AIE-active Ir(III) complexes with tunable emissions, mechanoluminescence and the application for data security protection

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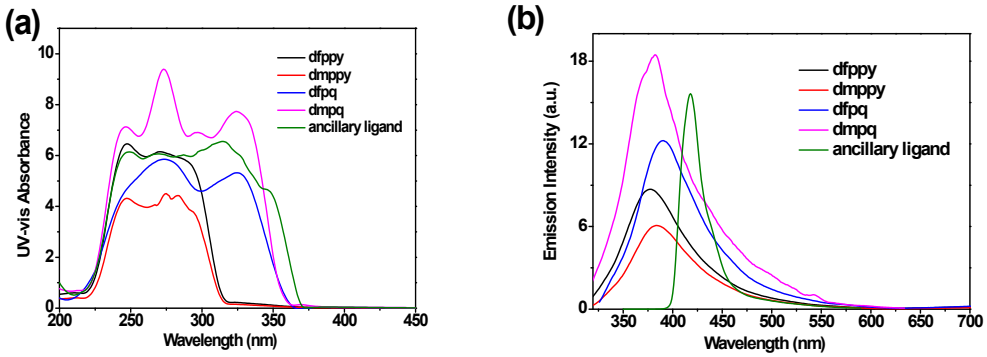
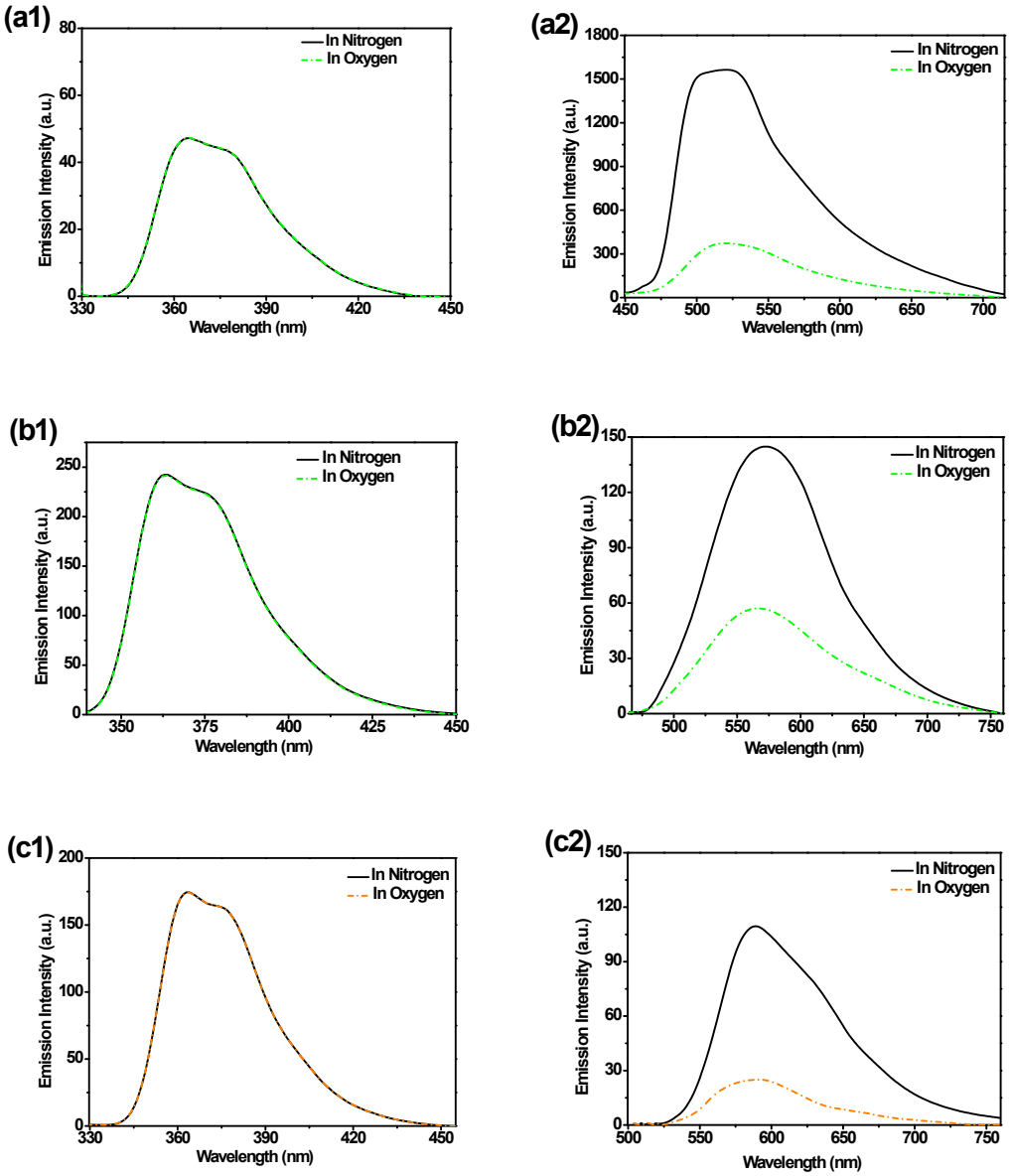


Fig. S1 Absorption and emission spectra of ligands in CH_2Cl_2 solution at room temperature.



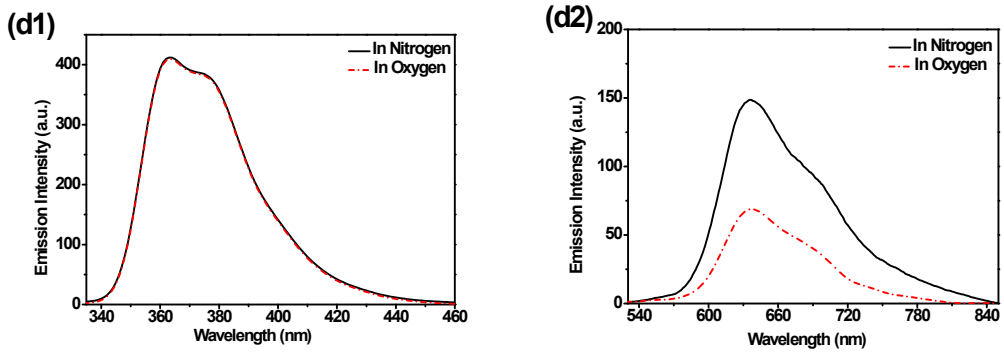


Fig. S2 Emission spectra of complexes **1** (a1, a2), **2** (b1, b2), **3** (c1,c2) and **4** (d1,d2) in solution (MeCN/H_2O=1:9, v/v) under nitrogen and oxygen atmosphere, respectively.

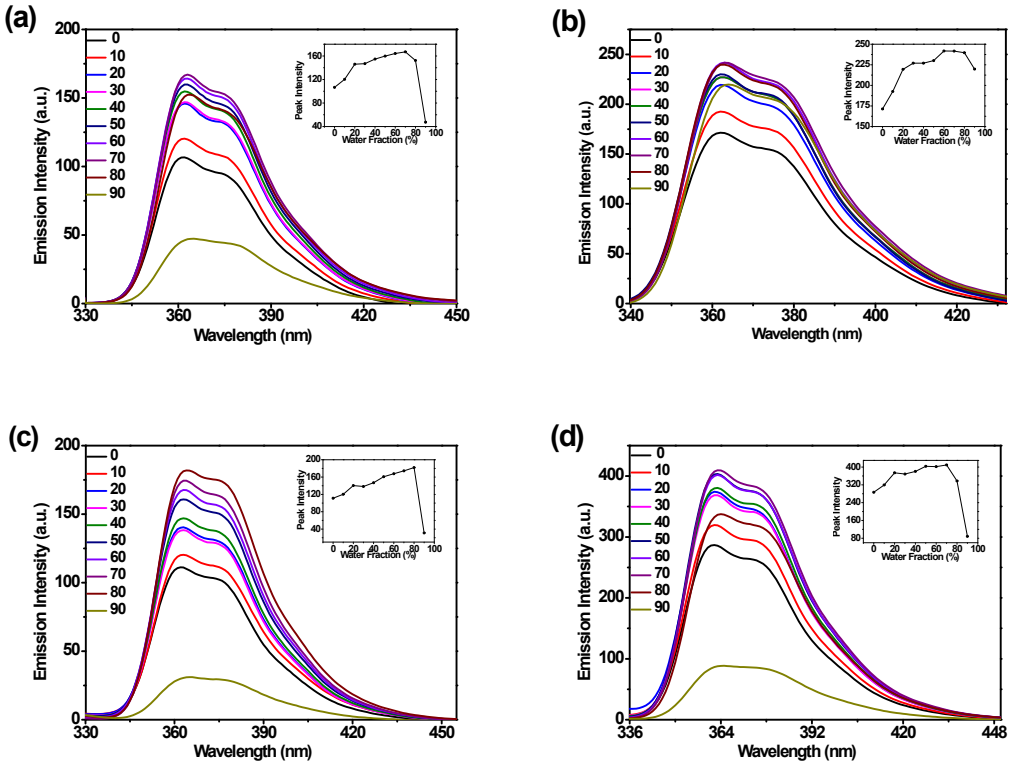


Fig. S3 Emission spectra of complexes **1**(a), **2** (b), **3**(c) and **4**(d) (c = 1.0 × 10^{-5} M) in MeCN/water mixtures with different water fraction (0-90%) (λ_{exc} = 271 nm for **1**; λ_{exc} = 298 nm for **2**; λ_{exc} = 298 nm for **3**; λ_{exc} = 298 nm for **4**). The insets and the photographs show the complexes in different water fraction mixtures under 365 nm UV illumination.

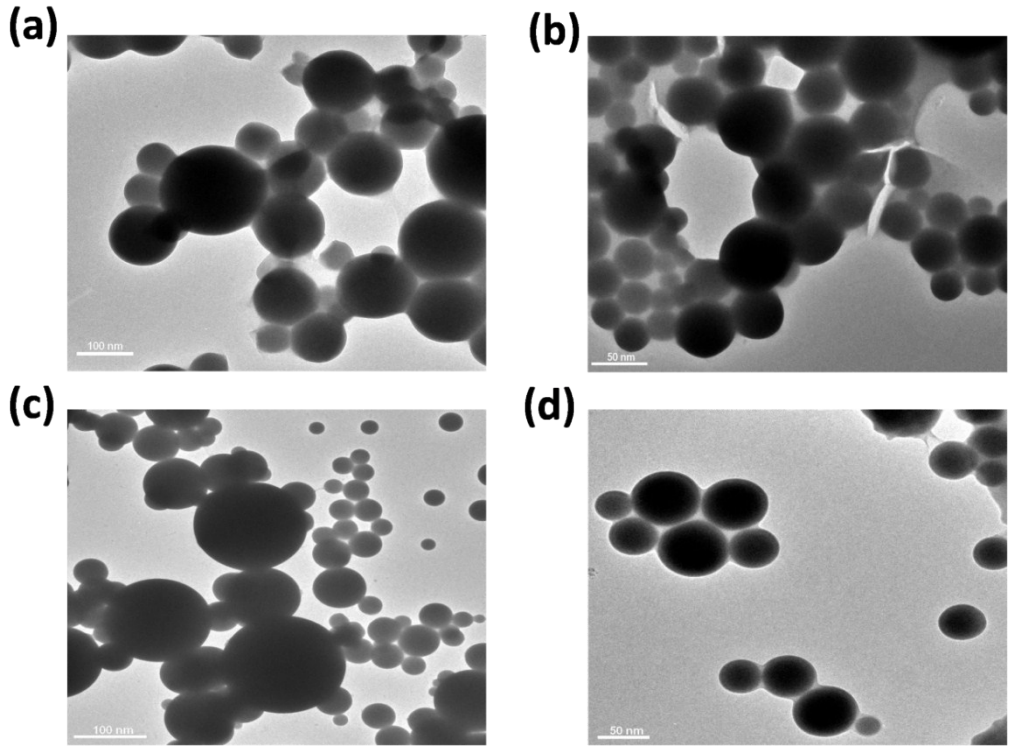


Fig. S4 Transmission electron microscopy (**TEM**) images of complexes **1** (a), **2** (b), **3** (c) and **4** (d) in MeCN/water mixture (3: 7, v/v).

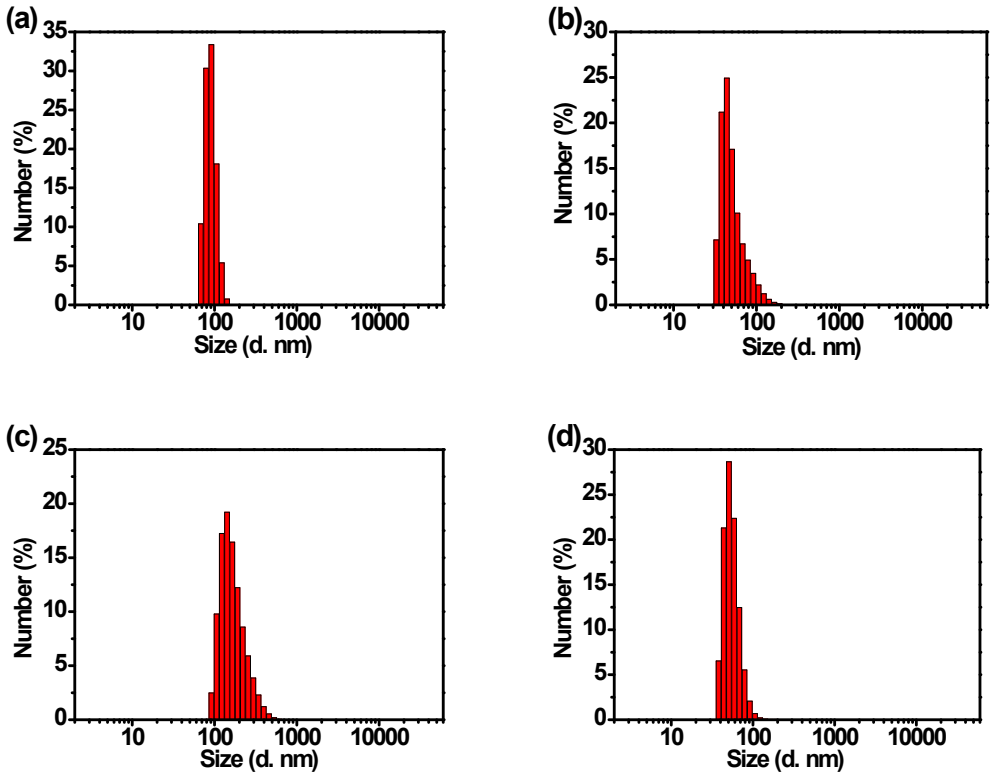


Fig. S5 Particle size distributions of complexes **1** (a), **2** (b), **3** (c) and **4** (d) in MeCN/water mixture (3: 7, v/v).

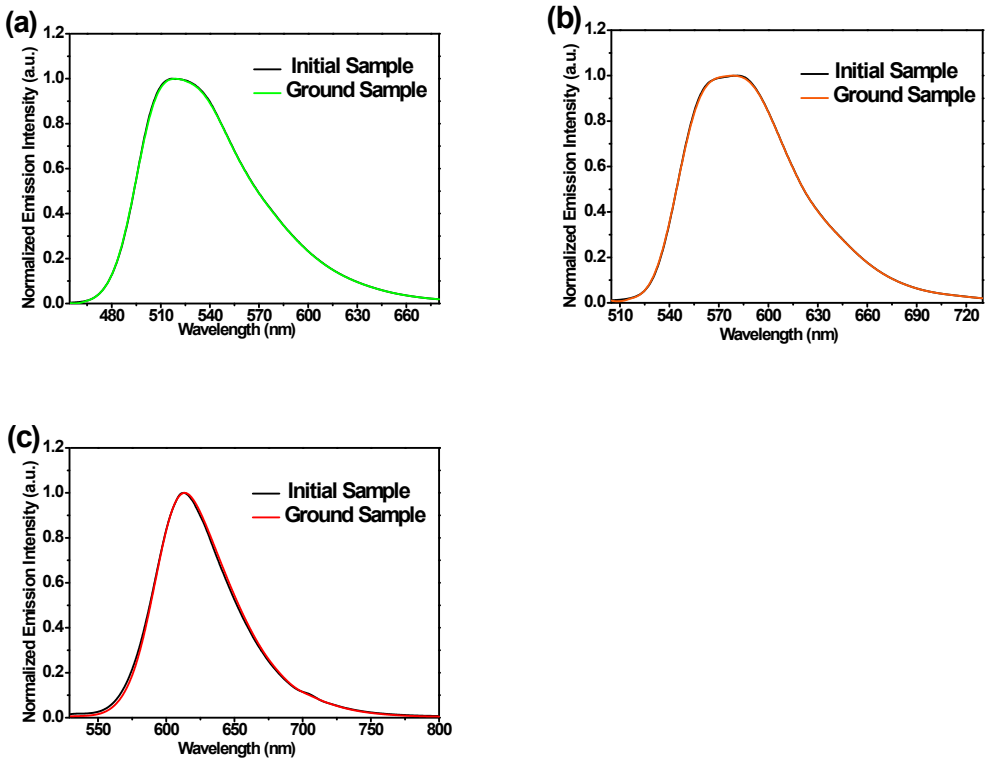


Fig. S6 Emission spectra of complexes **1**(a)**, 3**(b) and **4**(c) for initial and grinded samples in solid states (λ_{exc} = 396 nm for **1**; λ_{exc} = 429 nm for **3**; λ_{exc} = 360 nm for **4**)**.**

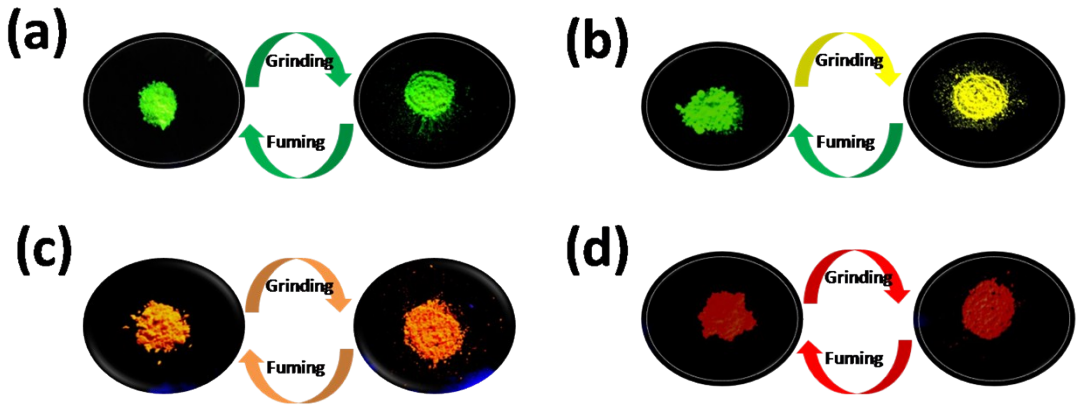


Fig. S7 Photographs of complexes**1** (a), **2** (b), **3** (c) and **4** (d) by reversible grinding-fuming under 365 nm UV illumination at room temperature.

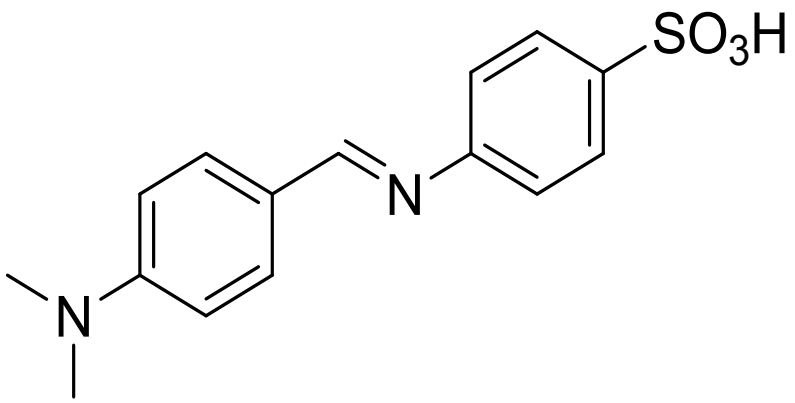


Fig. S8 Chemical structure of the dye (*E*)-4-sulphonic-4'-dimethylaminoazastilbene (**SDMAB**) used in this study.

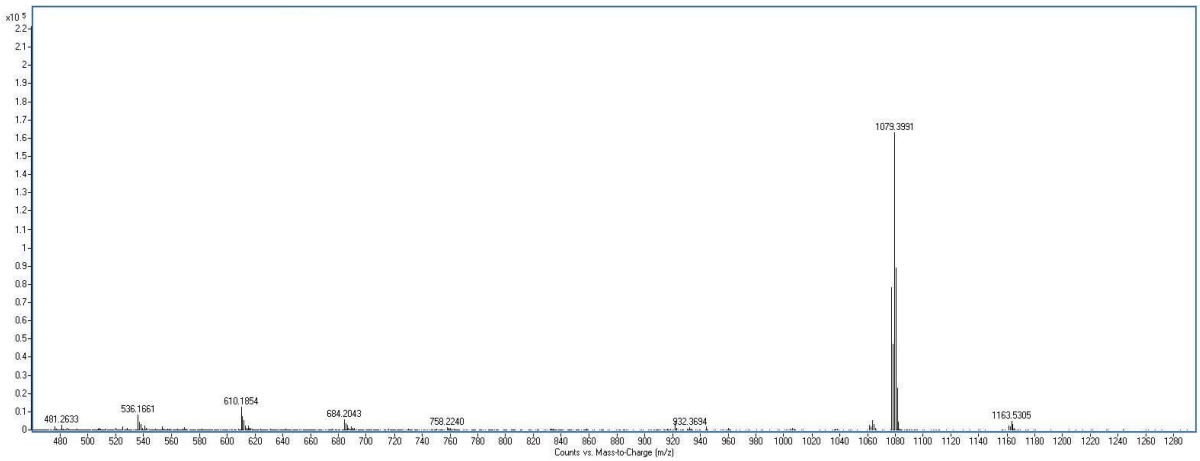


Fig. S9 HRMS (ESI-TOF) spectrum of complex **1**.

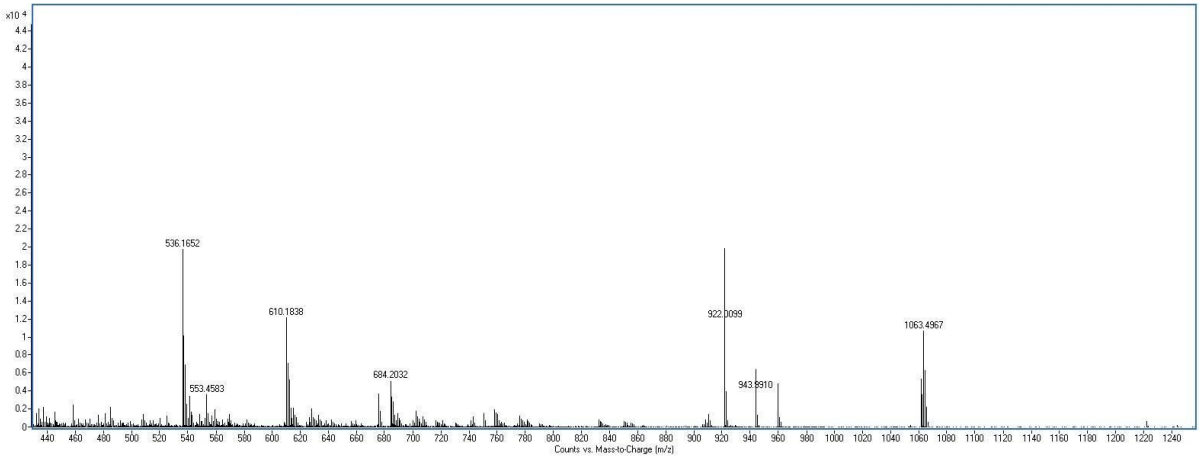


Fig. S10 HRMS (ESI-TOF) spectrum of complex **2**.

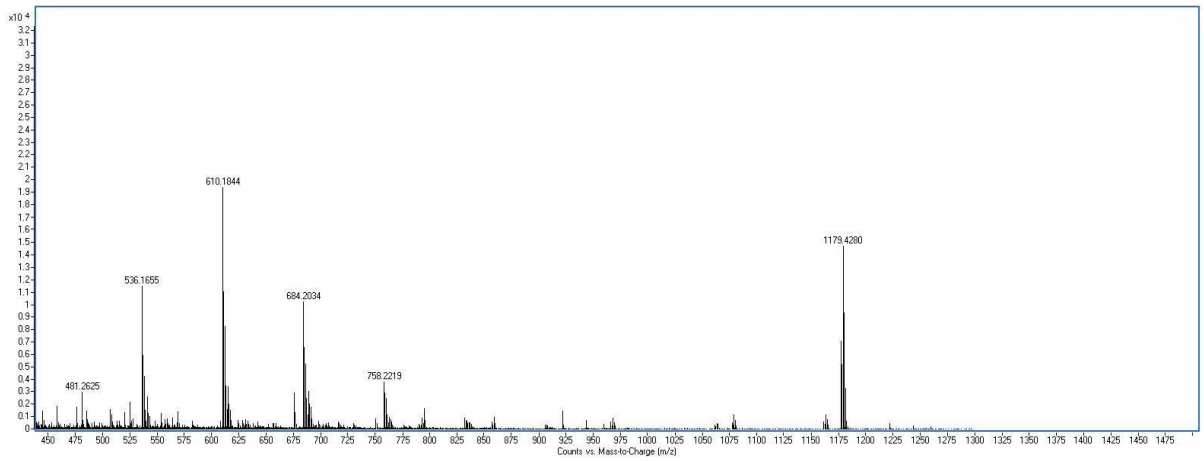


Fig. S11 HRMS (ESI-TOF) spectrum of complex **3**.

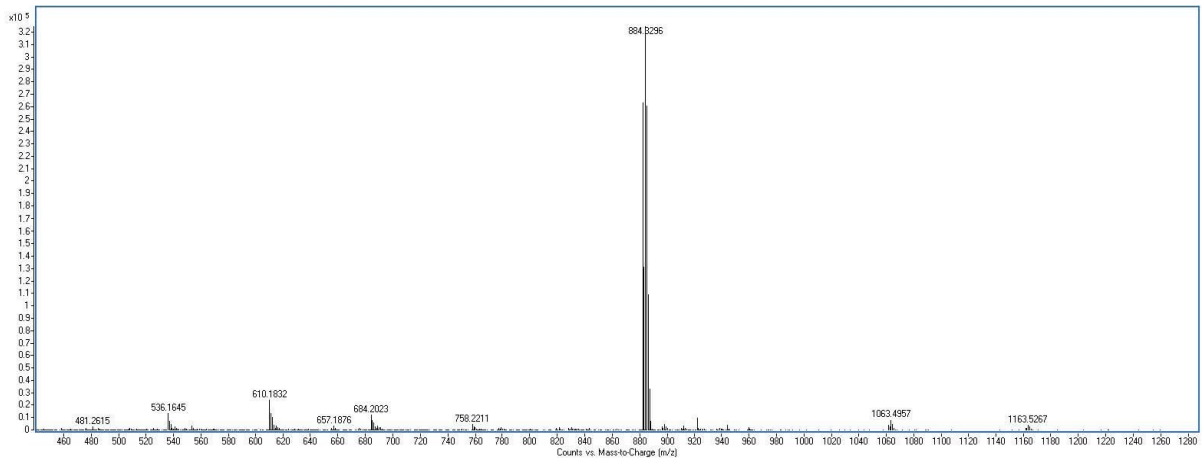


Fig. S12 HRMS (ESI-TOF) spectrum of complex **4**.