# Catechol end-functionalized Polylactide by organocatalyzed ring-opening polymerization

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**Table S1**: Different synthesis rout for the polymerization L-lactide initiate by dopamine.

| | Solvent | Temperature (ºC) | CATALYST | Time(h) | [M]/[I]/[Cat] | $DP_{NMR}$ |
|---|---|---|---|---|---|---|
| **1** | DCM | 25 | - | 96 | 10/1/0 | 8 |
| **2** | $CHCl_3$ | 25 | - | 96 | 10/1/0 | 12 |
| **3** | DMF | 25 | - | 48 | 10/1/0 | 9 |
| **5** | THF | 25 | - | 96 | 10/1/0 | 7 |
| **6** | THF | 50 | - | 48 | 10/1/0 | 7 |
| **7** | DMF+$CHCl_3$ | 25 | - | 144 | 10/1/0 | - |
| **8** | DMF+$CHCl_3$ | 25 | TEA | 24 | 10/1/1 | 11 |
| **9** | DMF+$CHCl_3$ | 25 | DBU | 48 | 10/1/1 | |

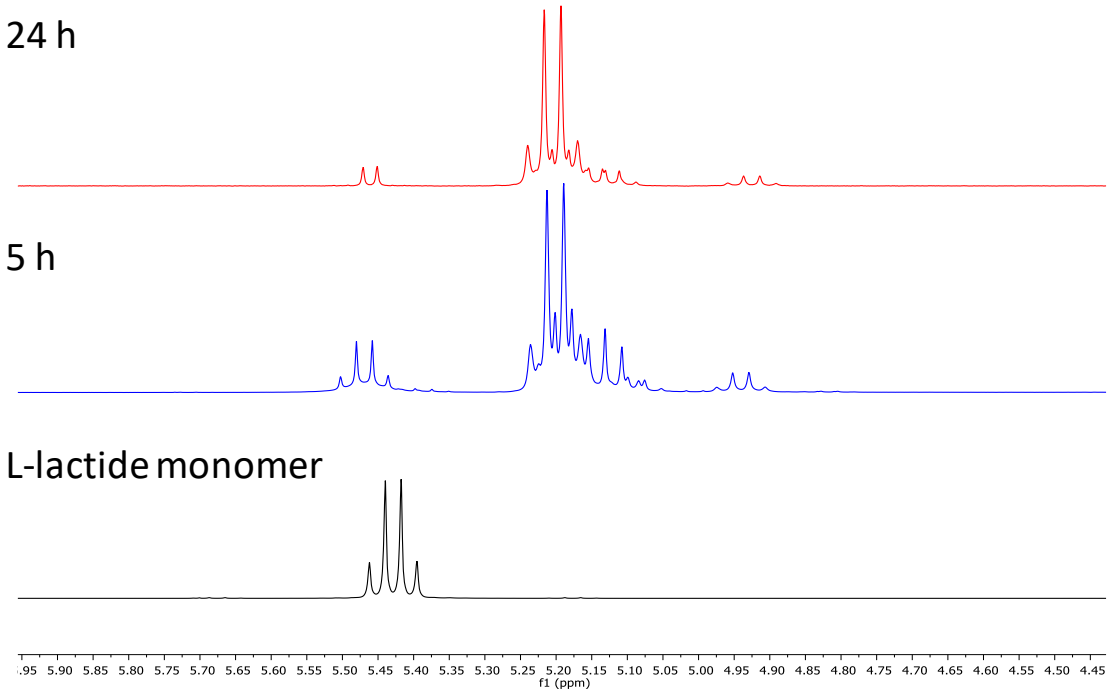


**Figure S1**: Kinetics of polylactide followed by $^{1}H$ NMR ( monomer 5.45 ppm polymer 5.20 ppm) (entry 2 of table 1).

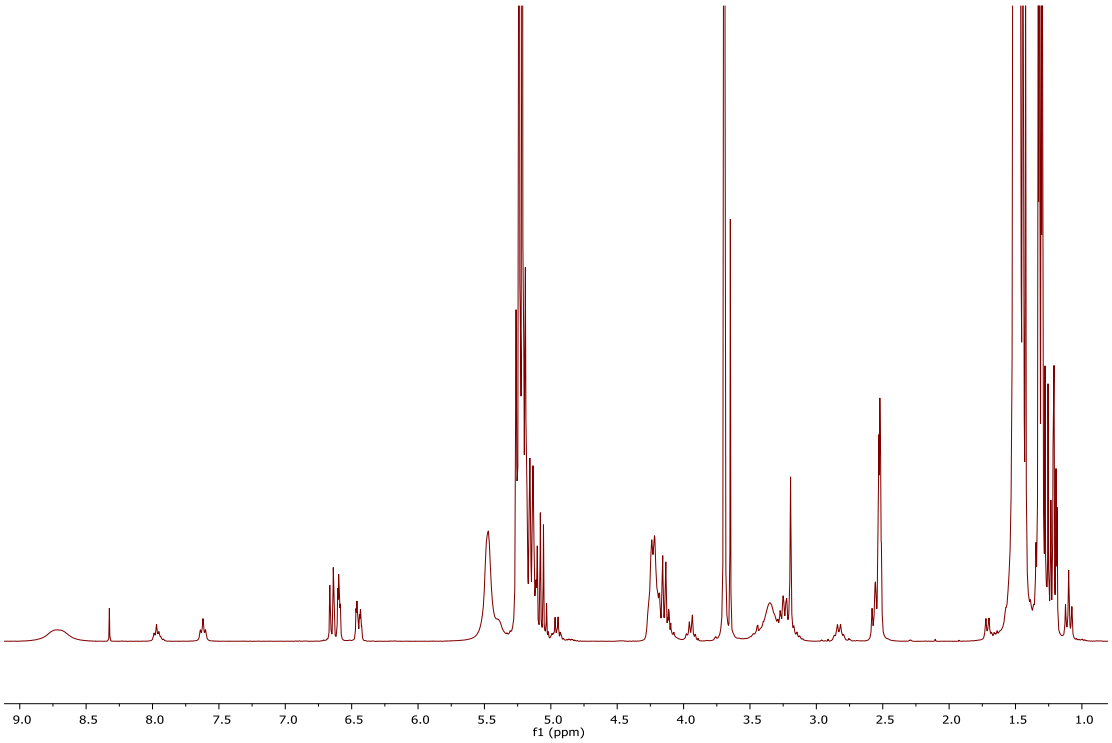


**Figure S2**: $^{1}H$ NMR of Catechol-PLLA for degree of polymerization. Dp = 10. Reaction conditions: 2 mol $L^{-1}$ solution of L-lactide in $CHCl_3$ at 25 °C using DBU as catalyst. (entry 9 of table S1).

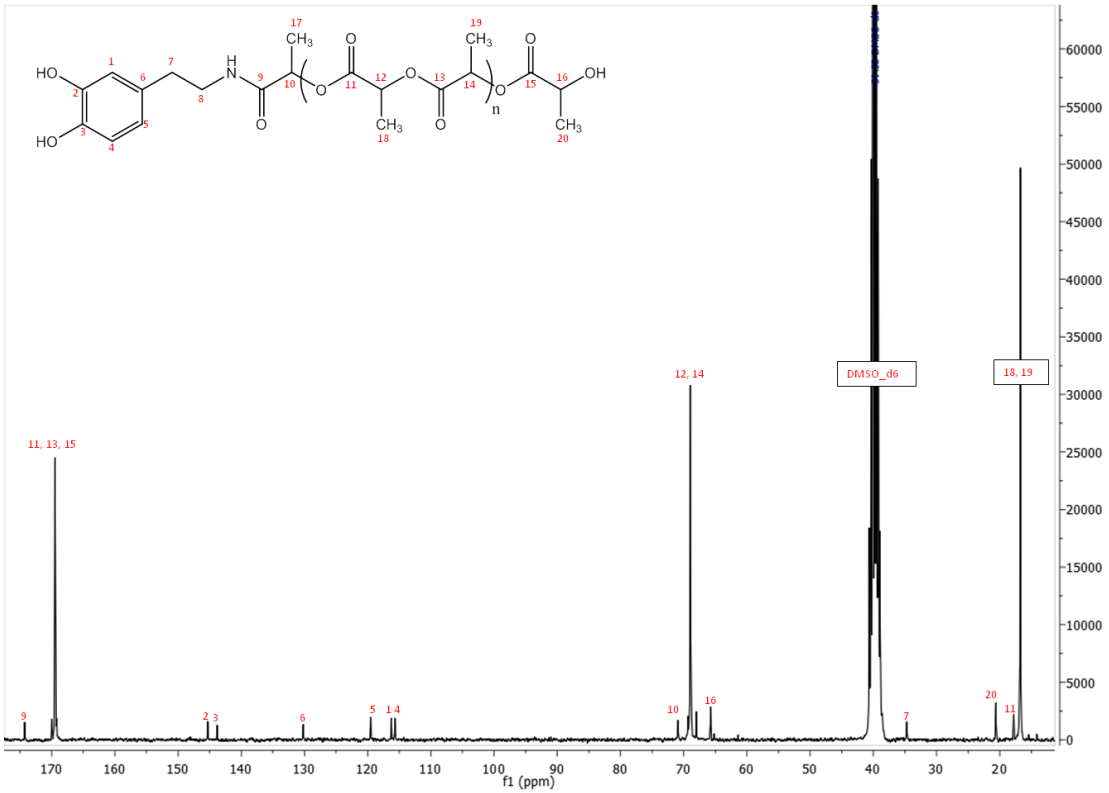


**Figure S3**:[13]C NMR of Catechol-PLLA for degree of polymerization DP = 10. (entry 2 of table 1).

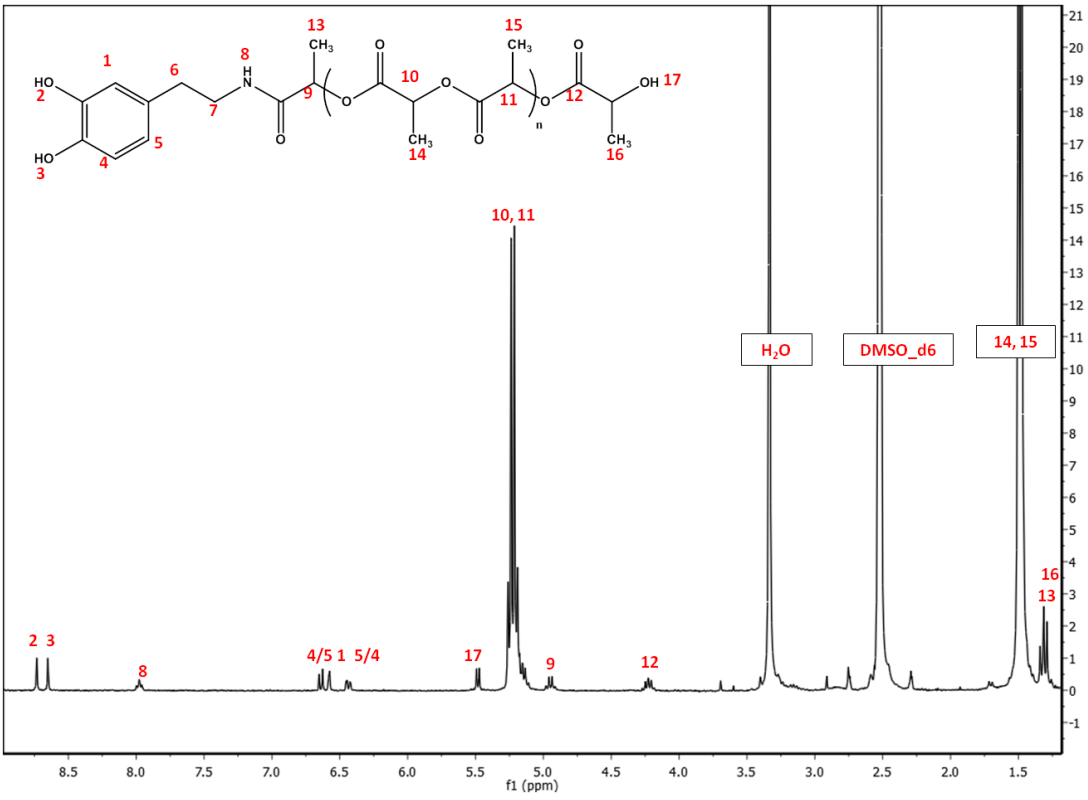


**Figure S4**: [1]H NMR of Catechol-PLLA for degree of polymerization DP = 20. (entry 6 of table 1).

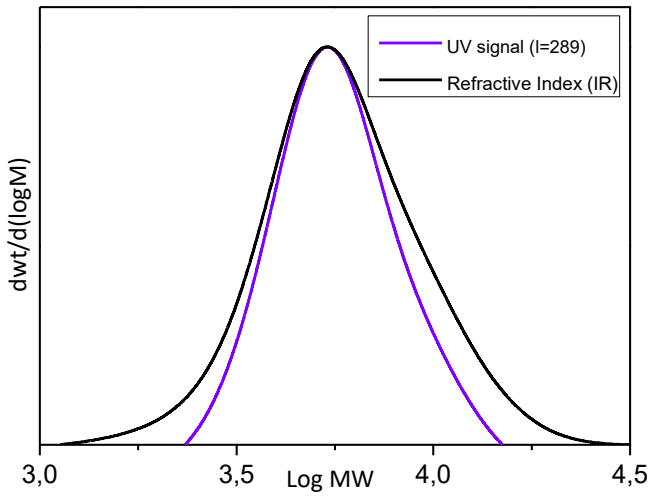


**Figure S5:** SEC trace with UV (289 nm wavelength) and refractive-index signals for semitelechelic for DP = 20. (entry 6 of table 1).

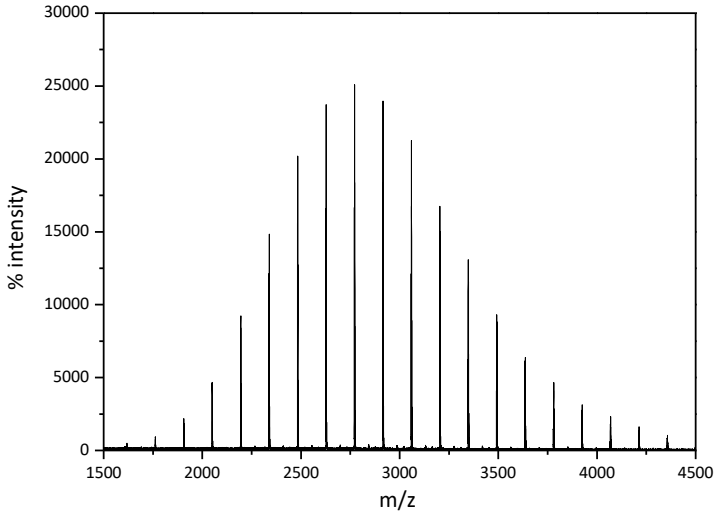


**Figure S6:** MALDI-TOFF spectra for semitelechelic catechol PLLA of DP = 20 (entry 6 of table 1).

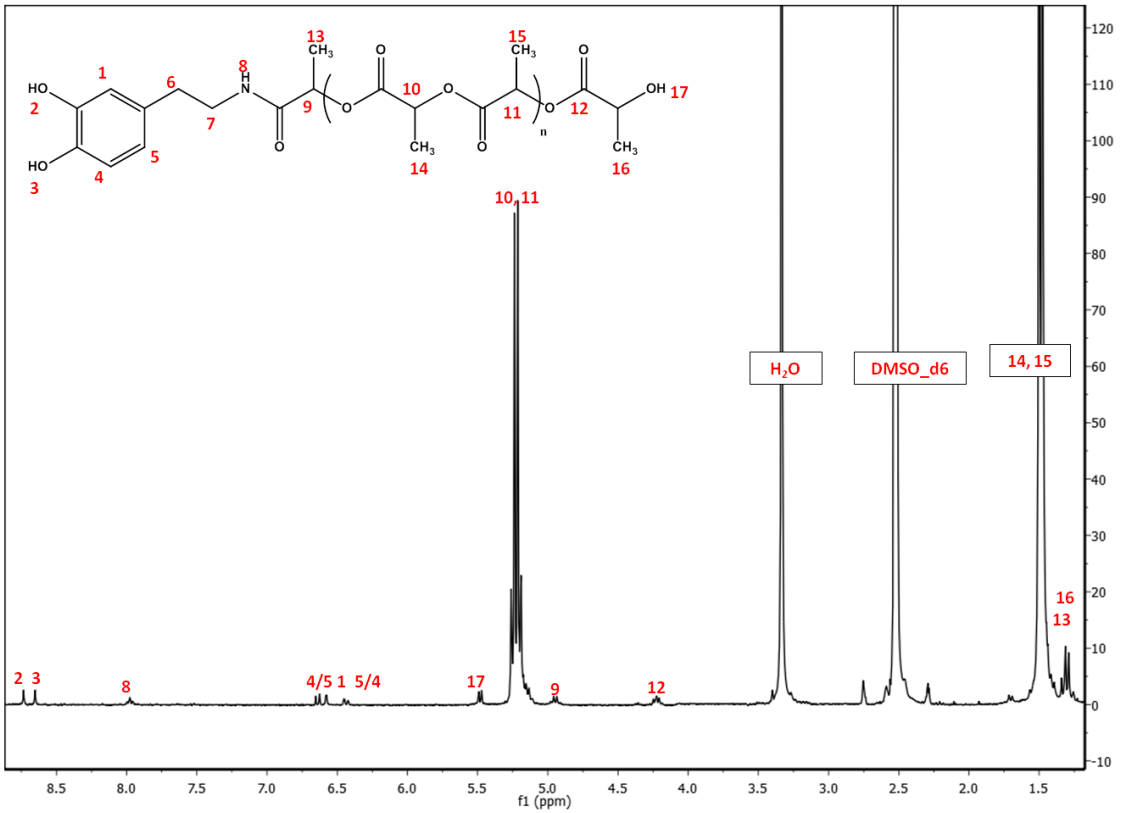


**Figure S7**: $^{1}$H NMR of Catechol-PLLA for degree of polymerization DP = 50. (entry 7 of table 1).

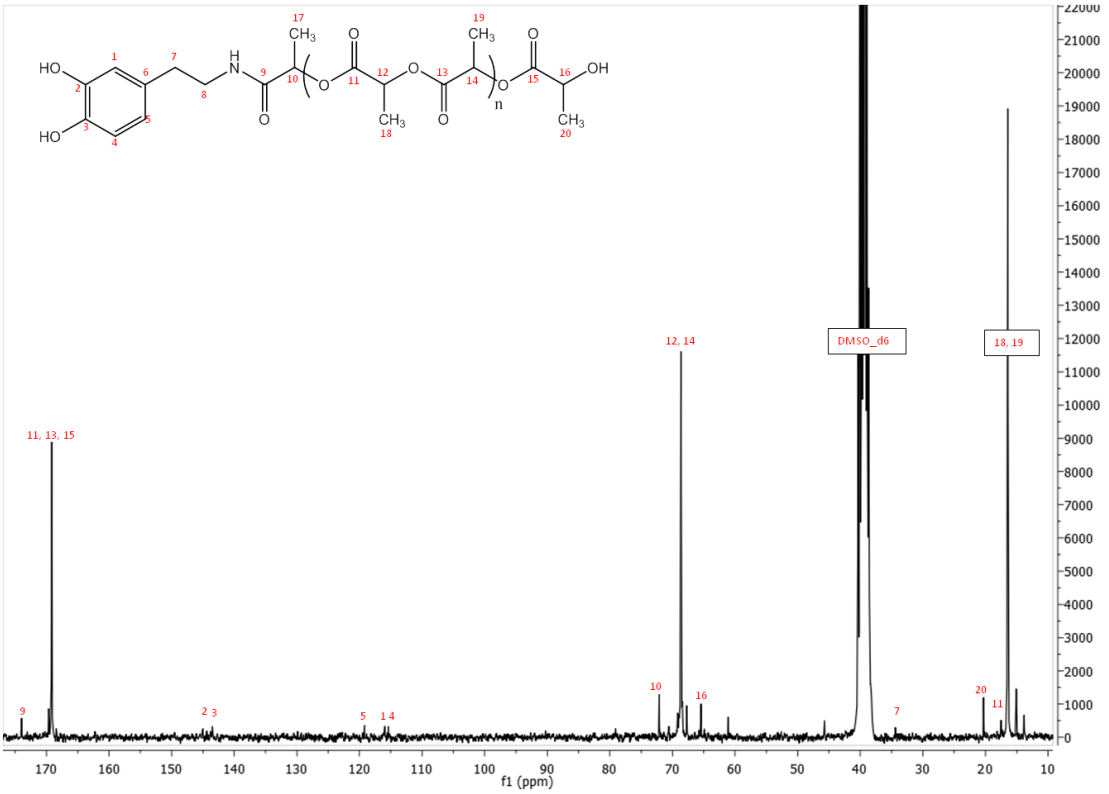

**Figure S8**: $^{13}C$ NMR of Catechol-PLLA for degree of polymerization DP = 50. (entry 7 of table 1).

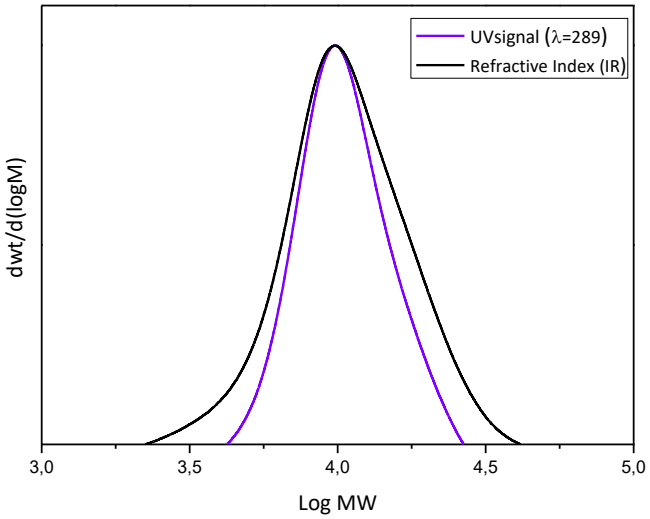


**Figure S9:** SEC trace with UV (289 nm wavelength) and refractive-index signals for semitelechelic for DP = 50. (entry 7 of table 1).

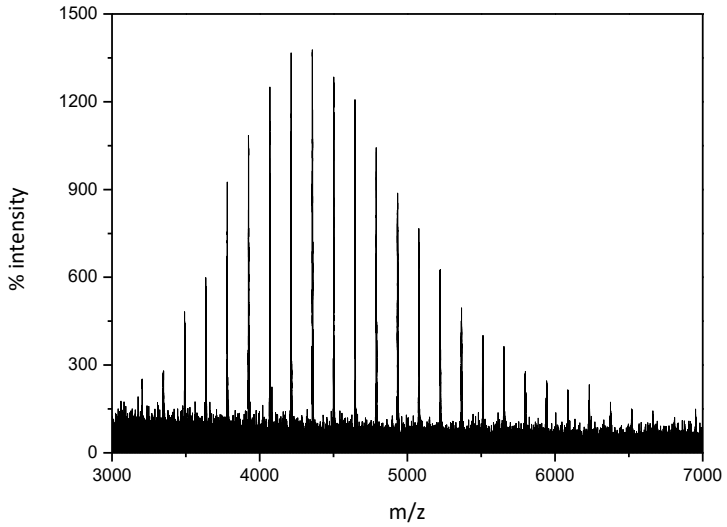


**Figure S10:** MALDI-TOFF spectra for semitelechelic catechol-PLLA of DP = 50 (entry 7 of table 1).

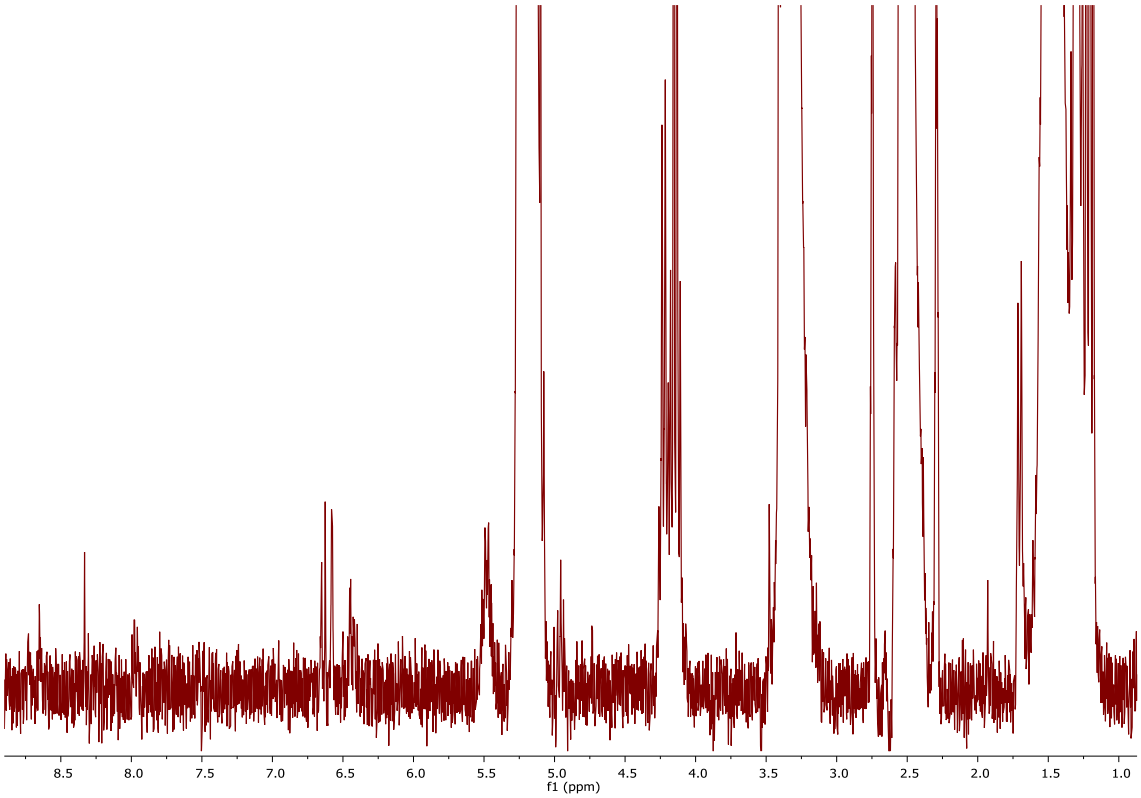


**Figure S11**: $^{1}$H NMR of Catechol-PLLA for degree of polymerization DP = 100. (entry 8 of table 1).

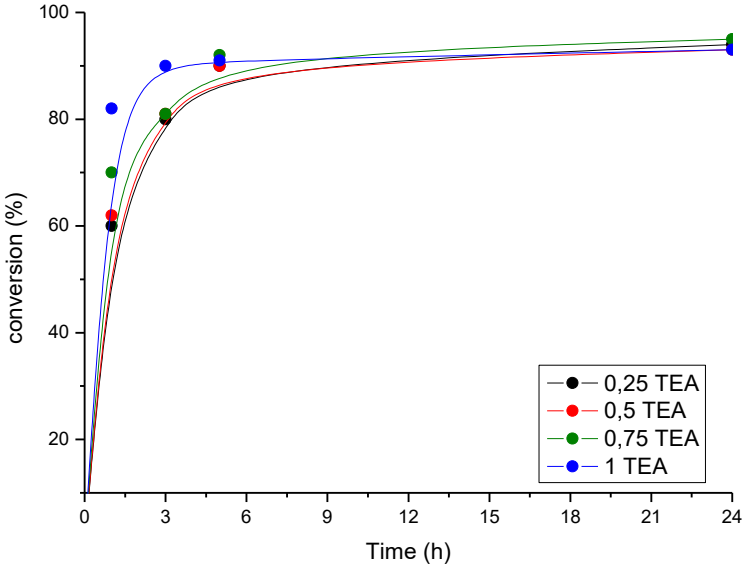


**Figure S12**: Kinetic plots for the different experiments runned with different TEA concentratios.