

Supporting Information for

**Kinetics of 3,4-dihydro-2H-3-Phenyl-1,3-benzoxazine synthesis from
Mannich base and formaldehyde**

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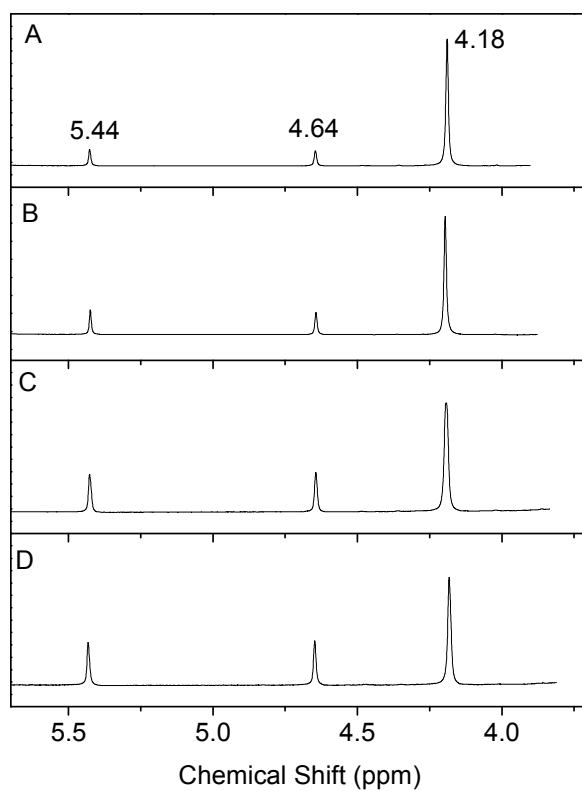


Figure S1. ¹H NMR spectra of reaction solutions with n-propylamine added. Reaction conditions: Temperature, 30 °C; initial concentration, [MB]₀=0.8 mol/kg, [F]₀=0.8 mol/kg; Time, A.412 s, B.652 s, C.952 s, D. 1252 s.

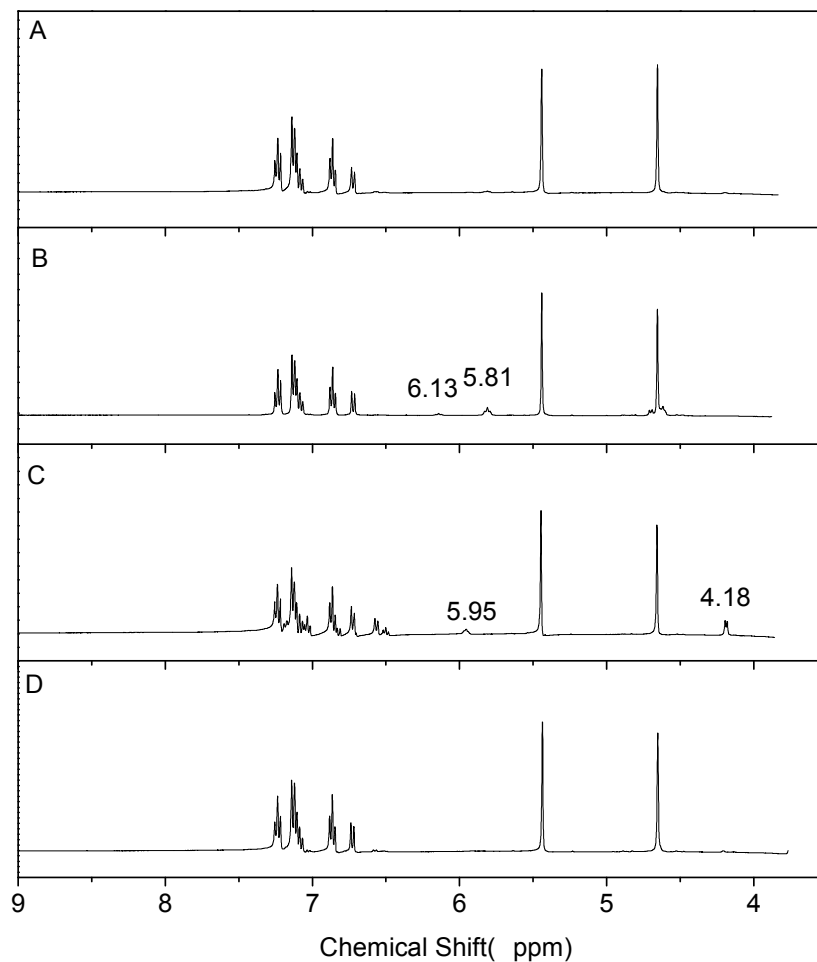


Figure S2. ^1H -NMR spectra of Mannich base and formaldehyde reaction solution at 30 °C for 24h. A. equal mole, $[\text{MB}]_0 = 0.8 \text{ mol/kg}$, $[\text{F}]_0 = 0.8 \text{ mol/kg}$; B. formaldehyde excess, $[\text{MB}]_0 = 0.6 \text{ mol/kg}$, $[\text{F}]_0 = 0.8 \text{ mol/kg}$; C. Mannich base excess, $[\text{MB}]_0 = 0.8 \text{ mol/kg}$, $[\text{F}]_0 = 0.6 \text{ mol/kg}$; D. equal molar and added NaOH, $[\text{MB}]_0 = 0.8 \text{ mol/kg}$, $[\text{F}]_0 = 0.8 \text{ mol/kg}$, pH=8

In Figure S2B, signals at 6.13 ppm, 5.81 ppm and 4.5 - 4.8 ppm are protons in remaining formaldehyde, and in Figure S2C, signals at 4.18 ppm and 5.95 ppm are attributed to $\text{N-CH}_2\text{-Ar}$ and NH in Mannich base.

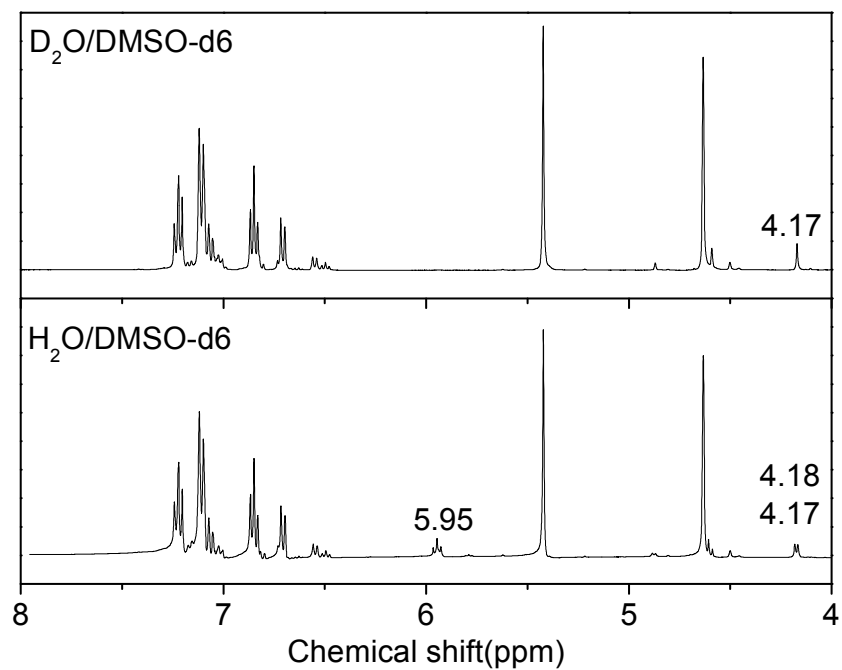


Figure S3 ^1H -NMR spectra of benzoxanine and water/deuteroxide in DMSO-d_6 at 40°C for 24h

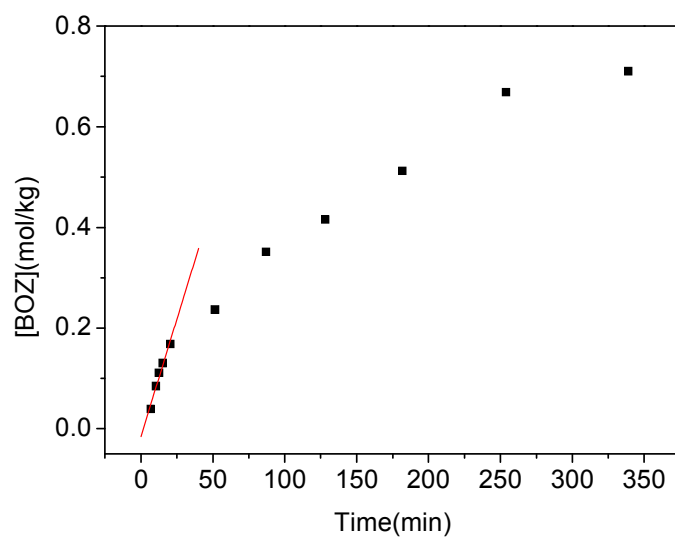


Figure S4 Benzoxazine concentration versus time at 30 °C ([MB]₀ = 0.8 mol/kg, [F]₀ = 0.8 mol/kg)

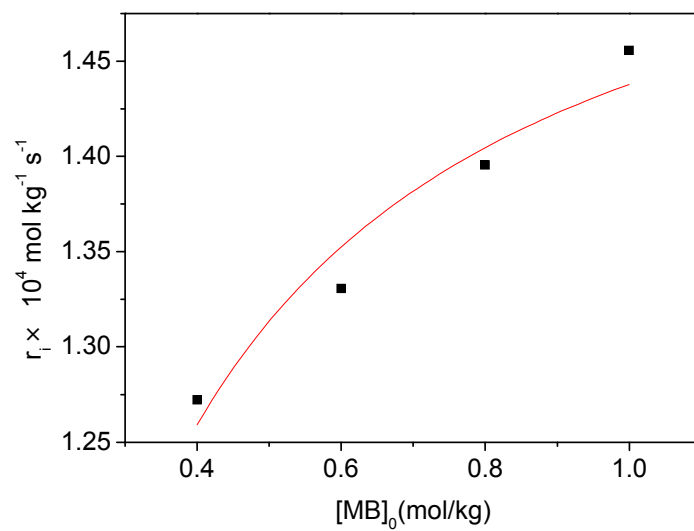


Figure S5 Initial rate of benzoxazine formation versus initial concentration of Mannich base at 30 °C. [F]₀=0.8mol/kg