Electronic Supplementary Information (ESI)

Influence of solvents and assembly methods on the supramolecular patterns and luminescent properties of organic salts comprising 4,4'-dihydroxybiphenyl-3,3'-disulfonate and triphenylmethanaminium

Ya-Nan Li, Li-Hua Huo, Yi-Zhe Yu, Fa-Yuan Ge, Zhao-Peng Deng,* Zhi-Biao Zhu and Shan Gao*

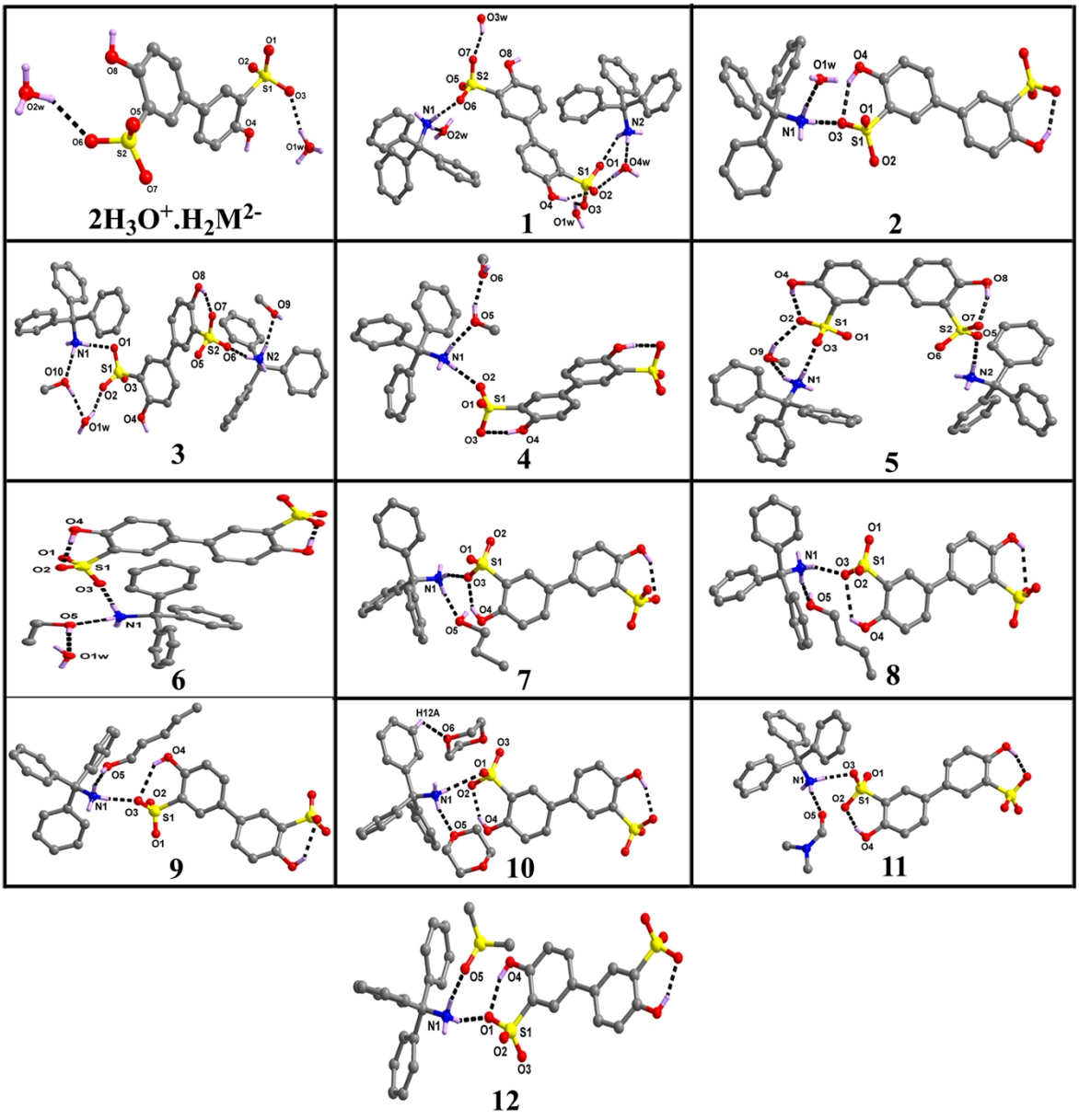

Fig. S1 Structures of $2(H_3O)^{+}\cdot(H_2M)^{2-}$ and salts **1**-**12** with the hydrogen-bonding interactions denoted as black dashed lines.

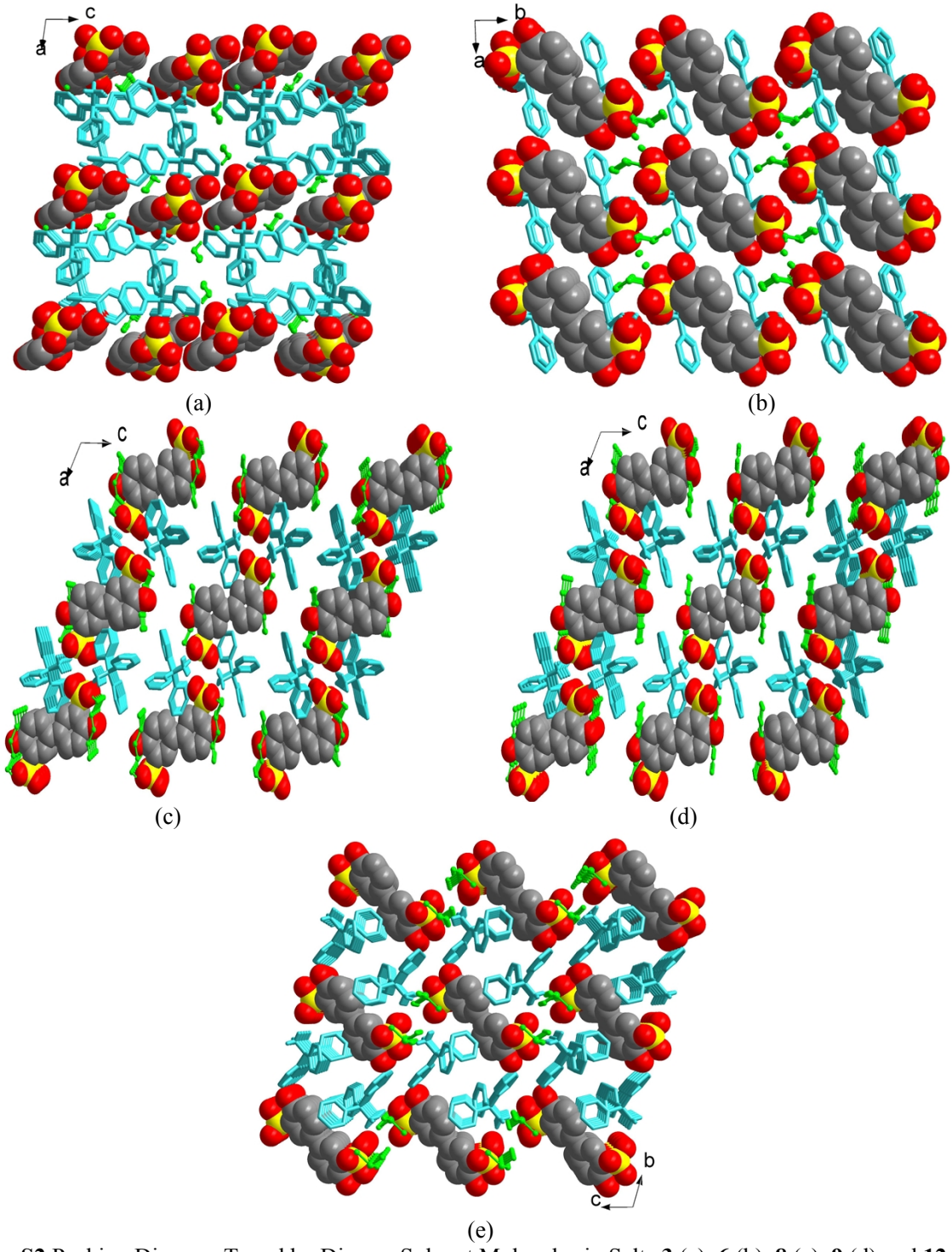

Fig. S2 Packing Diagram Tuned by Diverse Solvent Molecules in Salts **3** (a), **6** (b), **8** (c), **9** (d) and **12** (e).

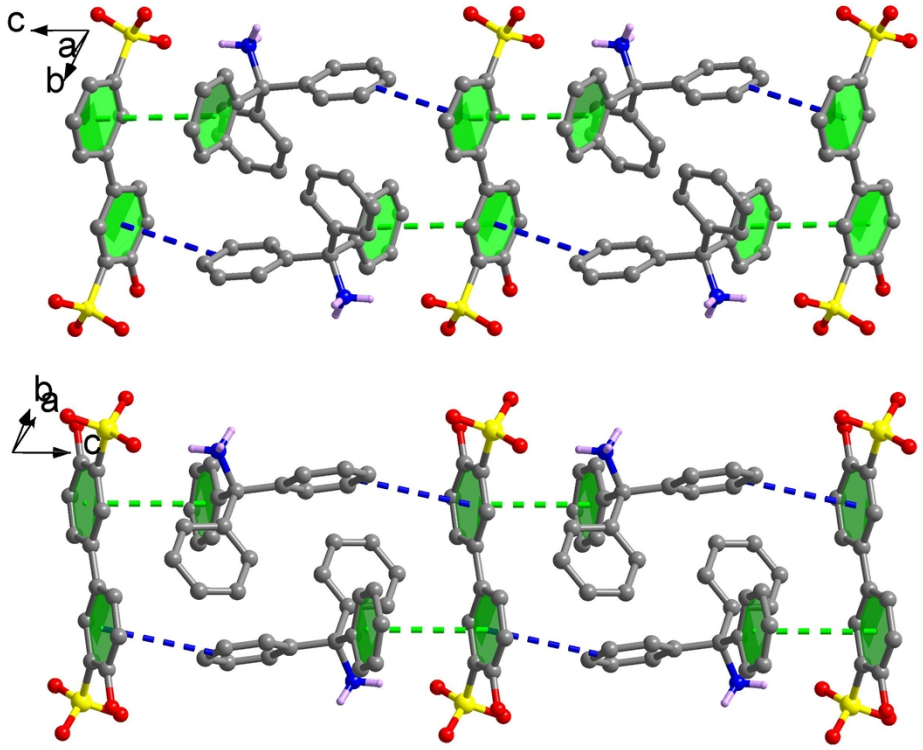

Fig. S3 Side-to-plane (blue dashed lines) and plane-to-plane (green dashed lines) π···π interactions between $HTPMA^{+}$ cations and H_2M^{2-} dianions in salts **4** (top) and **6** (down).

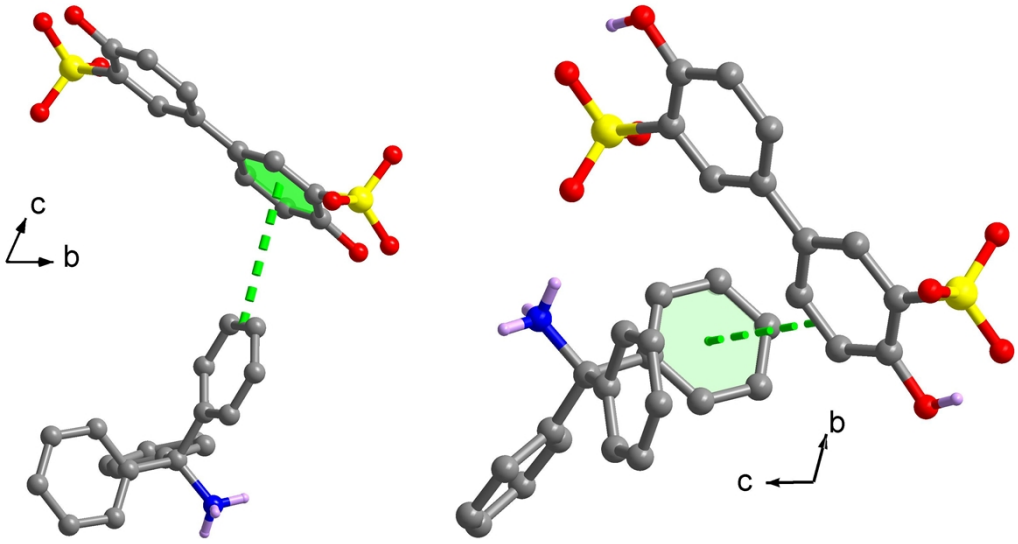

Fig. S4 Side-to-plane π···π interactions (green dashed lines) between $HTPMA^{+}$ cations and H_2M^{2-} dianions in salts **10** (left) and **12**(right).

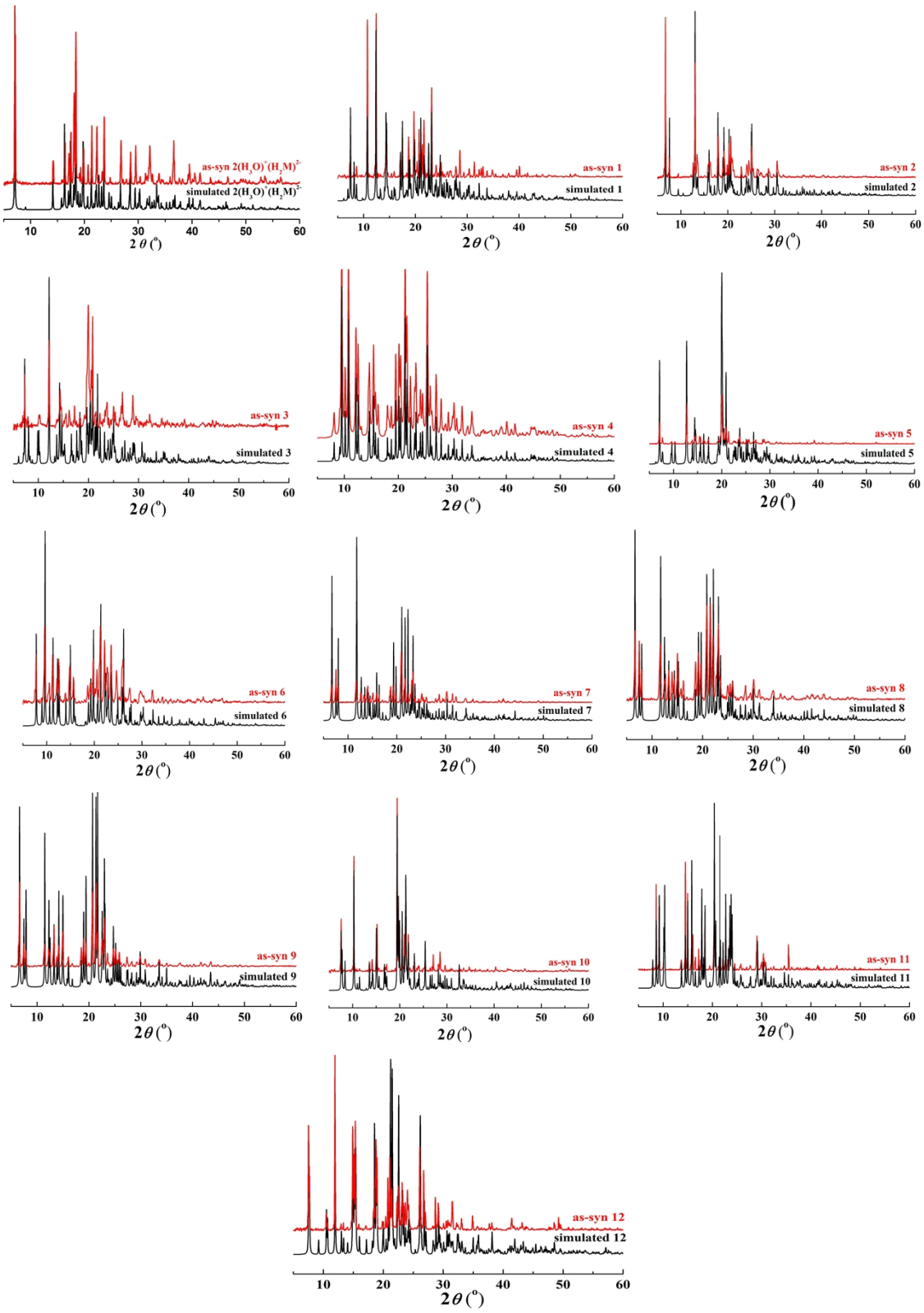

Fig. S5 PXRD patterns of $2(H_3O)^{+}\cdot(H_2M)^{2-}$ and salts **1**-**12**.

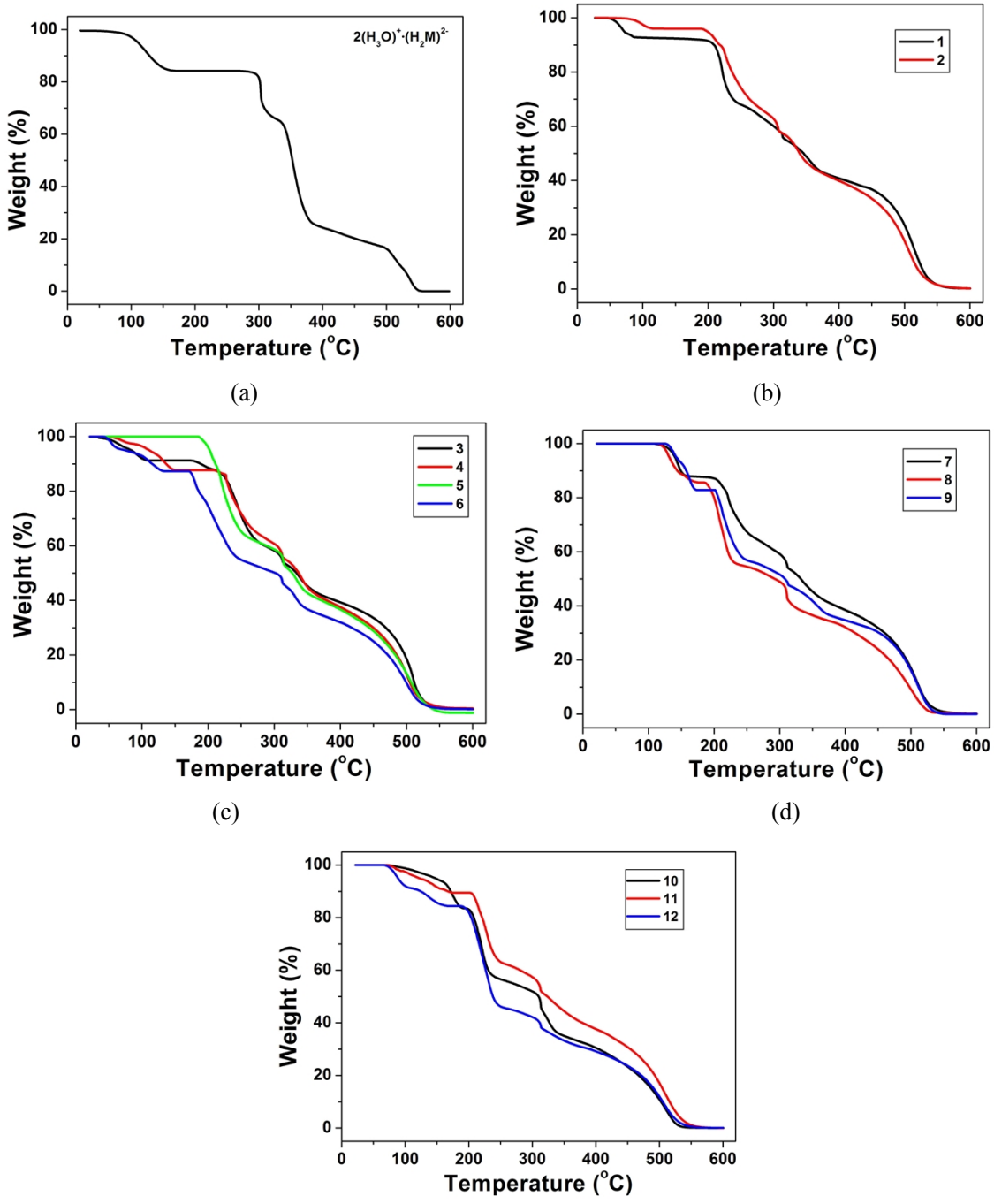

Fig. S6 TG curves of $2(H_3O)^{+}\cdot(H_2M)^{2-}$ (a), salts **1**, **2** (b), **3-6** (c), **7-9** (d) and **10-12** (e).

Electronic Supplementary Information for RSC Advances

Thermogravimetric analysis (TGA)

To examine the thermal stability, powder X-ray diffraction (PXRD) patterns for solid samples of $2(H_3O)^{+}\cdot(H_2M)^{2-}$ and salts **1-12** are firstly measured at room temperature as illustrated in Fig. S6. The patterns are highly similar to their simulated ones (based on the single-crystal X-ray diffraction data), indicating that the single-crystal structures are really representative of the bulk of the corresponding samples. Their stabilities were analyzed on crystalline samples by thermogravimetric analyses (TGA) from room temperature to 600 °C at a rate of 10 °C min^{-1}, under air. As shown in Fig. S6, $2(H_3O)^{+}\cdot(H_2M)^{2-}$ and salts **1-12** exhibit the similar weight loss with the first step corresponding to the release of solvent molecules which occurred in the range of 70-156, 50-98, 80-120, 50-102, 58-147, 50-130, 110-160, 115-168, 128-180, 80-187, 75-173 and 66-168 °C, respectively. The observed weight loss of 9.92% in $2(H_3O)^{+}\cdot(H_2M)^{2-}$, 7.81% in **1**, 3.87% in **2**, 8.53% in **3**, 12.83% in **4**, 12.98% in **6**, 12.07% in **7**, 14.77% in **8**, 17.05% in **9**, 16.82% in **10**, 10.72% in **11** and 15.41% in **12** is reasonably close to their calculated value (9.94% in $2(H_3O)^{+}\cdot(H_2M)^{2-}$, 7.69% in **1**, 3.92% in **2**, 8.67% in **3**, 12.90% in **4** and **6**, 12.20% in **7**, 14.63% in **8**, 16.93% in **9**, 16.92% in **10**, 10.89% in **11** and 15.30% in **12**). Then, the following weight losses for $2(H_3O)^{+}\cdot(H_2M)^{2-}$ and the eleven salts indicated the decomposition of the organic components. Different from the above twelve salts, salt **5** exhibits nearly one loss step from 182 to 556 °C, in which all the organic components decomposed gradually.

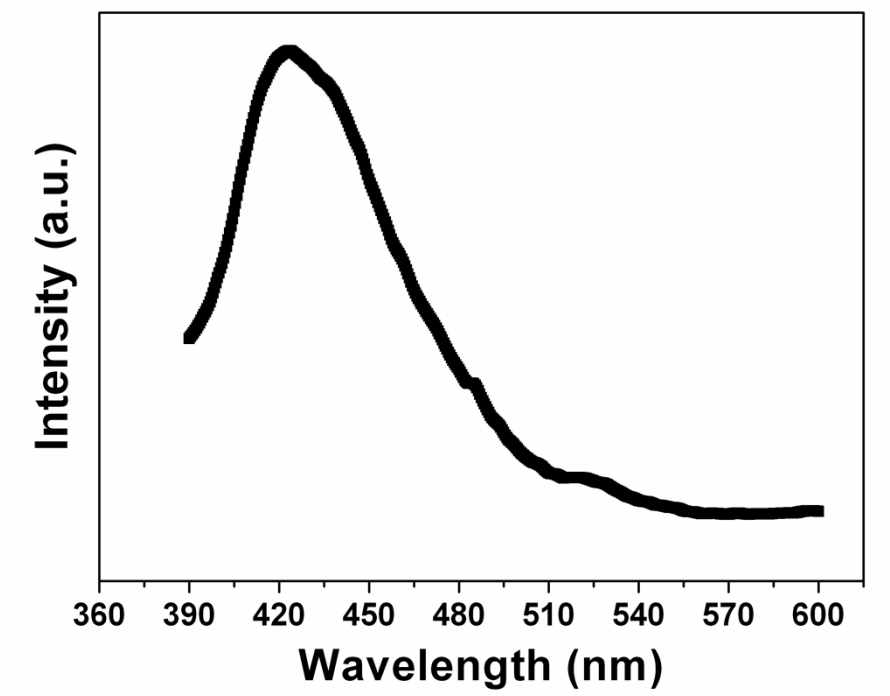

Fig. S7 Emission spectrum of TPMA in the solid-state at room temperature.