Supporting Information for

Discrete Polynuclear Manganese Nanorods: Syntheses, Crystal Structures and Magnetic Properties

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1. ^{1}H NMR spectra

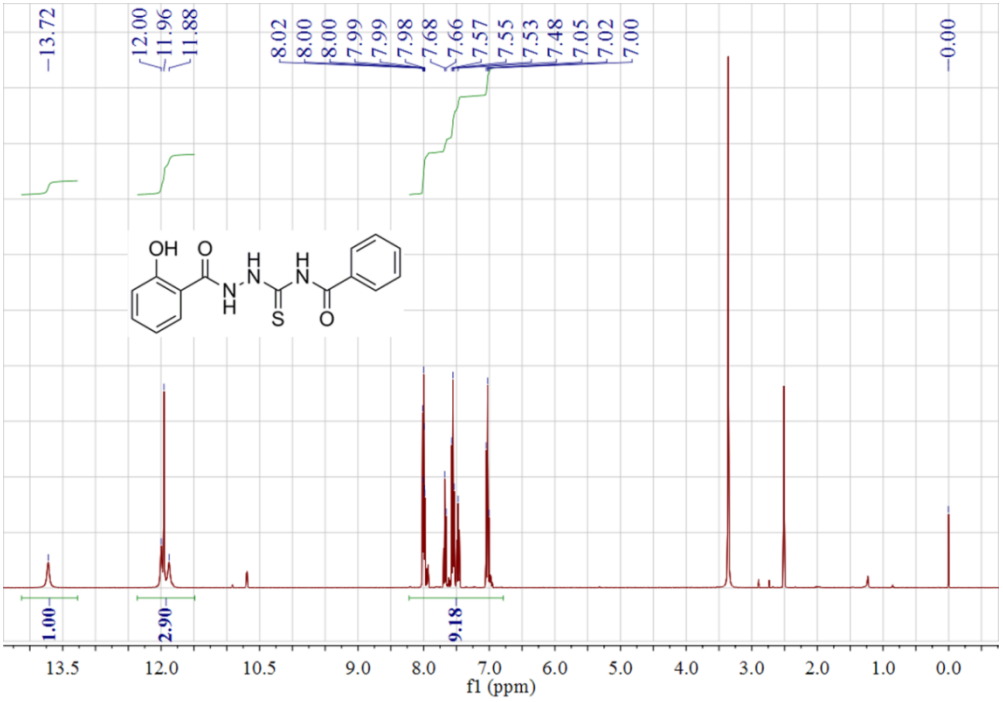

Figure S1. ^{1}H NMR spectrum of L1 in DMSO-d_6 (400 MHz, 293 K).

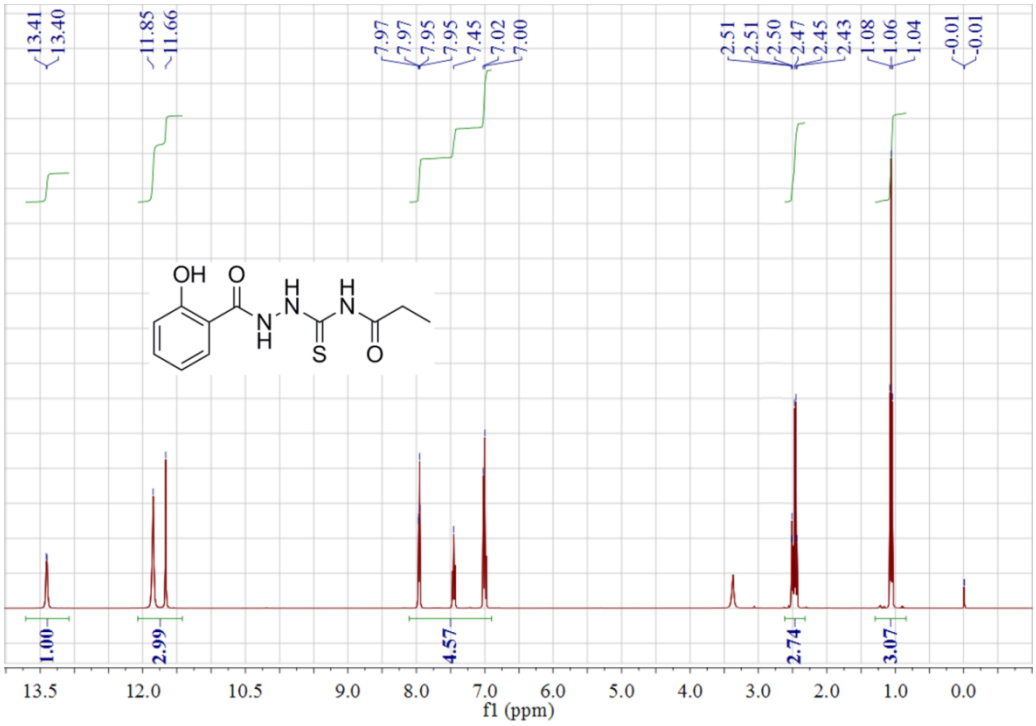

Figure S2. ^{1}H NMR spectrum of L2 in DMSO-d_6 (400 MHz, 293 K).

2. High-resolution mass spectra

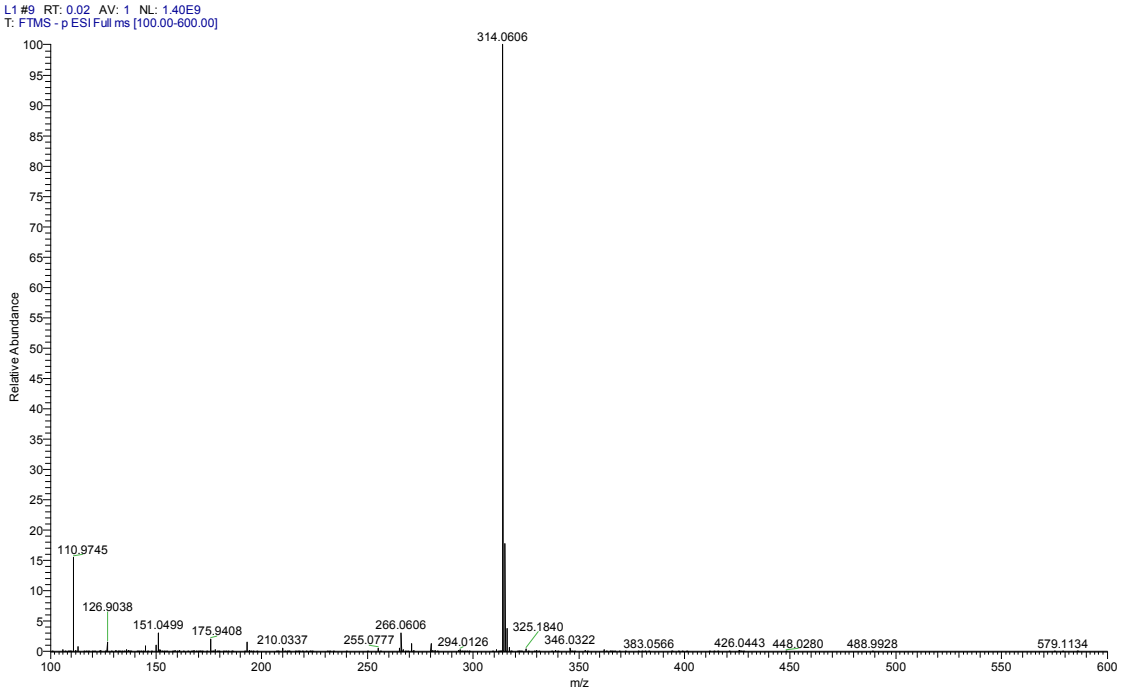

Figure S3. The High-resolution mass spectrum for L1

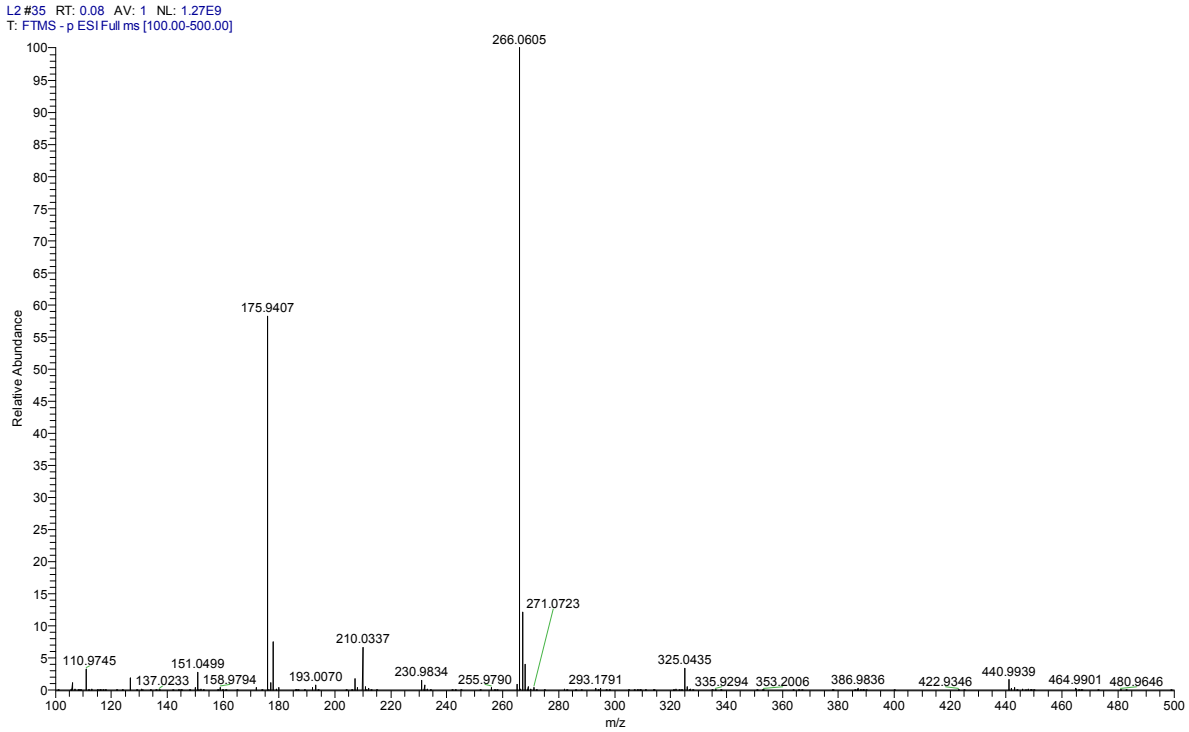

Figure S4. The High-resolution mass spectrum for L2

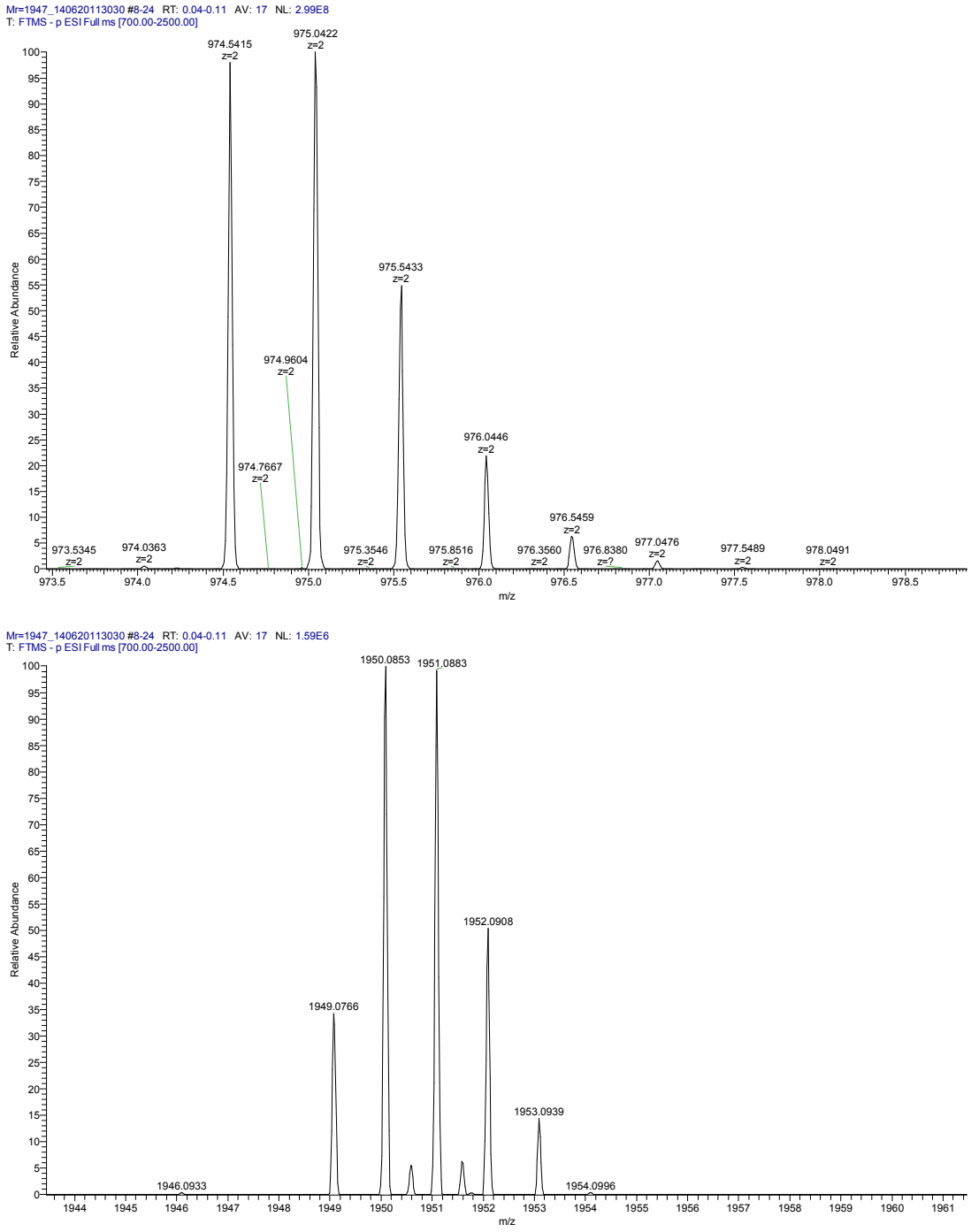

Figure S5. The High-resolution mass spectra for complex **1a** at 293 K.

3. Powder X-ray Diffraction Studies

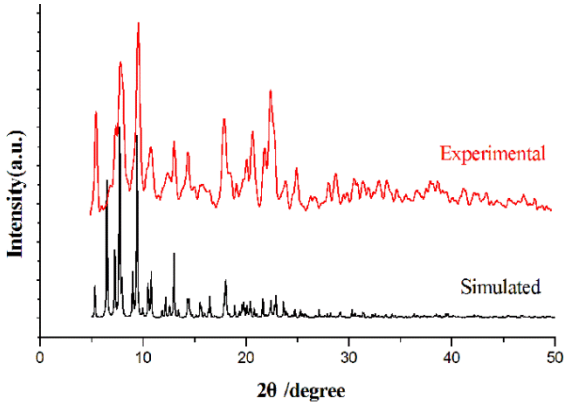

Figure S6. Comparison of the simulated and experimental PXRD for **1a**.

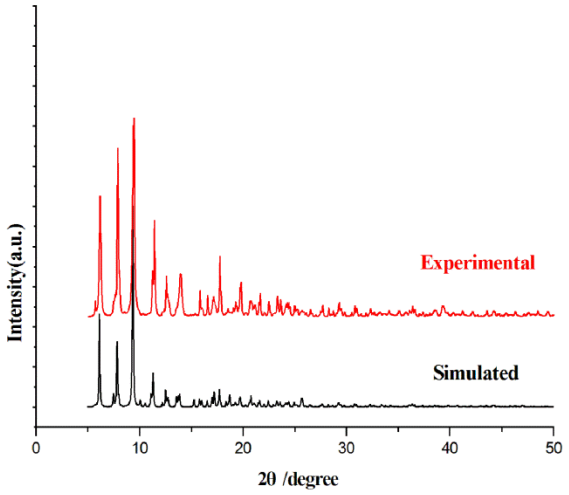

Figure S7. Comparison of the simulated and experimental PXRD for **1b**.

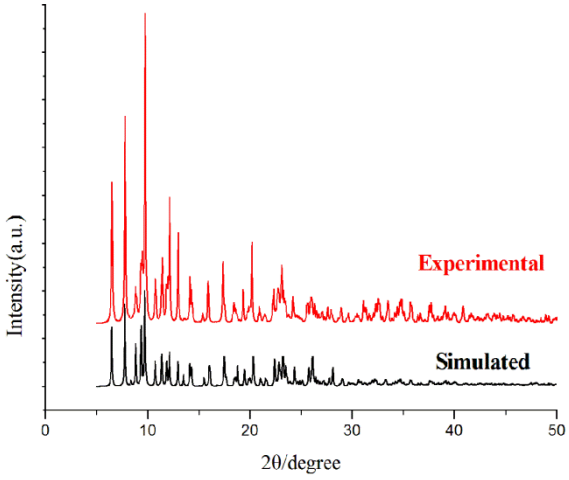

Figure S8. Comparison of the simulated and experimental PXRD for **2**.

4. Single Crystal Structures

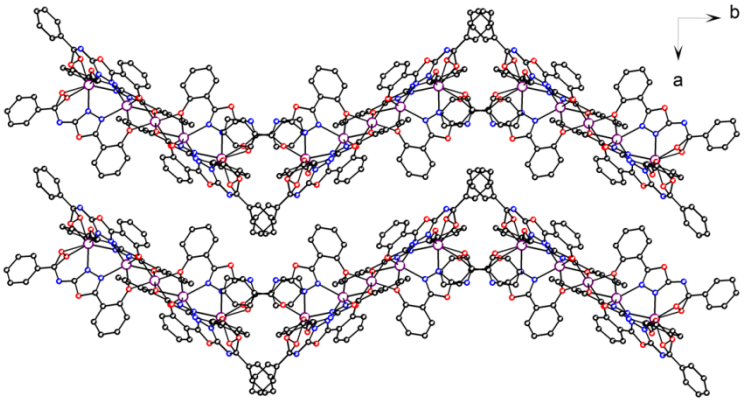

Figure S9. A packing diagram of complex **1a** along the *c* axis

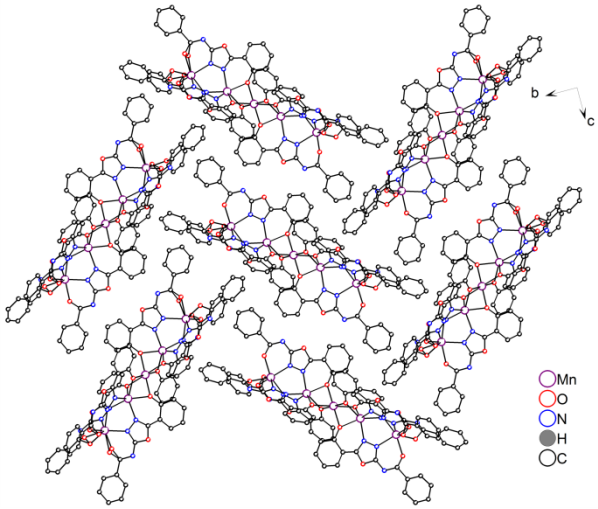

Figure S10. A packing diagram of complex **1a** along the *a* axis

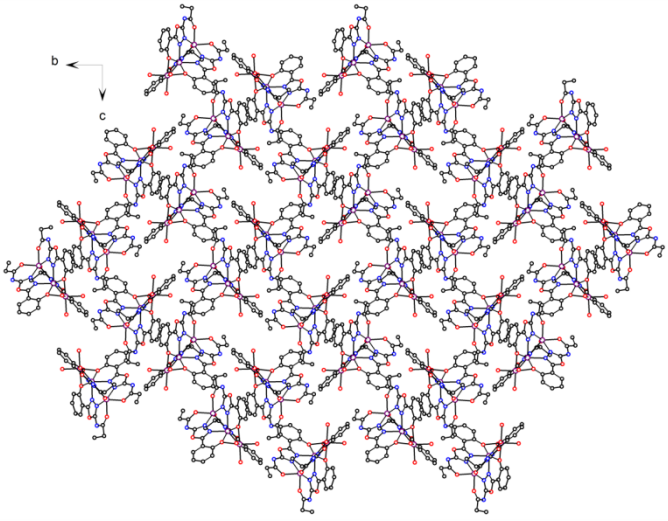

Figure S11. A packing diagram of complex **2** along the *a* axis

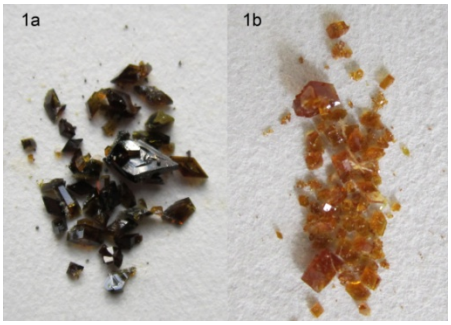

Figure S12. Photographic of the crystalline complex **1a** and **1b**

Table S1. Selected bond lengths (Å) for **1a**

Bonds	Dist. (Å)	Bonds	Dist. (Å)
Mn1—O7	2.180 (3)	Mn3—O3A	2.143 (6)
Mn1—O7^{i}	2.180 (3)	Mn3—O9A	2.143 (6)
Mn1—O4^{i}	2.195 (3)	Mn3—O9B	2.156 (12)
Mn1—O4	2.195 (3)	Mn3—N5	2.222 (4)
Mn1—O1	2.197 (3)	Mn3—N2	2.228 (4)
Mn1—O1^{i}	2.197 (3)	Mn3—N8	2.232 (4)
Mn2—O7	2.162 (3)	Mn4—O13	0.952 (9)
Mn2—O4	2.168 (3)	Mn4—O13^{ii}	0.952 (9)
Mn2—O1	2.180 (3)	Mn4—O10	2.125 (13)
Mn2—N1	2.215 (4)	Mn4—O10^{ii}	2.125 (13)
Mn2—N4	2.222 (4)	Mn4—O11	2.174 (12)
Mn2—N7	2.246 (4)	Mn4—O11^{ii}	2.174 (11)
Mn3—O6A	2.098 (6)	Mn4—O12^{ii}	2.250 (6)
Mn3—O3B	2.120 (12)	Mn4—O12	2.250 (6)
Mn3—O6B	2.130 (11)		

Symmetry codes: (i) −*x*+1, −*y*, −*z*+1; (ii) −*x*+2, −*y*, −*z*+2.

Table S2. Selected bond lengths (Å) for **1b**

Bonds	Dist. (Å)	Bonds	Dist. (Å)
Mn1—O1^{i}	2.172 (3)	Mn2—N4	2.212 (4)
Mn1—O1	2.172 (3)	Mn2—N1	2.221 (4)
Mn1—O7^{i}	2.179 (3)	Mn2—N7	2.237 (3)
Mn1—O7	2.179 (3)	Mn3—O6	2.134 (3)
Mn1—O4^{i}	2.198 (3)	Mn3—O3	2.139 (3)
Mn1—O4	2.198 (3)	Mn3—O9	2.165 (3)
Mn1—Mn2	3.0033 (9)	Mn3—N8	2.238 (4)
Mn2—O4	2.160 (3)	Mn3—N5	2.246 (4)
Mn2—O7	2.175 (3)	Mn3—N2	2.252 (4)
Mn2—O1	2.176 (3)		

Symmetry code: (i) −x+1, −y, −z+1.

Table S3. Selected bond lengths (Å) for **2**

Bonds	Dist. (Å)	Bonds	Dist. (Å)
Mn1—O2	2.138 (7)	Mn2—N1	2.222 (8)
Mn1—O1	2.162 (8)	Mn2—N3	2.231 (9)
Mn1—O4	2.172 (7)	Mn2—N5	2.244 (8)
Mn1—O6	2.183 (7)	Mn3—O9	2.138 (8)
Mn1—O3	2.210 (8)	Mn3—O8	2.144 (8)
Mn1—O5	2.248 (7)	Mn3—O7	2.153 (9)
Mn1—Mn2	3.025 (2)	Mn3—N2	2.227 (9)
Mn2—O4	2.155 (7)	Mn3—N6	2.231 (9)
Mn2—O5	2.173 (7)	Mn3—N4	2.273 (9)
Mn2—O6	2.188 (7)		

5. Field-dependent magnetization

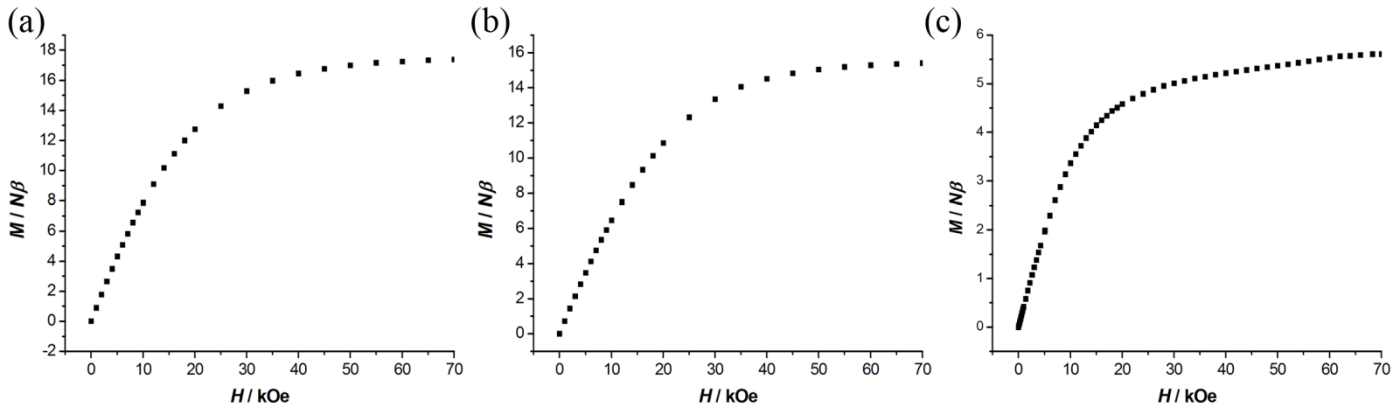

Figure S13. Field-dependent magnetizations of **1a** (a), **1b** (b) and **2** (c) at 2 K.