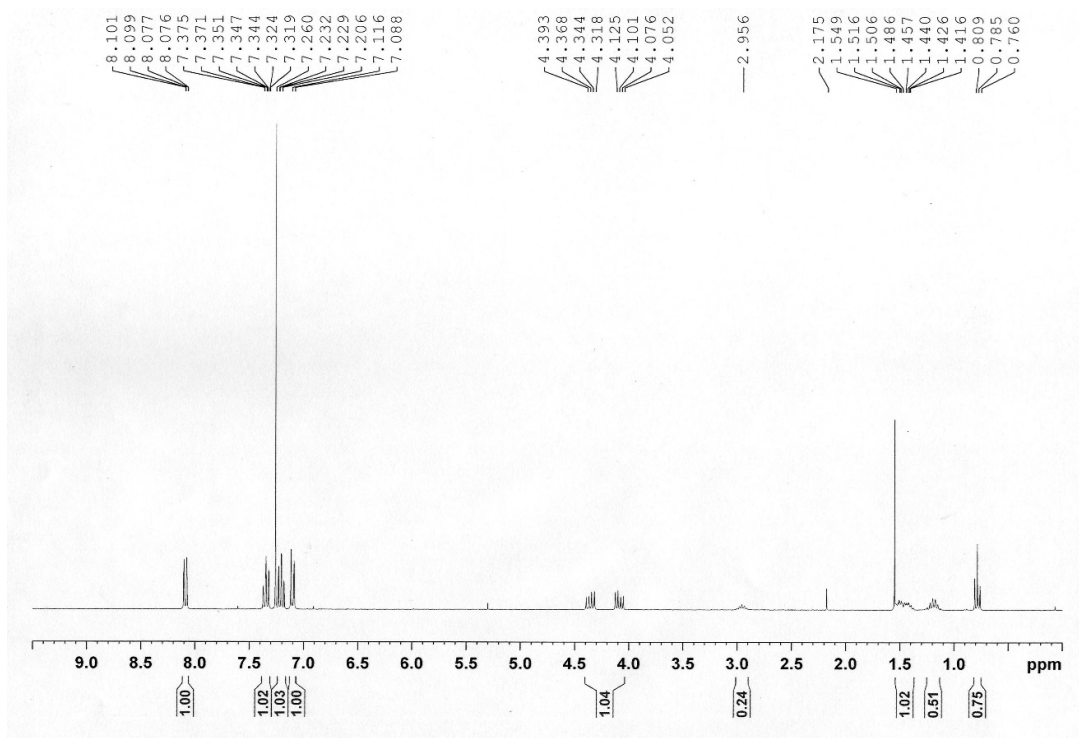
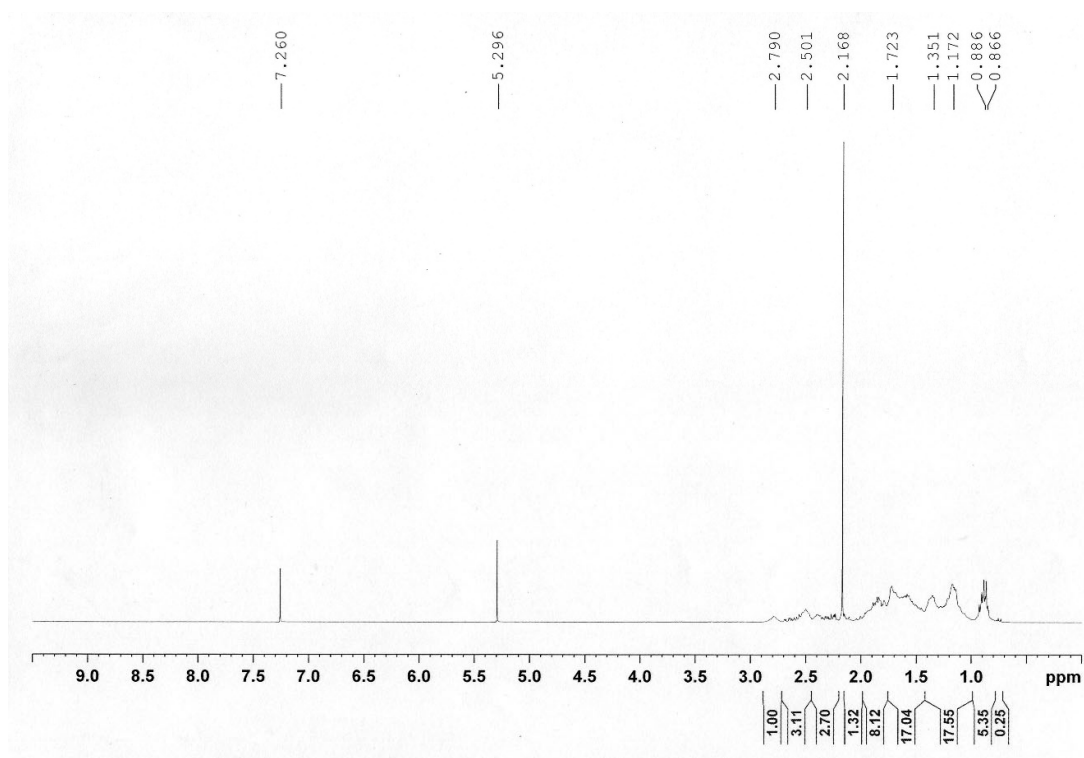


Figure S1. ^{13}C NMR of MBC.Figure S2. ^{13}C NMR of EBC.Figure S3. ^{13}C NMR of PBC.

Figure S4. ¹³C NMR of BBC.Figure S5. ¹H NMR of MBC.

Figure S6. ¹H NMR of EBC.Figure S7. ¹H NMR of PBC.

Figure S8. ¹H NMR of BBC.Figure S9. ¹H NMR after catalytic hydrogenation of MBC.

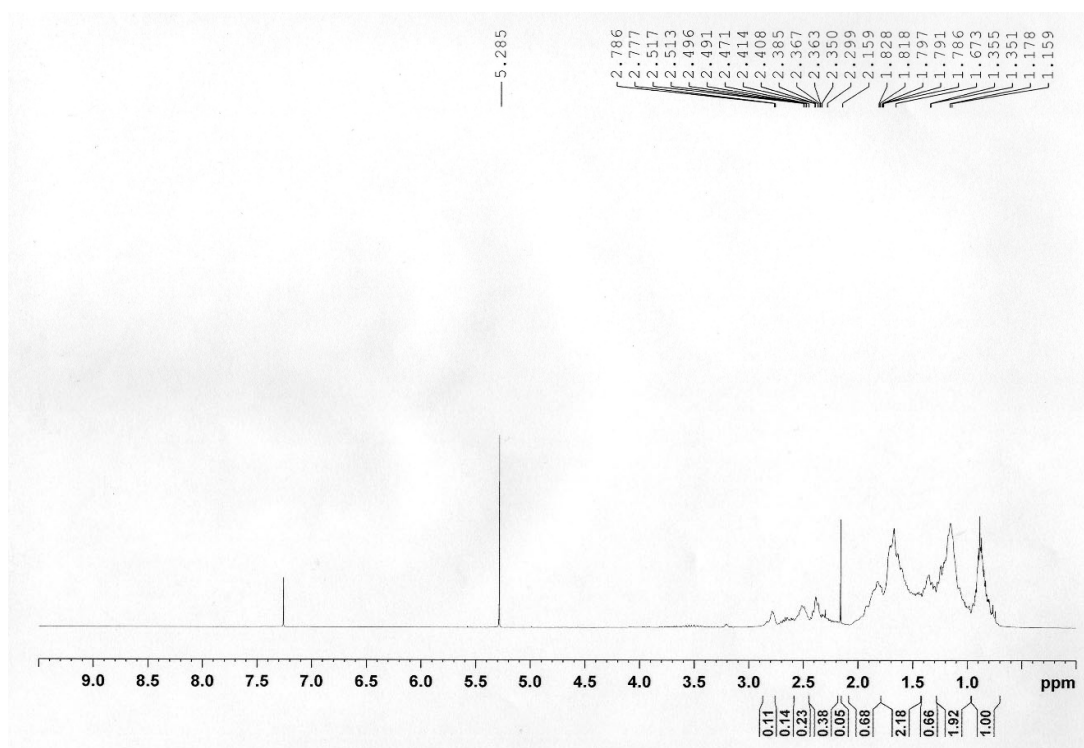


Figure S10. ^1H NMR after catalytic hydrogenation of EBC.

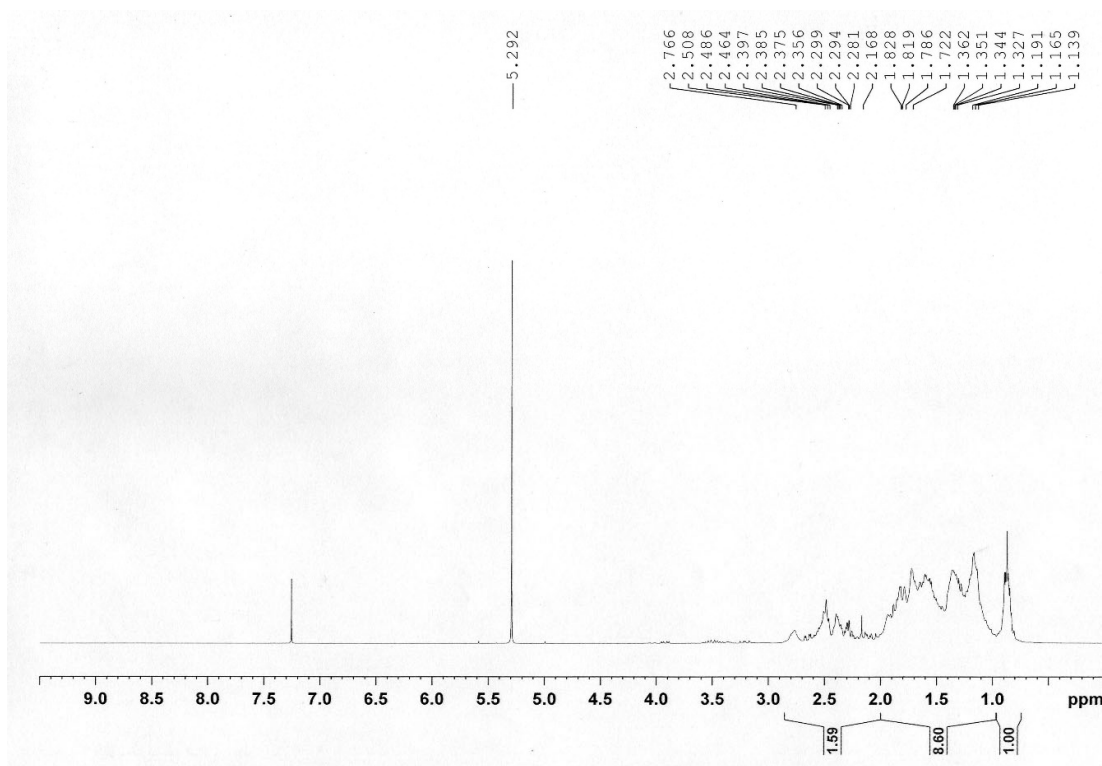


Figure S11. ^1H NMR after catalytic hydrogenation of PBC.

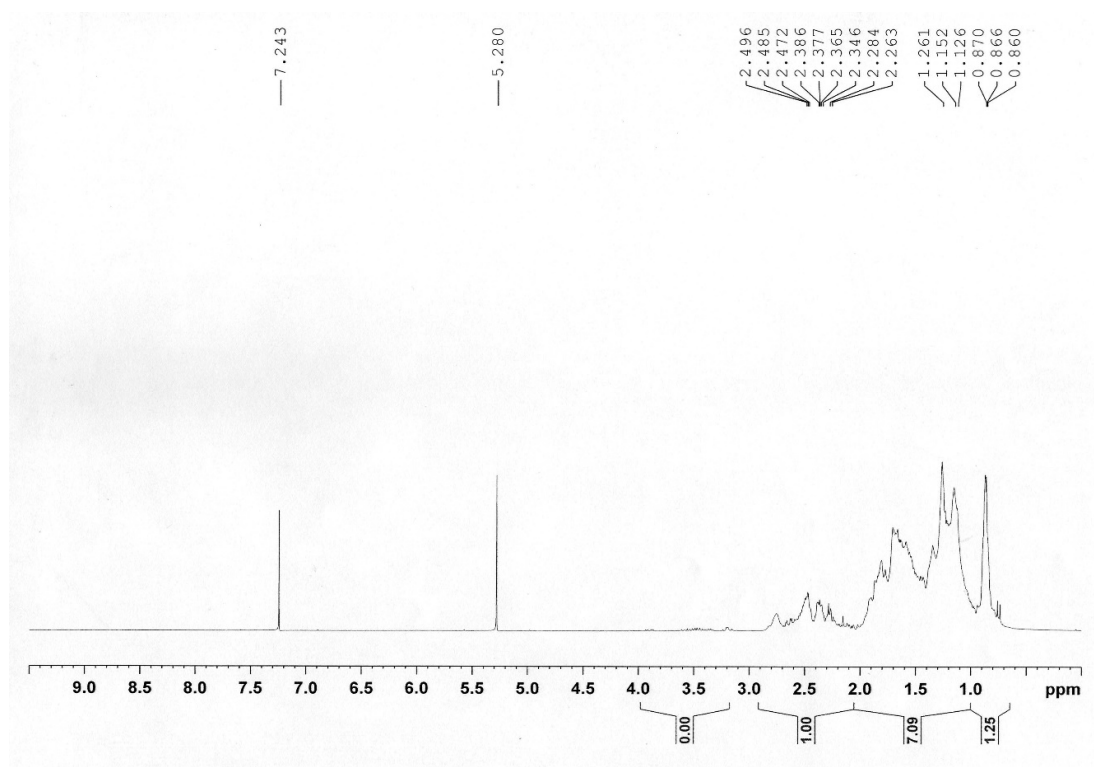


Figure S12. ^1H NMR after catalytic hydrogenation of BBC.

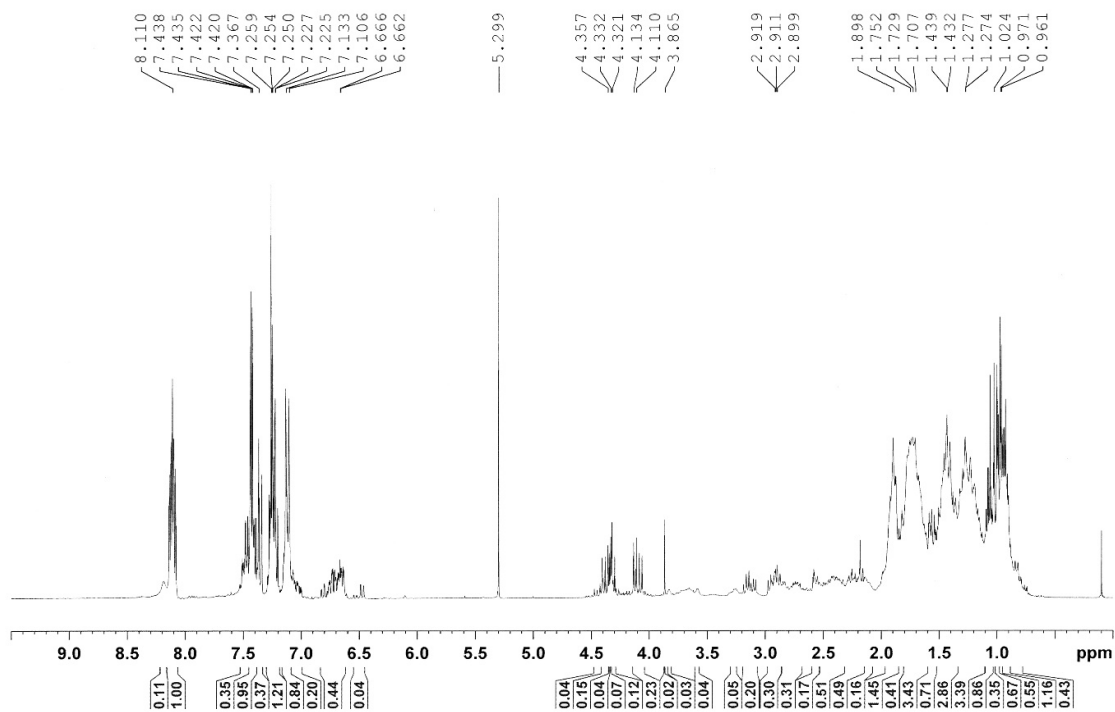


Figure S13. ^1H NMR spectra of the resulting dehydrogenated products for EBC-H at 240 °C.

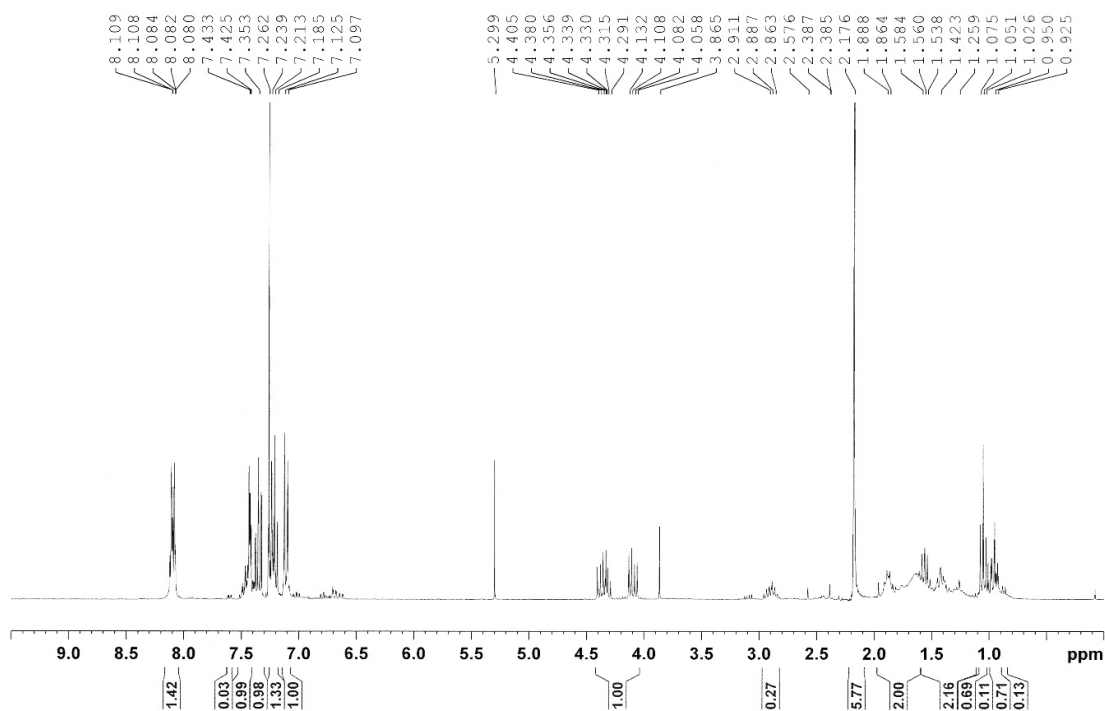


Figure S14. ¹H NMR spectra of the resulting dehydrogenated products for EBC-H at 260 °C.

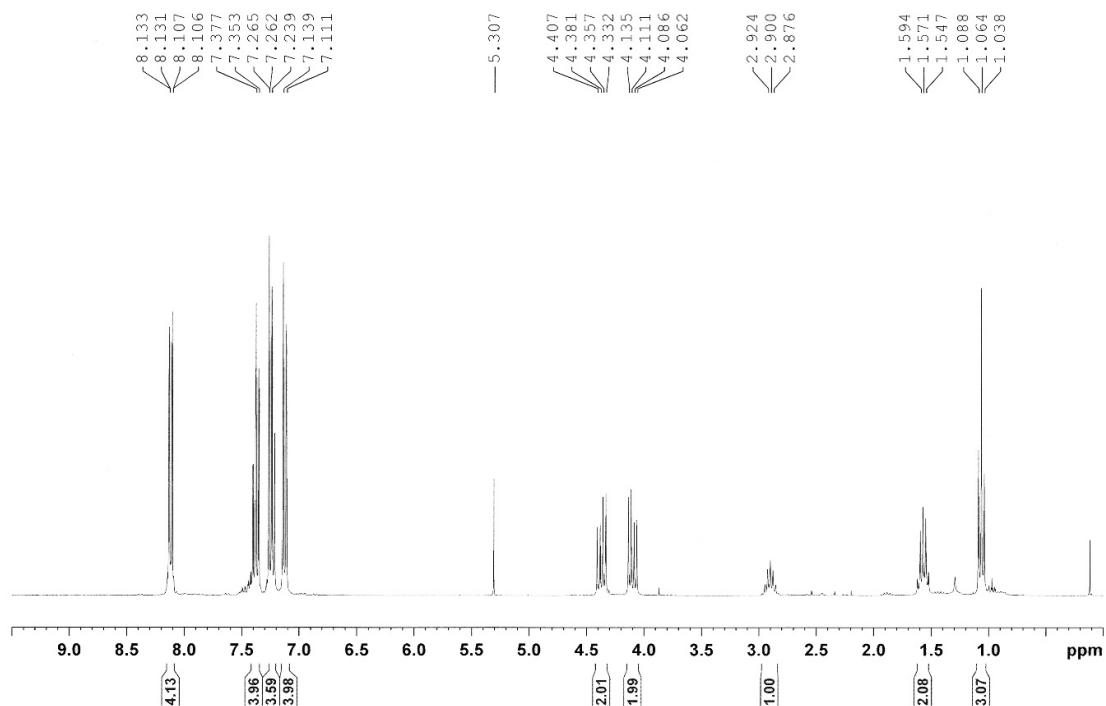


Figure S15. ¹H NMR spectra of the resulting dehydrogenated products for EBC-H at 280 °C.

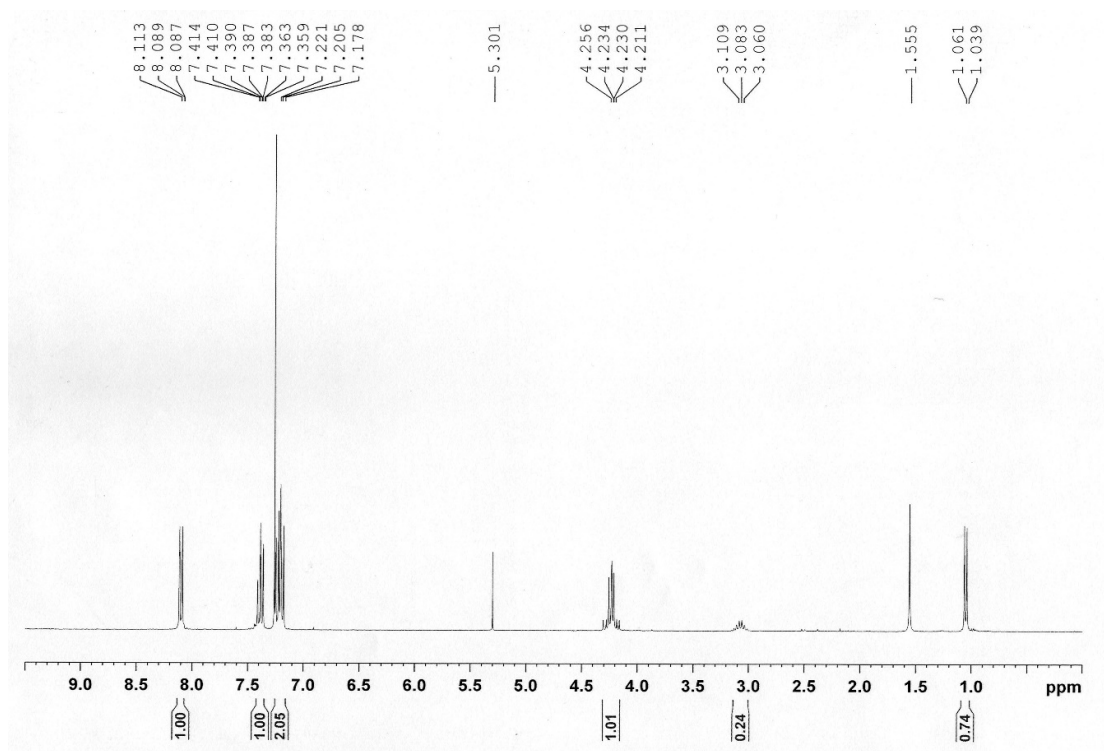


Figure S16. ¹H NMR after catalytic dehydrogenation of MBC-H at 280 °C.

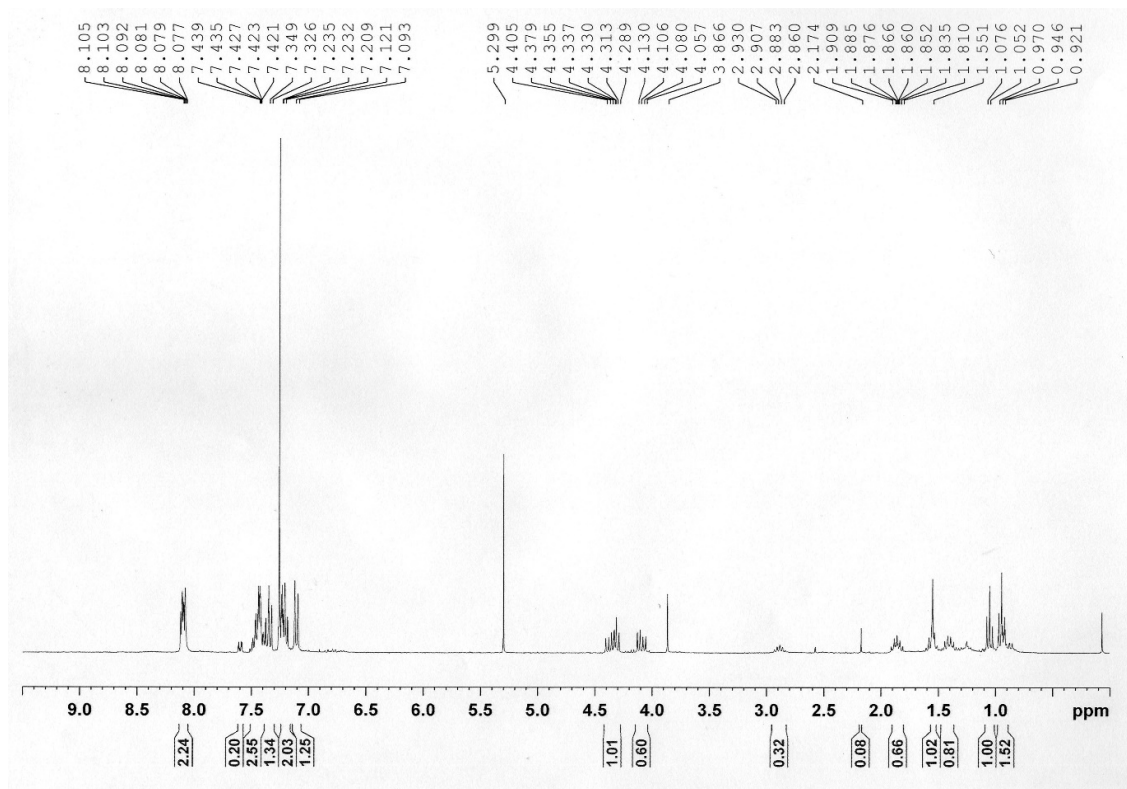


Figure S17. ¹H NMR after catalytic dehydrogenation of EBC-H at 280 °C.

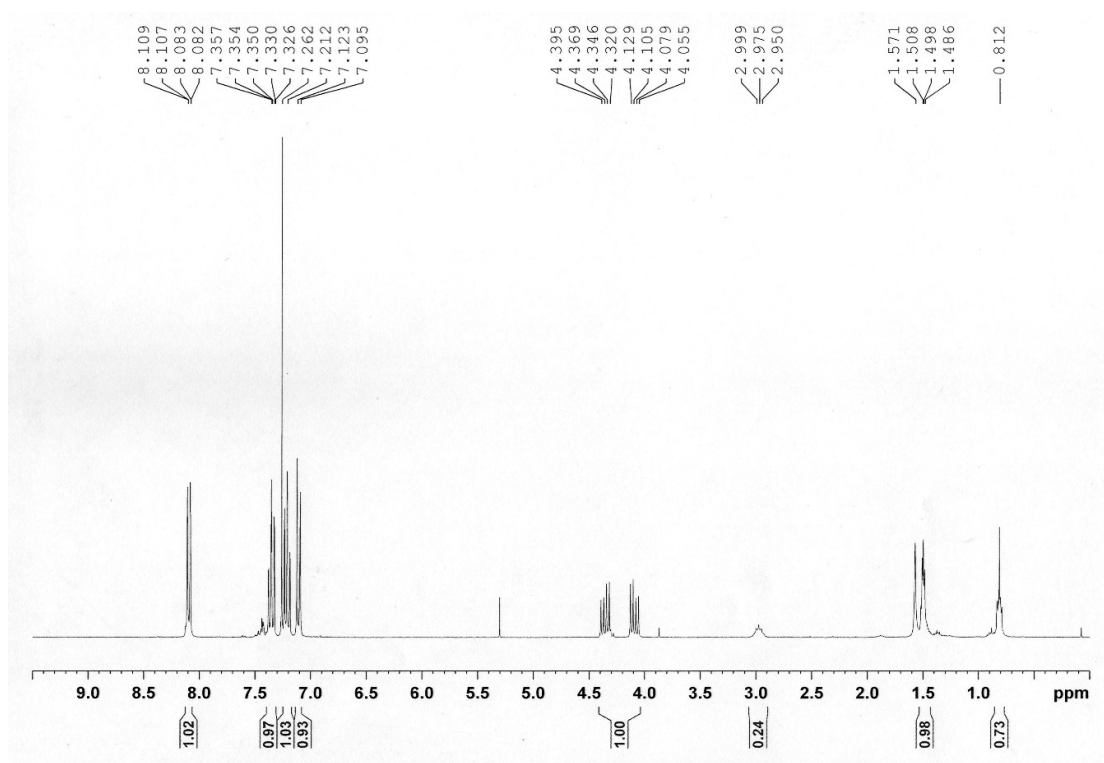


Figure S18. ¹H NMR after catalytic dehydrogenation of PBC-H at 280 °C.

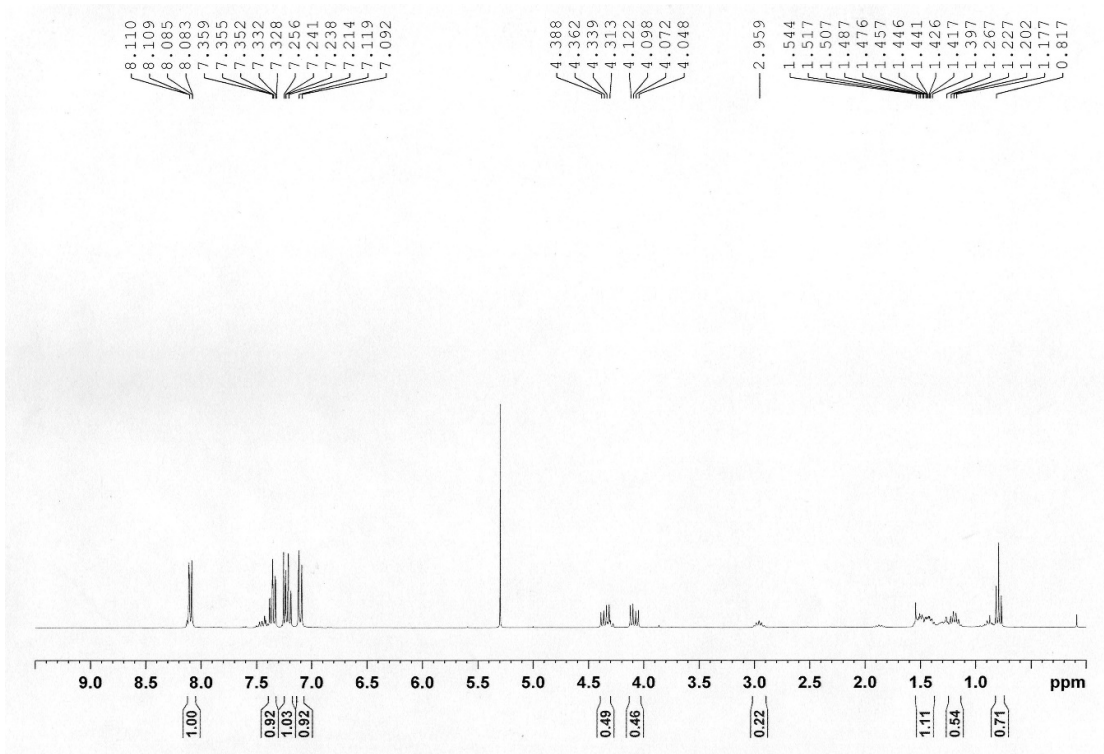


Figure S19. ¹H NMR after catalytic dehydrogenation of BBC-H at 280 °C.