

LED-induced Controlled Radical Polymerization with an in situ bromine-iodine transformation and block polymerization combined with Ring-opening Polymerization using one organocatalyst

Feifei Li, Wanting Yang, Mengmeng Li, Lin Lei*

Key Laboratory of Synthetic and Natural Functional Molecular Chemistry of the Ministry of Education College of Chemistry and Materials Science, Northwest University, Xi'an, 710127, P. R. China.

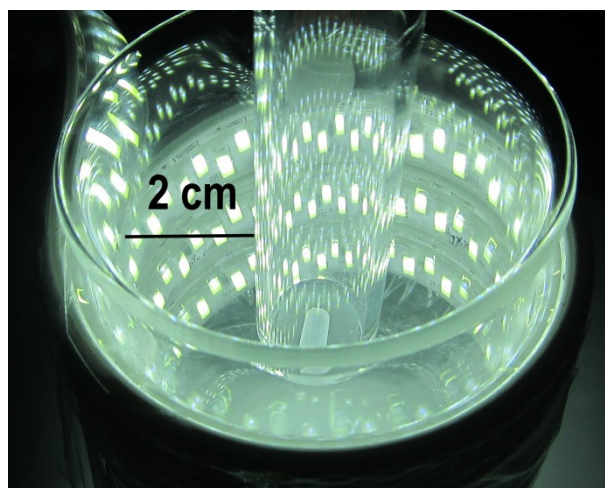


Figure S1. The picture of white LED light (380 -780 nm, 13 W/m, 1.5 mW/cm²): actual light intensity (at the position of the reaction solution) experimentally measured by a luminometer.

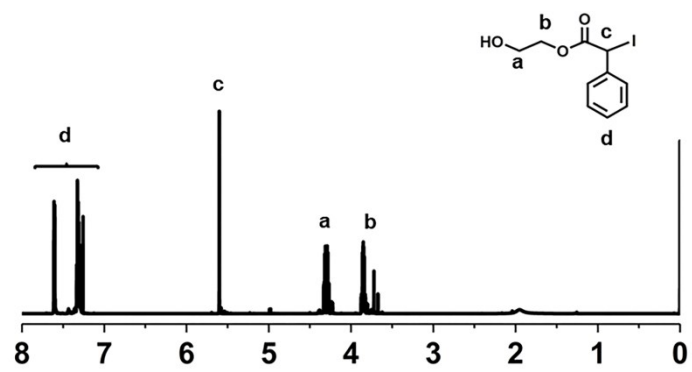


Figure S2. ¹H NMR spectrum of Ph-BrOH in CDCl₃.

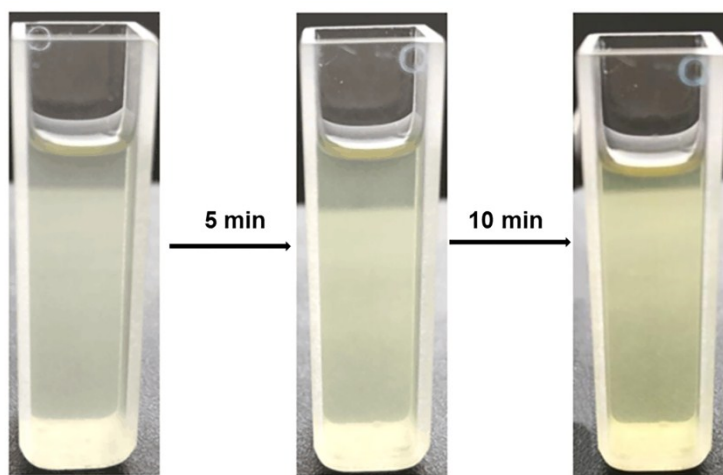


Figure S3. Color changes in the solution. The condition sees in Figure 2.

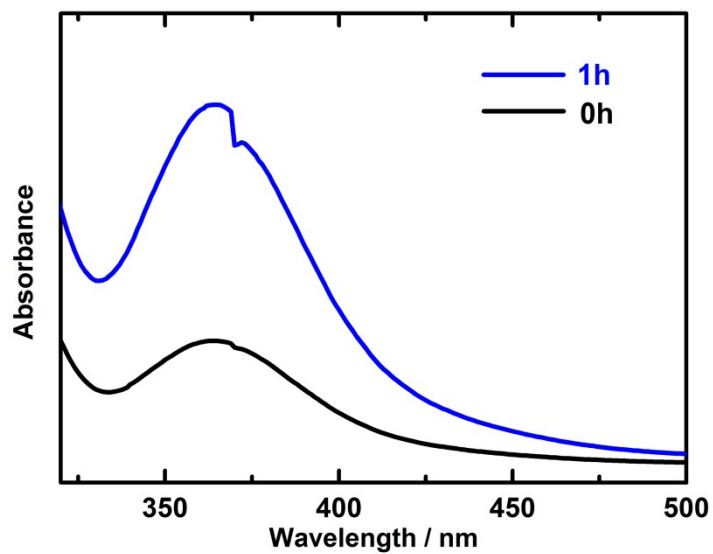


Figure S4. UV-vis spectra of CP-Br (0.02 mmol) with NaI (0.022 mmol) and HMPA (0.02 mmol) (blue line), and CP-Br (0.02 mmol) with NaI (0.022 mmol) and HMPA (0.02 mmol) in LED light 1h (black line). The solvent was MMA in all cases.

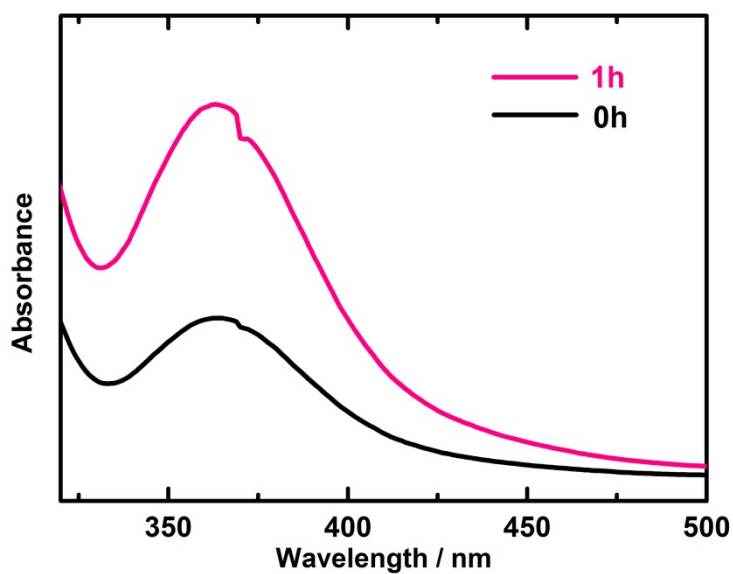


Figure S5. UV-vis spectra of CP-Br (0.02 mmol), (0.022 mmol) with TBA (0.005 mM) (black line), and CP-Br (0.02 mmol) with NaI (0.022 mmol) and TBA (0.005 mM) in LED light 1 h (purple line). The solvent was MMA in all cases.

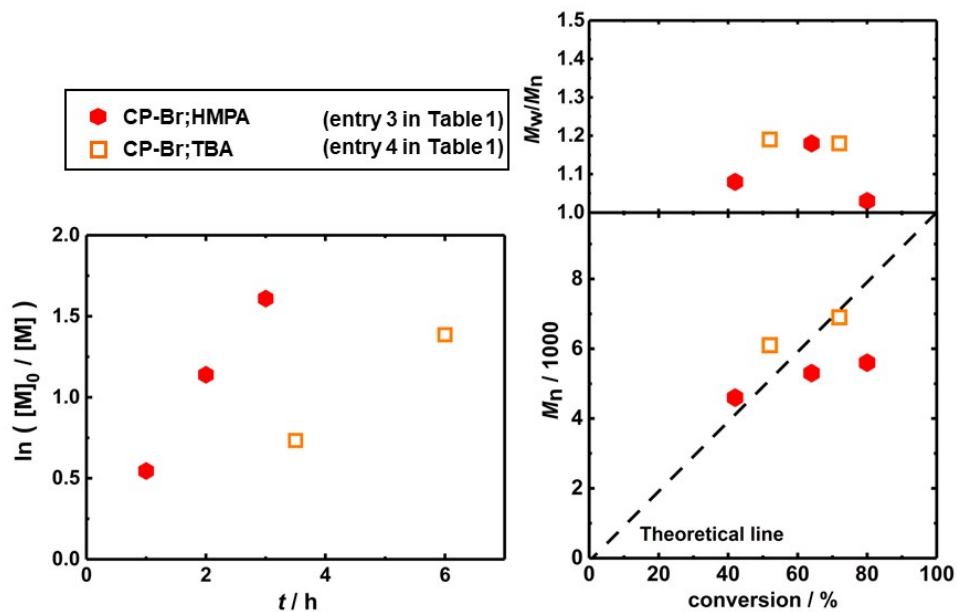


Figure S6. Plot of $\ln([M]_0/[M])$ vs t (left) and M_n and M_w/M_n vs conversion (right) for the solution (entry 3, entry 4 in table 1). The symbols are indicated in the figure.

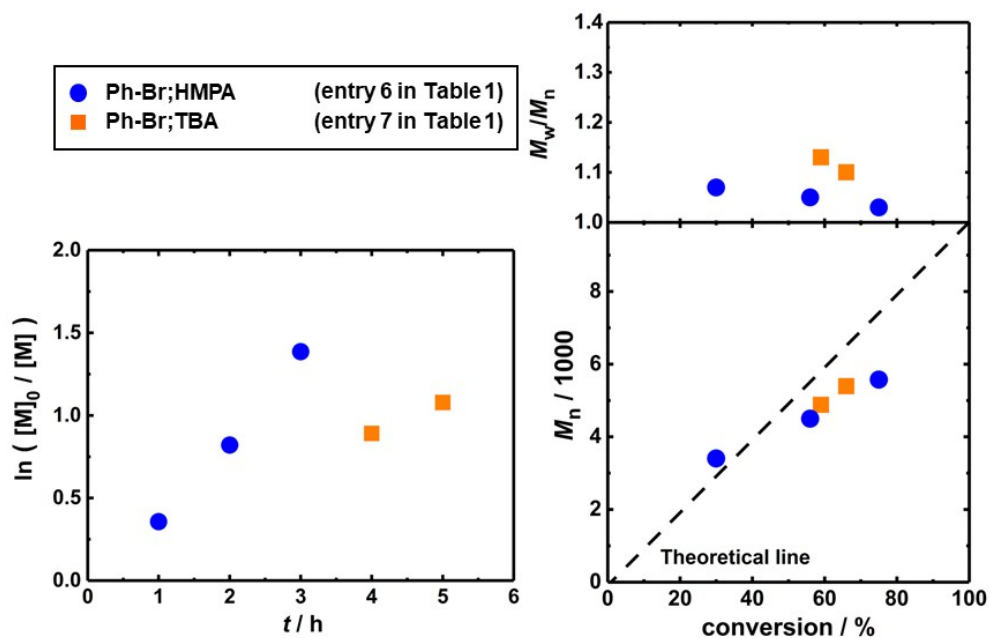


Figure S7. Plot of $\ln([M]_0/[M])$ vs t (left) and M_n and M_w/M_n vs conversion (right) for the solution (entry 6, entry 7 in table 1). The symbols are indicated in the figure.