# Synthesis, characterization and photoluminescent properties of Zn-based mono-and hetero-MOFs containing the R-isophthalate (R = methyl or tertbutyl) ligands

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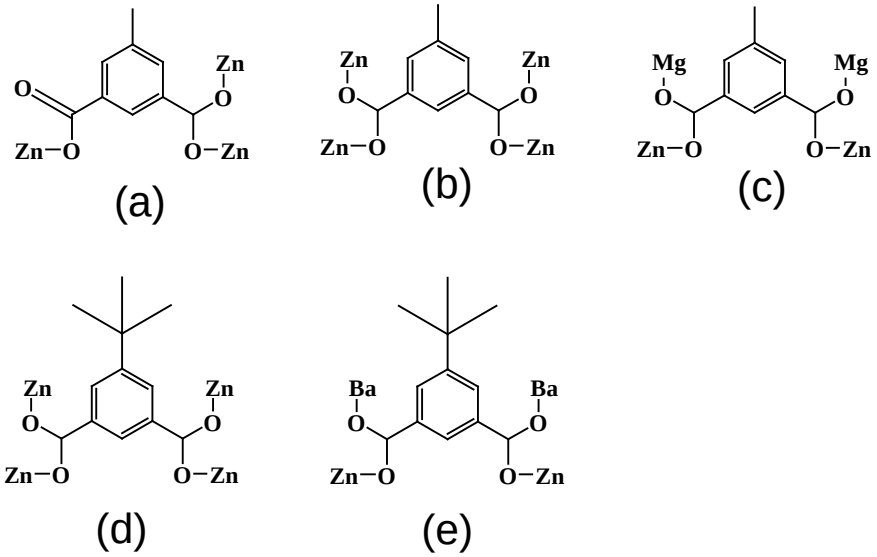
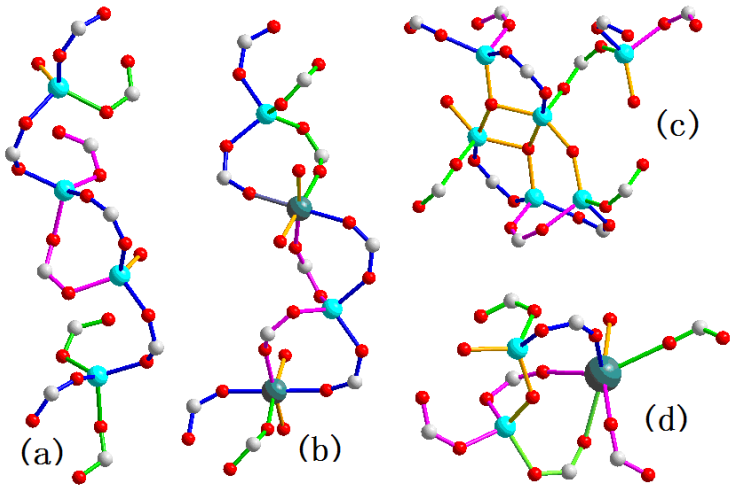
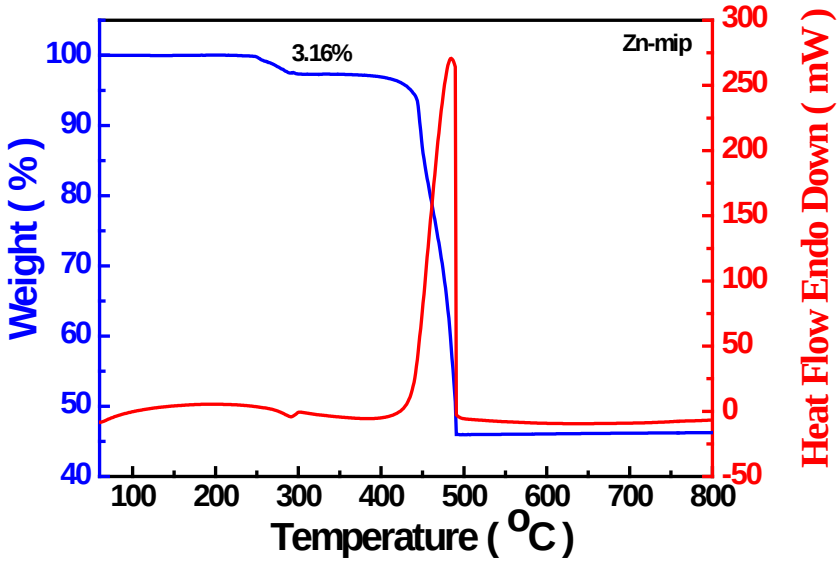
# Electronic Supplementary Information (ESI)



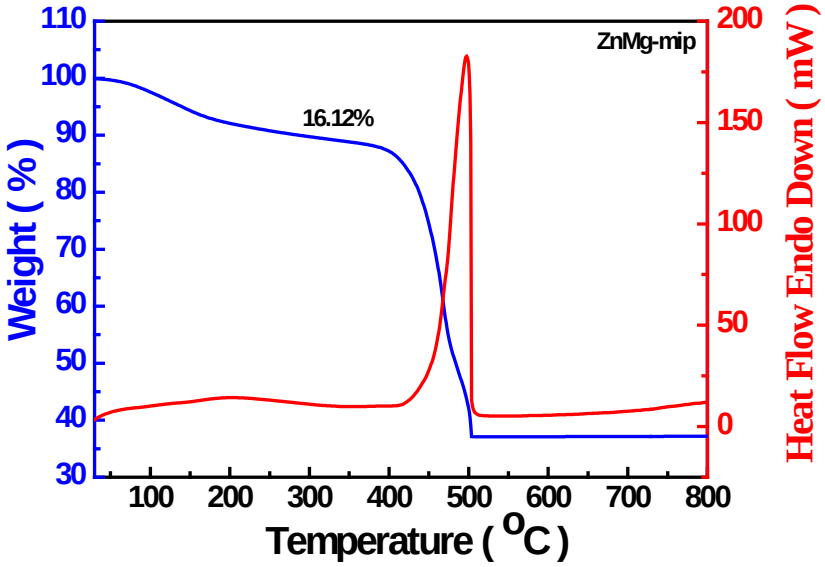

**ESI. 1** Diverse coordination modes of the mip and tbip ligands. For each carboxylate group : (a) $\mu_1$-$\eta^1$:$\eta^0$-monodentate and $\mu_2$-$\eta^1$:$\eta^1$-bis-monodentate mode; (b-e) $\mu_2$-$\eta^1$:$\eta^1$-bis-monodentate mode.



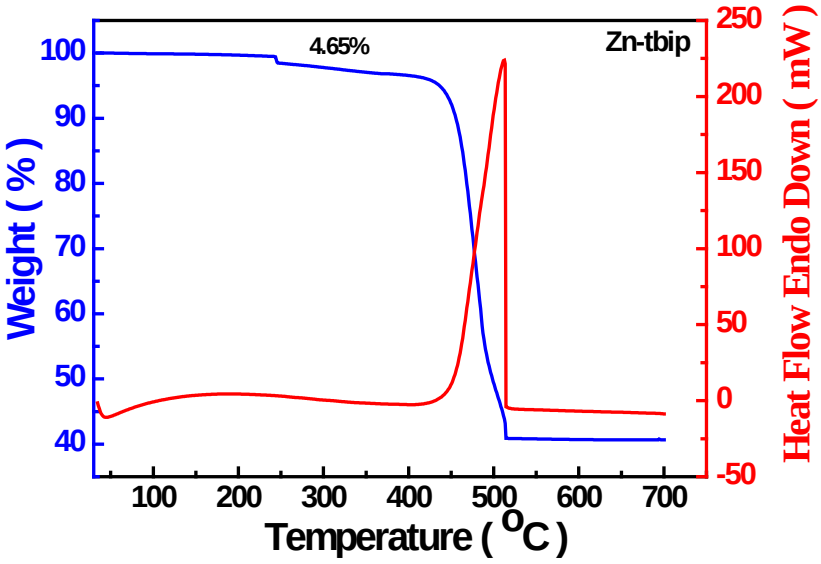

**ESI. 2** Four Zn-based cluster SBUs. (a) 10-connected cluster SBU $Zn_4(COO)_{10}$ for **Zn-mip**; (b)10-connected cluster SBU $Zn_2Mg_2(COO)_{10}$ for **ZnMg-mip**; (c) 11-connected cluster SBU $Zn_6O_5(COO)_{11}$ for **Zn-tbip**; (d) 7-connected cluster SBU $Zn_2OBa(COO)_7$ for **ZnBa-tbip**.



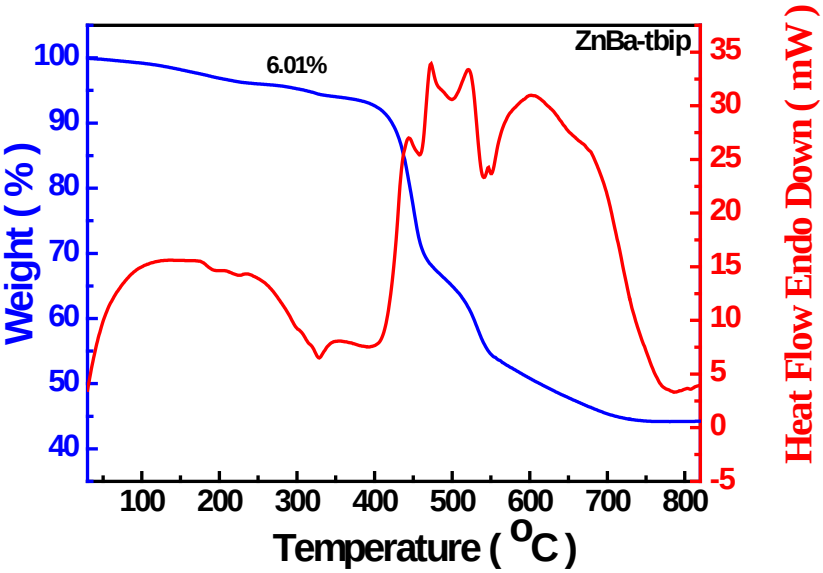

**ESI. 3** TG-DTA for MOF **Zn-mip.**



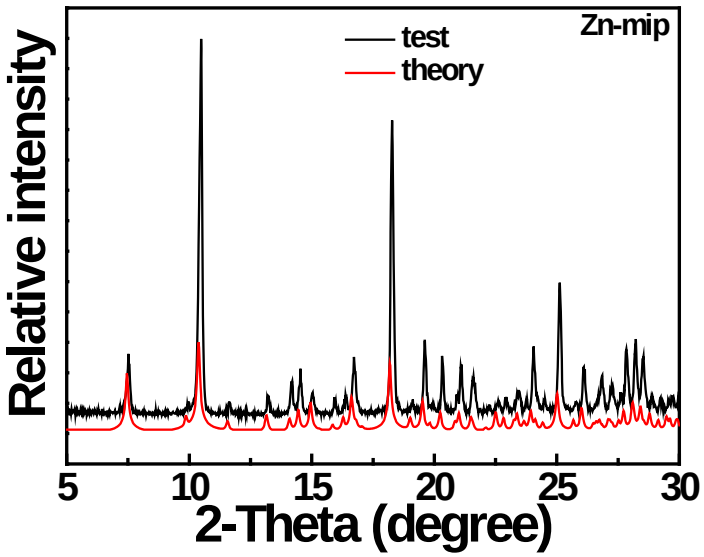

**ESI. 4** TG-DTA for MOF **ZnMg-mip.**



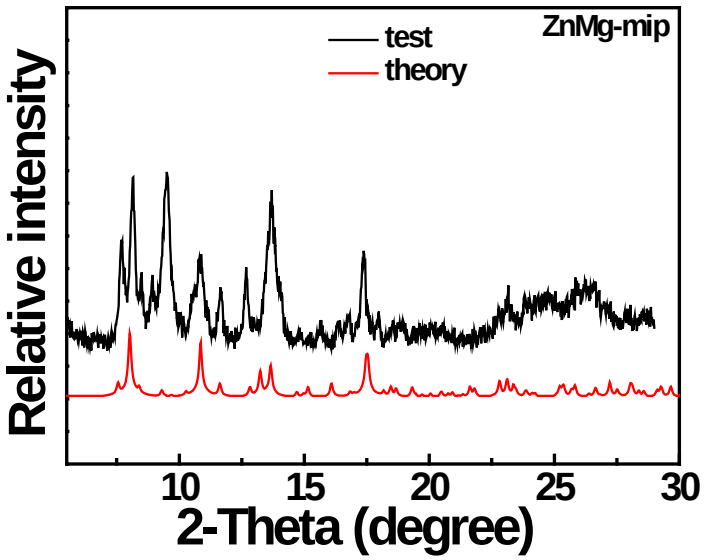

**ESI. 5** TG-DTA for MOF **Zn-tbip.**



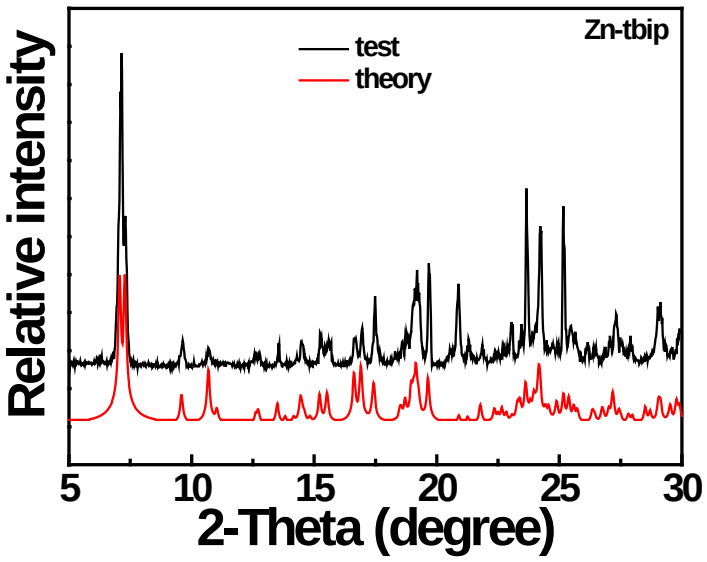

**ESI. 6** TG-DTA for MOF **ZnBa-tbip.**



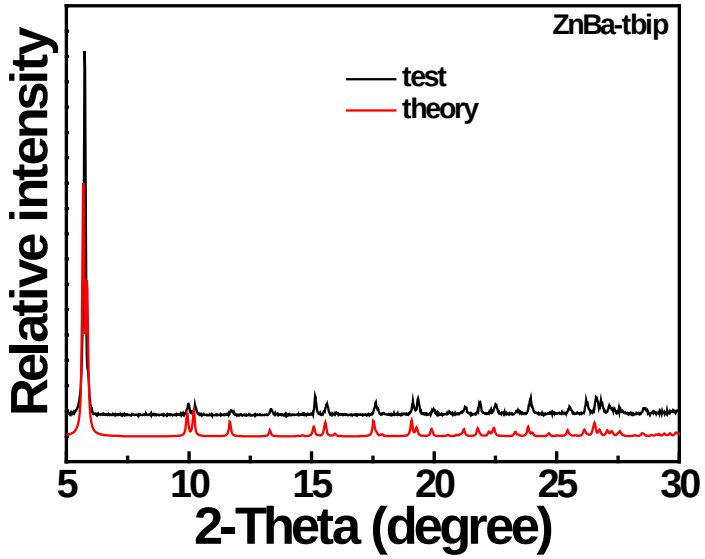

**ESI. 7** The XRPD patterns of the simulated and as-synthesized MOFs for **Zn-mip**.



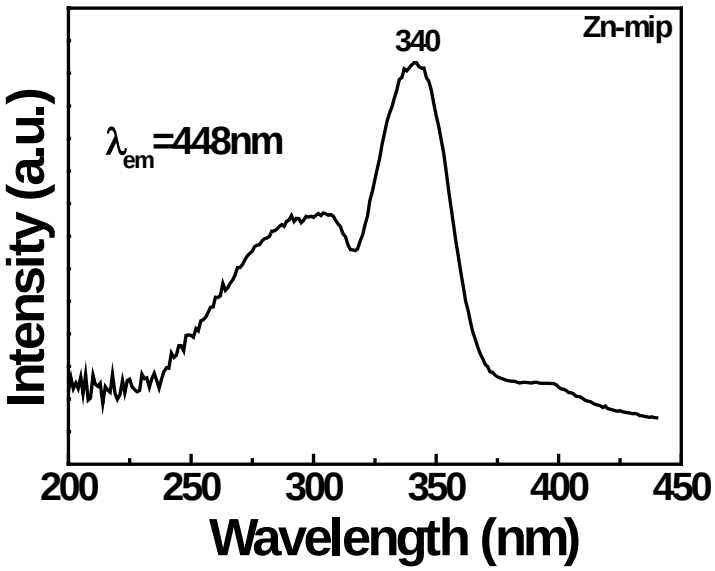

**ESI. 8** The XRPD patterns of the simulated and as-synthesized MOFs for **ZnMg-mip**.



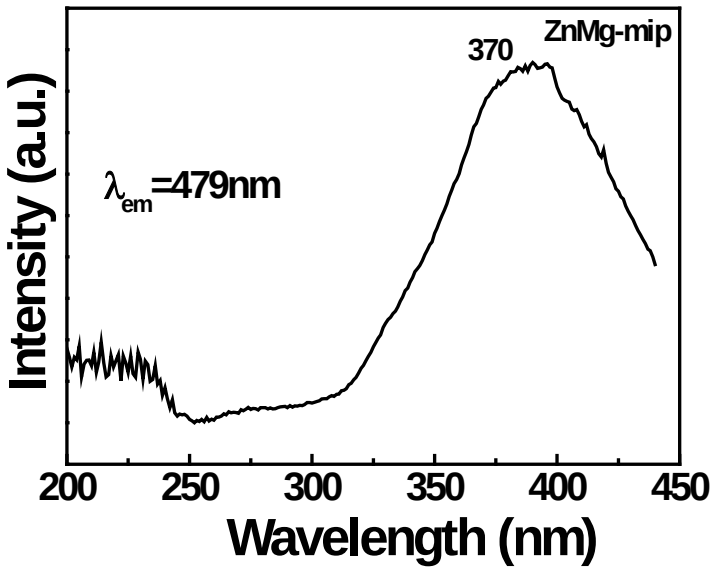

**ESI. 9** The XRPD patterns of the simulated and as-synthesized MOFs for **Zn-tbip**.



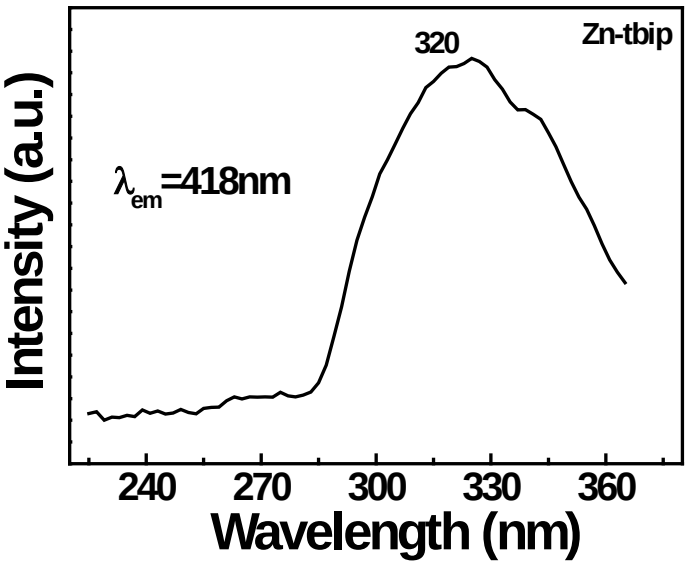

**ESI. 10** The XRPD patterns of the simulated and as-synthesized MOFs for **ZnBa-tbip**.



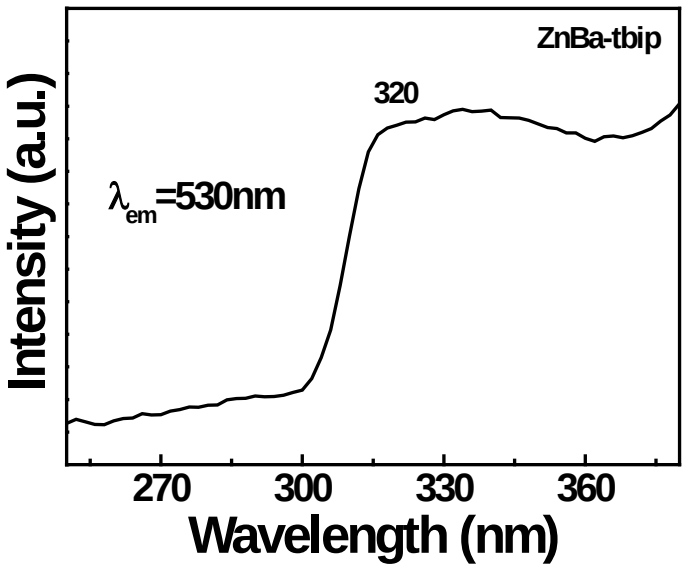

**ESI. 11** The excitation spectrum for **Zn-mip**



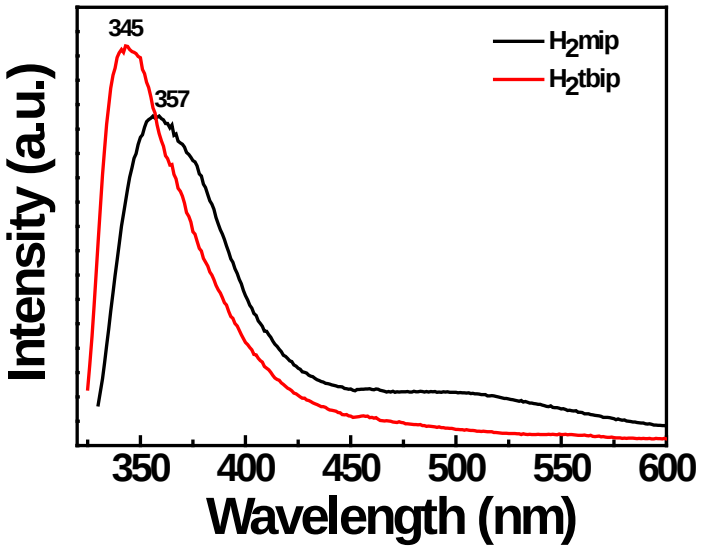

**ESI. 12** The excitation spectrum for **ZnMg-mip**



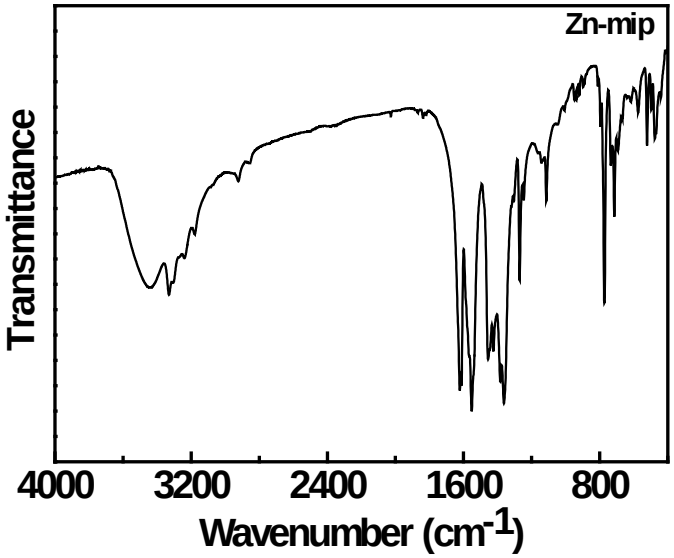

**ESI. 13** The excitation spectrum for **Zn-tbip**



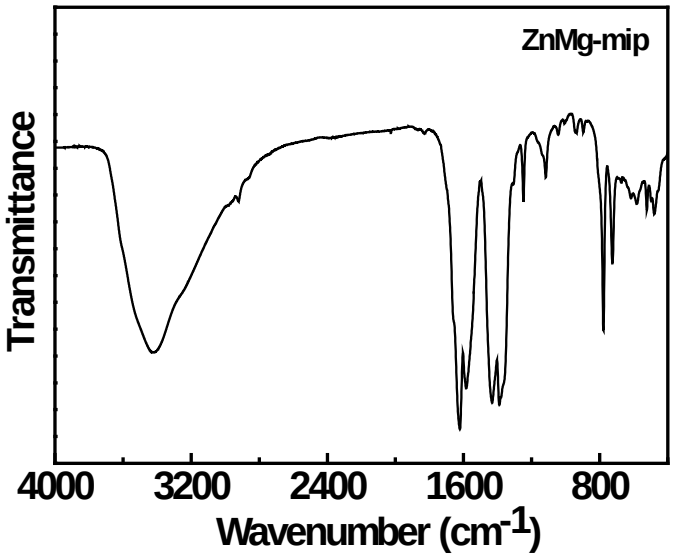

**ESI. 14** The excitation spectrum for **ZnBa-tbip**



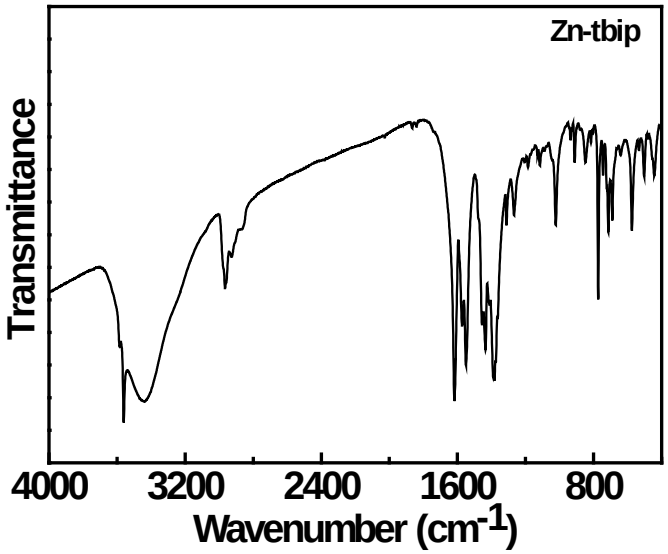

**ESI. 15** The emission spectra excited at 315 nm for the free ligands $H_2$mip and $H_2$tbip.



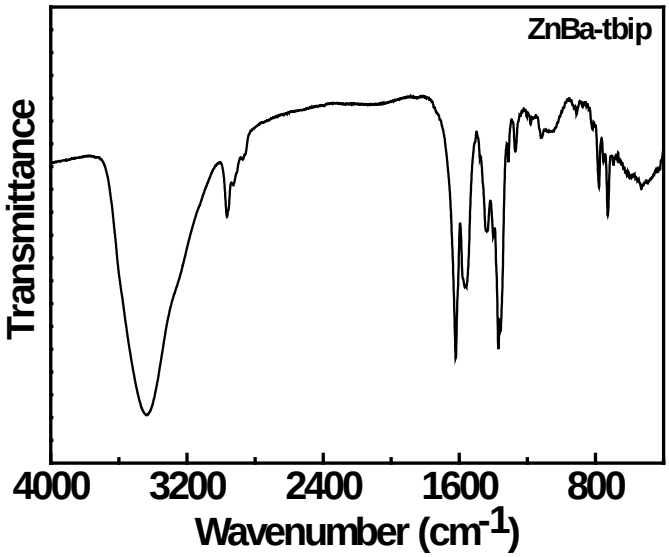

**ESI. 16** FT-IR spectrum for MOF **Zn-mip.**




**ESI. 17** FT-IR spectrum for MOF **ZnMg-mip.**




**ESI. 18** FT-IR spectrum for MOF **Zn-tbip.**




**ESI. 19** FT-IR spectrum for MOF **ZnBa-tbip.**