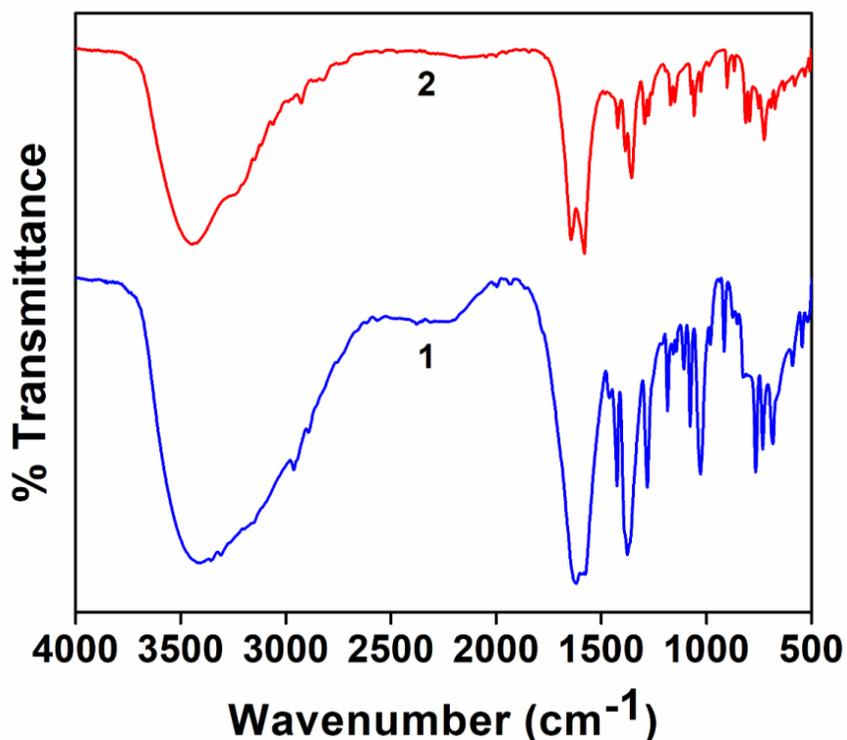


## Supplementary Information



**Figure S1.** FT-IR Spectra of compounds **1** and **2**.

### 2.3.2 Electronic spectroscopy

The electronic spectra of the compounds **1** and **2** have been determined in both solid and aqueous phases (Figures S2a and S2b). Three ligand field bands at 1060, 612 and 366 nm are observed in the solid phase UV-Vis-NIR spectrum of **1** (Figure S2a) which can be attributed to the spin allowed transitions from the ground to the excited triplet states *viz.*; [ ${}^3A_{2g} \rightarrow {}^3T_{2g}(F)$ ]( $v_1$ ), [ ${}^3A_{2g} \rightarrow {}^3T_{1g}(F)$ ]( $v_2$ ) and [ ${}^3A_{2g} \rightarrow {}^3T_{1g}(P)$ ]( $v_3$ ), respectively [1,2]. The absorption bands due to  $\pi \rightarrow \pi^*$  transition is obtained at 271 nm [3]. In the aqueous phase UV-Vis spectrum (Figure S2b) of **1**, the band corresponding to  $\pi \rightarrow \pi^*$  transition of the aromatic ligands is appeared at 267 nm [3]. The absorption bands at 589 nm and at 364 nm in the UV-Vis spectrum of **1** can be assigned to  ${}^3A_{2g}(F) \rightarrow {}^3T_{1g}(F)$  and  ${}^3A_{2g}(F) \rightarrow {}^3T_{1g}(P)$  transitions respectively for octahedral Ni(II) ions [4].

The NIR band cannot be visualized in the solution spectrum due to the limitation in the wavelength window of the spectrophotometer utilized for this purpose [5].

The spectra of **2** do not show spectral band in the visible region which can be attributed to the  $d^{10}$  electronic configuration of the Zn(II) centers that does not allow any electronic transition to the higher excited electronic states [6,7]. The absorption peaks at 229, 269 nm in UV-Vis-NIR (Figure S3a) and 221 nm, 264 nm in UV-Vis spectrum (Figure S3b) can be attributed to the  $\pi \rightarrow \pi^*$  transitions of aromatic ligands [3,8]. The marked resemblance in the absorption bands in both the phases of the spectra of compounds **1** and **2** reflects the similarities in bonding modes and the geometries of the compounds in both the phases [9,10].

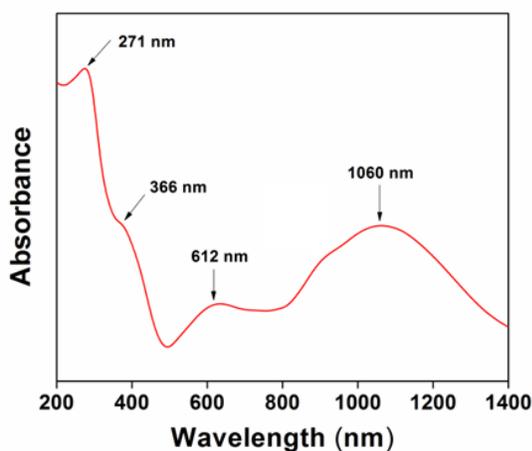
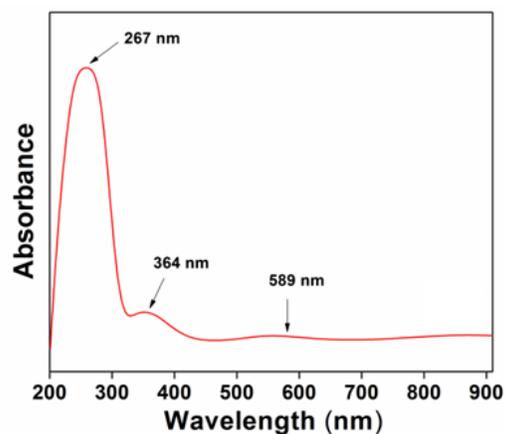


Figure S2. (a) UV-Vis-NIR spectrum of **1**



(b) UV-Vis spectrum of **1**

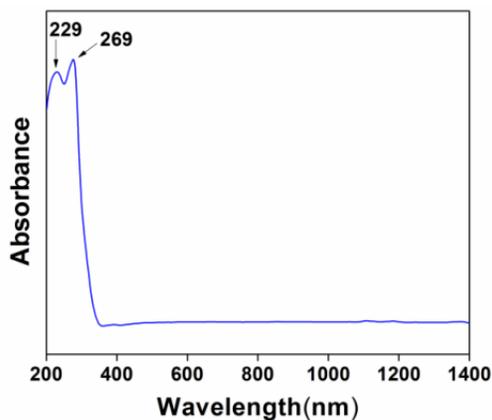
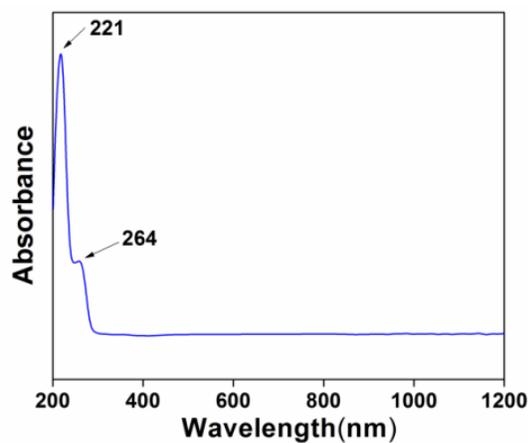
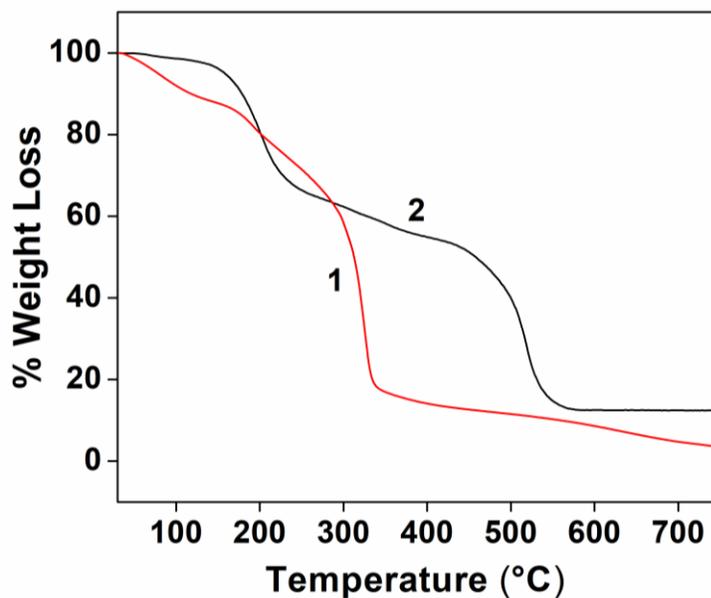


Figure S3. (a) UV-Vis-NIR spectrum of **2**



(b) UV-Vis spectrum of **2**



**Figure S4.** Thermogravimetric curves of the compounds **1** and **2**.

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