Supplementary material (ESI) for Journal of Materials Chemistry

Supplementary Information

3-Phenyl-4-acyl-5-isoxazolonate complex of Tb^{3+} doped into poly-β-hydroxybutyrate matrix as a promising light-conversion molecular device

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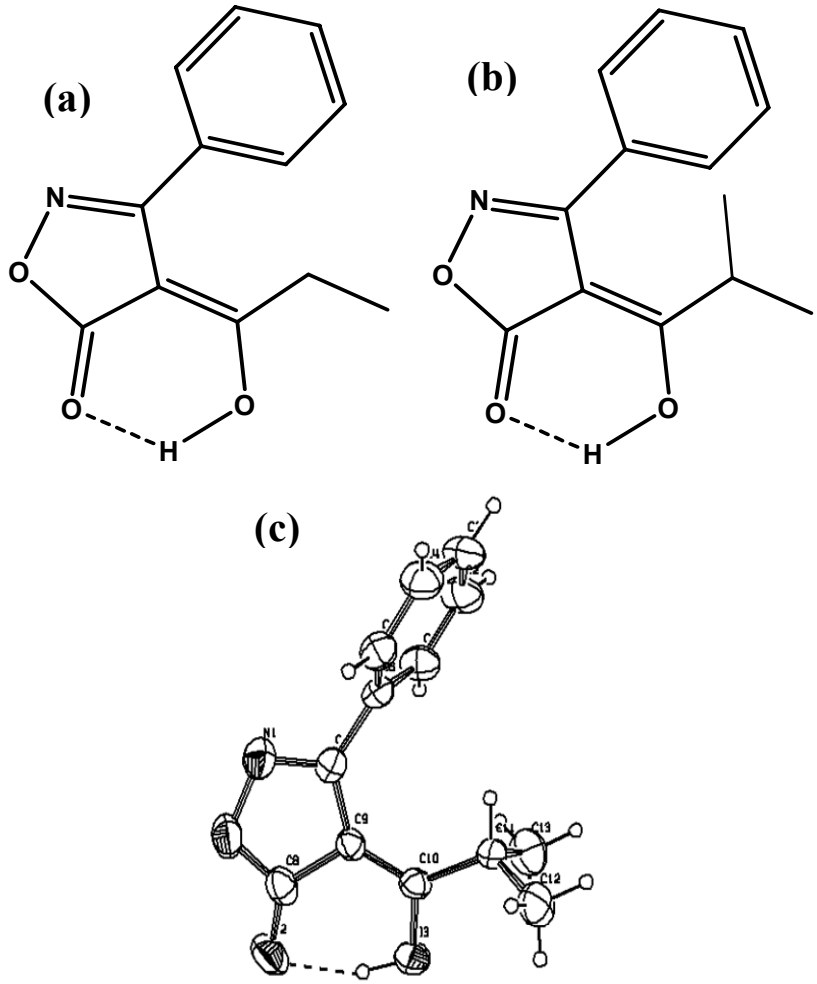

Fig. S1 Structural formulas for the HPPI (a) and HIBPI (b) ligands. (c) X-ray structure of the HIBPI ligand. Thermal ellipsoids were drawn at the 30% probability level.

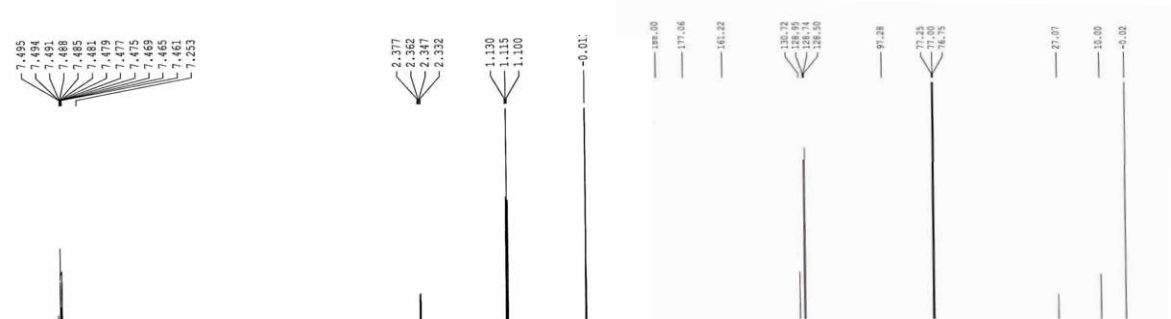

Fig. **S2** 500MHz ^{1}H and ^{13}C NMR spectra of the ligand HPPI.

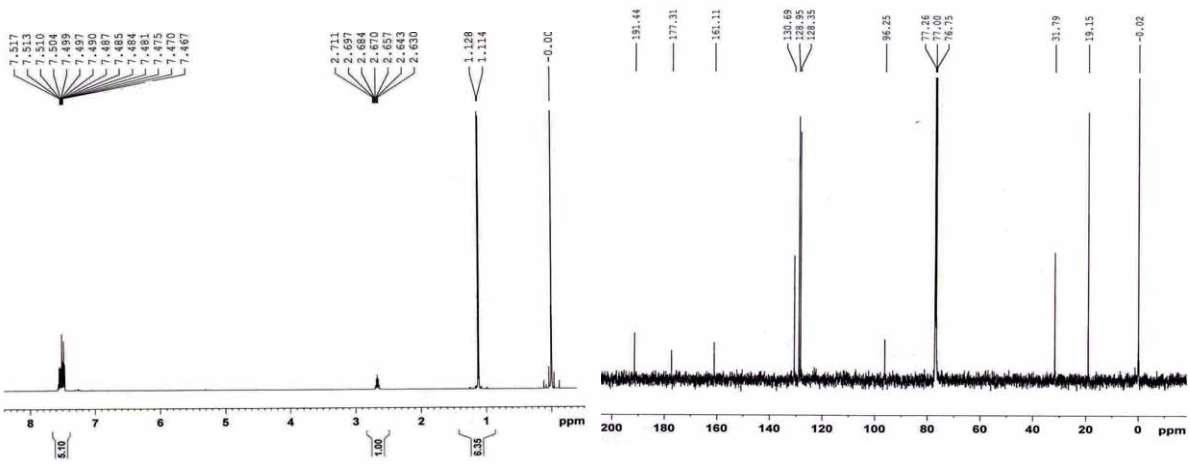

Fig. **S3** 500MHz ^{1}H and ^{13}C NMR spectra of the ligand HIBPI.

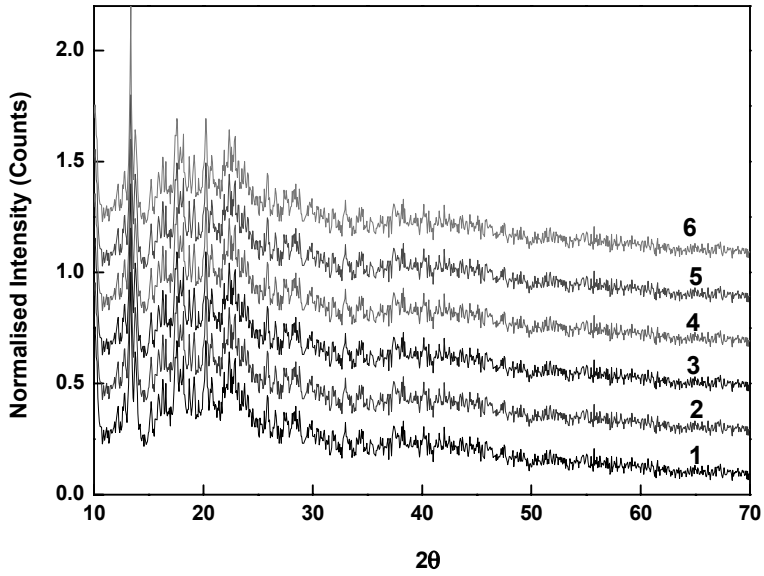

Fig. **S4** XRD patterns for complexes **1**-**6**.

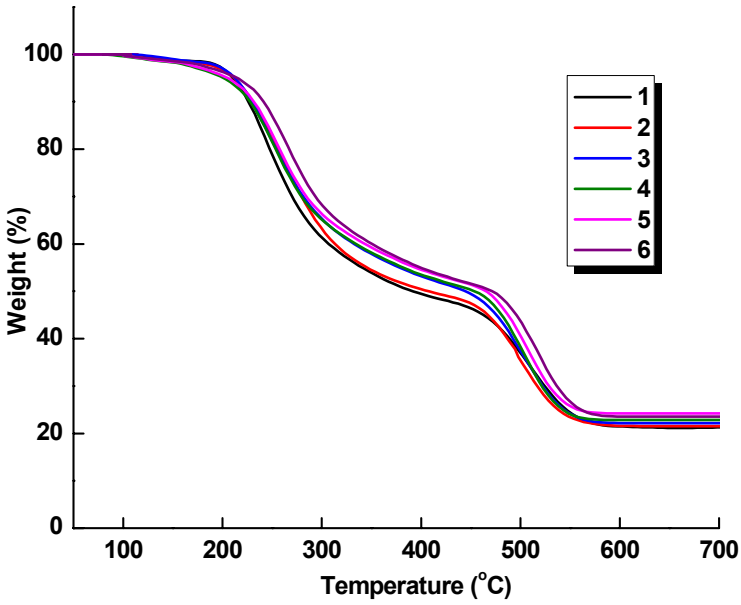

Fig. S5 Thermogravimetric curves for the Ln^{3+} complexes **1**-**6**.

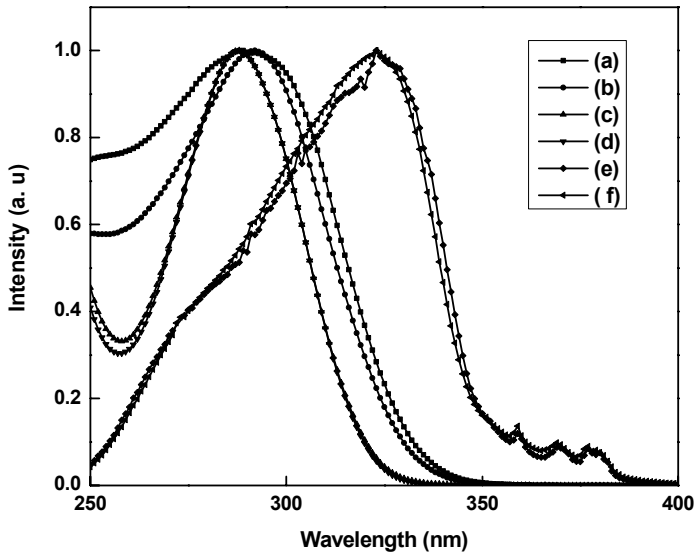

Fig. **S6** UV-vis absorption spectra of HPPI (a) and HIBPI (b); UV-vis absorption spectra of **1** (c) and **2** (d); and excitation spectra of complexes **1** (e) and **2** (f). The excitation spectra is recorded in solid state, and absorption spectra were in CH_3CN ($c = 2\times10^{-5}$ M). All spectra are normalized to a constant intensity at the maximum.

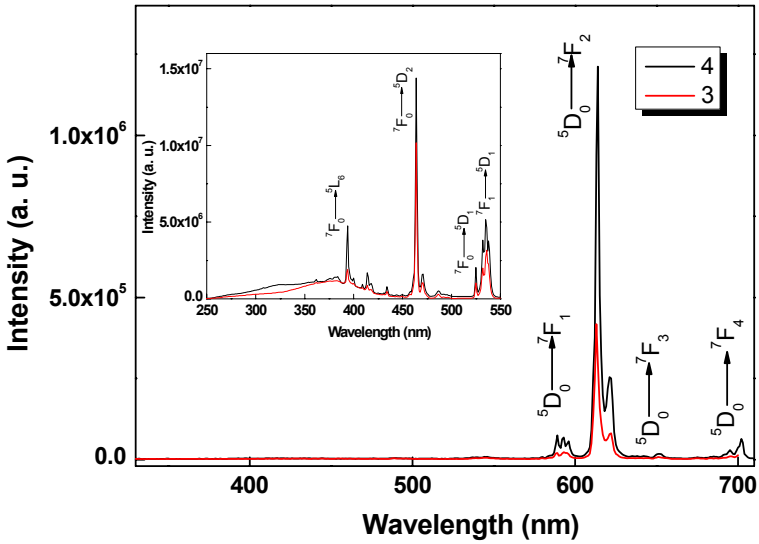

Fig. S7 Solid state excitation (shown in inset) and emission spectra for complexes **3** and **4** at 298 K (λ_{ex} = 320 nm and emission monitored around 614 nm).

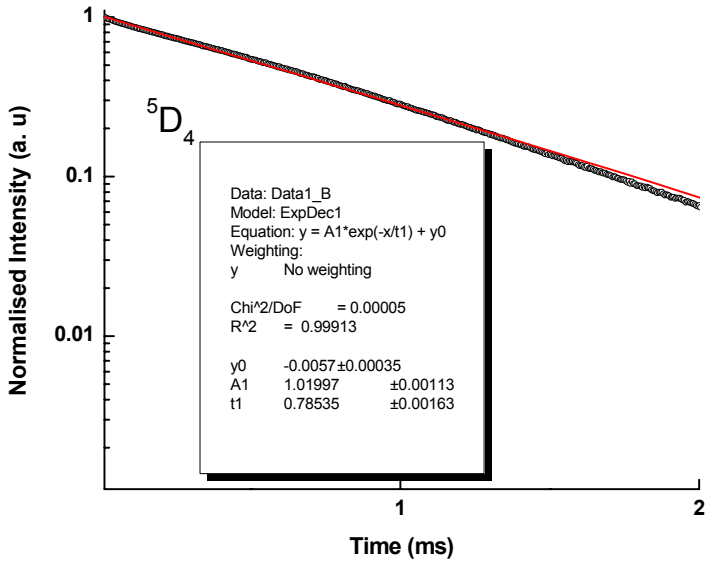

Fig. **S8** Experimental luminescence decay profiles for complex **1** at 298 K (in solid state) monitored around 545 nm and excited at 320 nm.

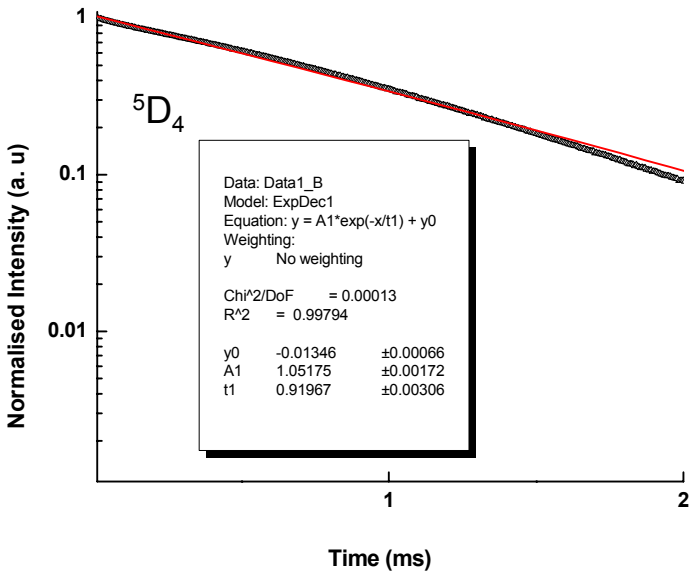

Fig. **S9** Experimental luminescence decay profiles for complex **2** at 298 K (in solid state) monitored around 545 nm and excited at 320 nm.

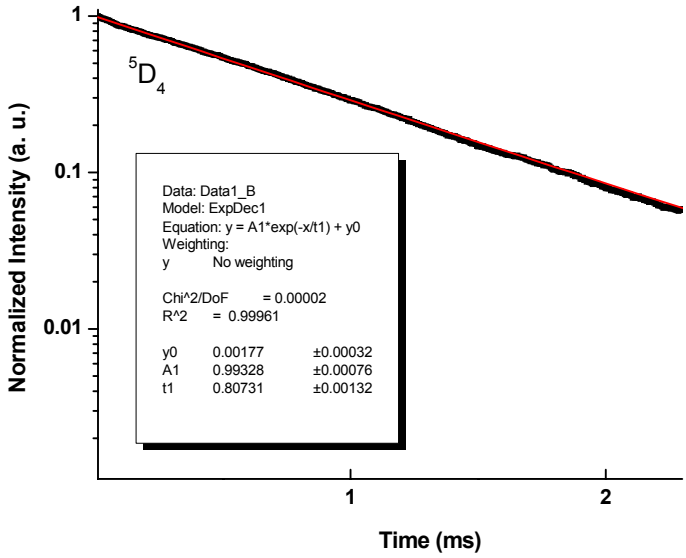

Fig. **S10** Experimental luminescence decay profiles of complex **1** at 77 K in $CDCl_3$ monitored around 545 nm and excited at 320nm.

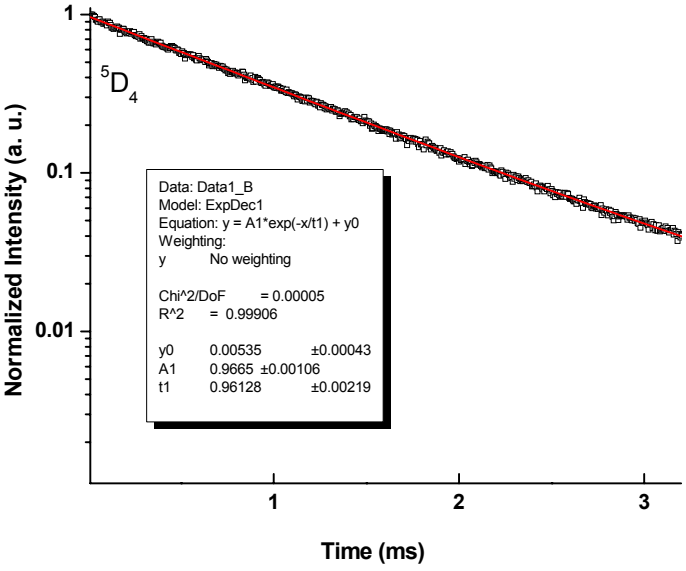

Fig. **S11** Experimental luminescence decay profiles of complex **2** at 77K in $CDCl_3$ (c = 2×10^{-5}) monitored around 545 nm and excited at 320nm.

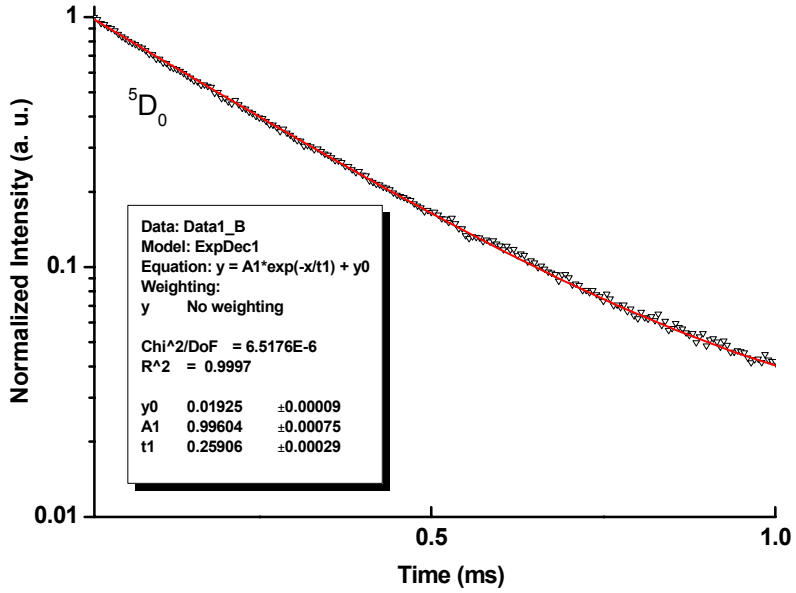

Fig. **S12** Experimental luminescence decay profiles for complex **3** at 298 K (in solid state) monitored around 614 nm and excited at 320 nm.

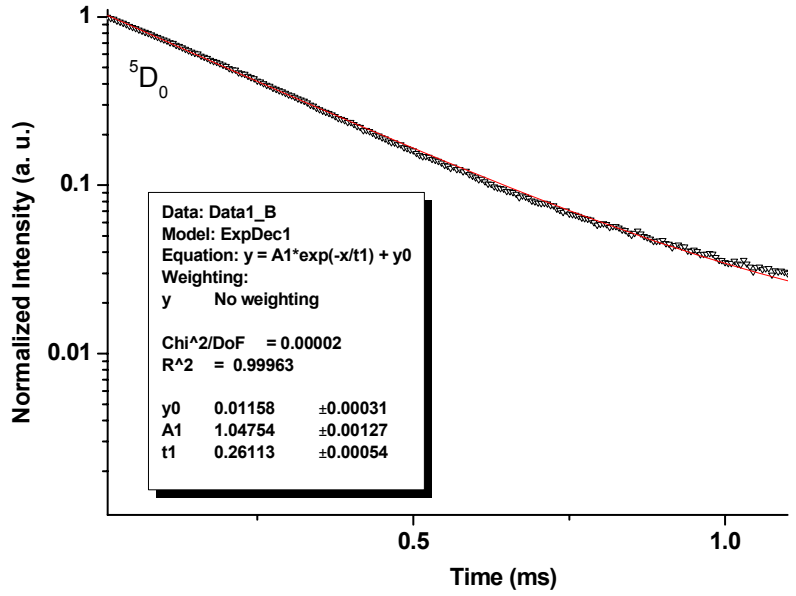

Fig. **S13** Experimental luminescence decay profiles for complex **4** at 298 K (in solid state) monitored around 614 nm and excited at 320 nm.

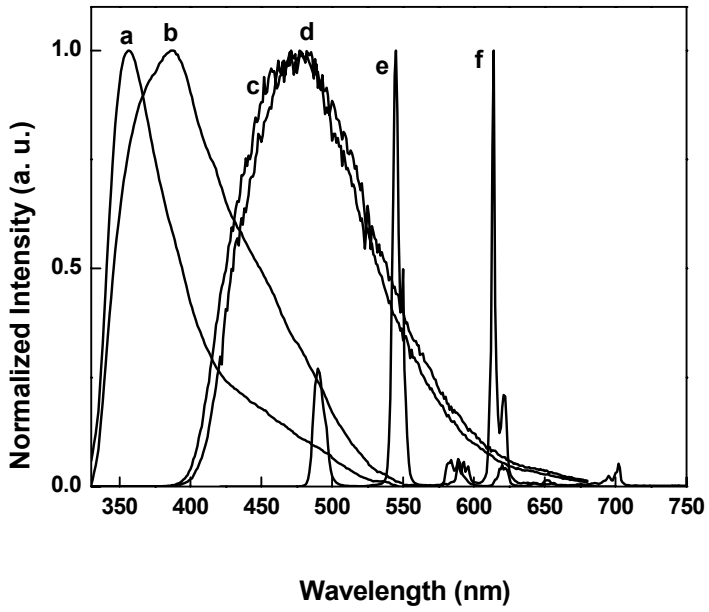

Fig. S14 Room-temperature emission spectra of the ligands HPPI (a), HIBPI (b) and complexes **2** (e), **4** (f) and low-temperature (77K) phosphorescent spectra of complexes **5** (c) and **6** (d) in CH_3CN solution ($c = 2\times10^{-5}$).

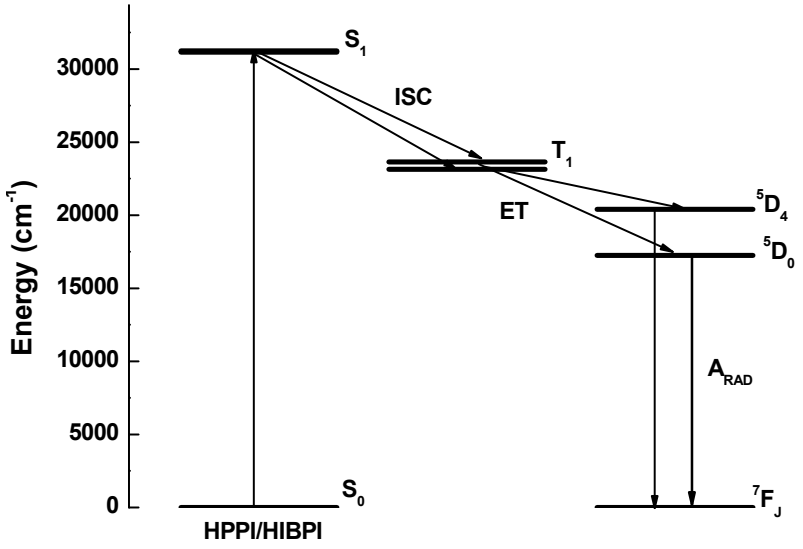

Fig. **S15** Schematic energy level diagram and energy transfer processes: S1, first excited singlet state; T1, first excited triplet state.

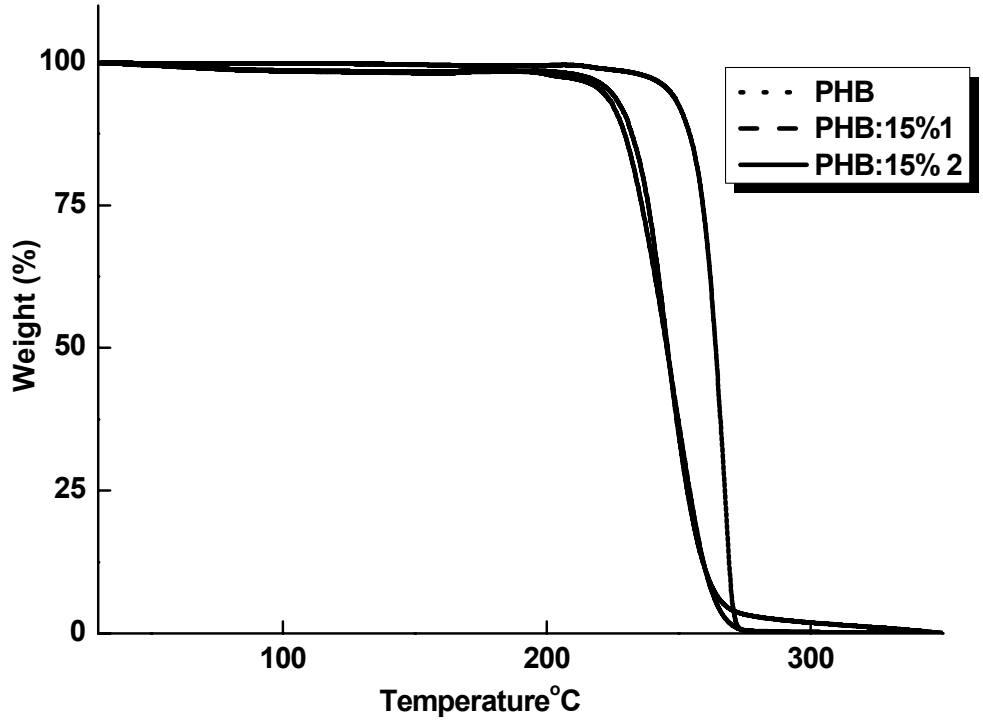

Fig. S16 Thermogravimetric curves for the doped and undoped PHB polymer films.